

RADFORD ARMY AMMUNITION PLANT, VIRGINIA

Building 4343 Interim Measures Completion Report



Prepared for:

USACE Baltimore District
10 S. Howard St.
Baltimore, MD 21201



Prepared by:

Shaw Environmental, Inc.
2113 Emmorton Park Rd.
Edgewood, MD 21040

Final Document

April 2007



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

June 8, 2007

received
6-14-07

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C: Joet
Lockard
Holler
Gleit
EW file

Commander,
Radford Army Ammunition Plant
Attn: SJMRF-OP-EQ (Jim McKenna)
P.O. Box 2
Radford, VA 24141-0099

P.W. Holt
Environmental Manager
Alliant Techsystems, Inc.
Radford Army Ammunition Plant
P.O. Box 1
Radford, VA 24141-0100

Re: Radford Army Ammunition Plant, Va.
Building 4343
Review of the Army's Interim Measures Completion Report

Dear Mr. McKenna and Ms. Holt:

The U.S. Environmental Protection Agency (EPA) has reviewed the U.S. Army's (Army's) April, 2007 Interim Measures Completion Report for Building 4343, located at the Radford Army Ammunition Plant (RFAAP). Based upon our review, the report is approved, and in accordance with Part II. (E) (5) of RFAAP's Corrective Action Permit, it can now be considered final.

If you have any questions, please call me at 215-814-3413. Thanks.

Sincerely,

William Geiger
RCRA Project Manager
General Operations Branch (3WC23)

cc: Russell Fish, EPA
James Cutler, VDEQ
Leslie Romanchik, VDEQ



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Radford Army Ammunition Plant
Route 114, P.O. Box 1
Radford, VA 24143-0100
USA

April 17, 2007

Mr. William Geiger
RCRA General Operations Branch, Mail Code: 3WC23
Waste and Chemicals Management Division
U. S. Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103-2029

Subject: Certification for Building 4343
Interim Measures Completion Report, Final Document, April 2007
Radford Army Ammunition Plant Installation Action Plan
EPA ID# VA1 210020730


Dear Mr. Geiger:

Enclosed is the certification for the subject document that was sent to you on April 17, 2007.

The subject report documents the effort to meet the site specific procedures in the Building 4343 Interim Measures Work Plan, Final Document, October 2006. Note the work plan was prepared in accordance with the recommendations from the Building 4343 RCRA Facility Investigation/Corrective Measures Study Report, Final Document, February 2004 for final disposition of this site. Therefore we believe no further work is needed at the former Building 4343, Area of Concern.

Please coordinate with and provide any questions or comments to myself at (540) 639-8658, Jerry Redder of my staff (540) 639-7536 or Jim McKenna, ACO Staff (540) 639-8641.

Sincerely,


P.W. Hoyt, Environmental Manager
Alliant Techsystems Inc.

c: Russell Fish, P.E., EPA Region III, 3WC23

Jim Cutler
Virginia Department of Environmental Quality
P. O. Box 10009
Richmond, VA 23240-0009

Durwood Willis
Virginia Department of Environmental Quality
P. O. Box 10009
Richmond, VA 23240-0009

E. A. Lohman
Virginia Department of Environmental Quality
West Central Regional Office
3019 Peters Creek Road

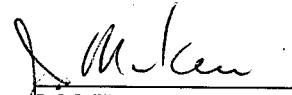
Rich Mendoza
U.S. Army Environmental Command
1 Rock Island Arsenal
Bldg 60, 3rd Fl, NW Wing
Room 320 (IMAE-CDN)
Rock Island, Illinois 61299

Dennis Druck
U.S. Army Center for Health Promotion and Preventive Medicine
5158 Blackhawk Road, Attn: MCHB-TS-REH
Aberdeen Proving Ground, MD 21010-5403

Tom Meyer
Corps of Engineers, Baltimore District
ATTN: CENAB-EN-HM
10 South Howard Street
Baltimore, MD 21201

bc: Administrative File
J. McKenna, ACO Staff
Rob Davie-ACO Staff
P. W. Holt
J. J. Redder
Env. File

Coordination:

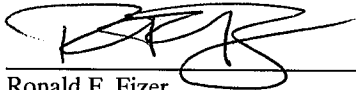

J. McKenna

Concerning the following:

Building 4343
Interim Measures Completion Report
Final Document, April 2007
Radford Army Ammunition Plant


I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

SIGNATURE:
PRINTED NAME:
TITLE:



Ronald F. Fizer
Lieutenant Colonel, US Army
Commanding Officer

SIGNATURE:
PRINTED NAME:
TITLE:



Kept Holiday
Vice President and General Manager
ATK Energetics Systems Division



Radford Army Ammunition Plant
Route 114, P.O. Box 1
Radford, VA 24143-0100
USA

April 17, 2007

Mr. William Geiger
RCRA General Operations Branch, Mail Code: 3WC23
Waste and Chemicals Management Division
U. S. Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103-2029

Subject: Building 4343 Interim Measures Completion Report
Final Document, April 2007
Radford Army Ammunition Plant Installation Action Plan
EPA ID# VA1 210020730


Dear Mr. Geiger:

Enclosed is one copy of the subject document that has been revised to address the comments from your April 3, 2007 letter. Also enclosed is a response to those comments. Your additional four copies and the certification will be sent under separate cover. Also under separate cover one copy each will be sent to the distribution below.

The subject report documents the effort to meet the site specific procedures in the Building 4343 Interim Measures Work Plan, Final Document, October 2006. Note the work plan was prepared in accordance with the recommendations from the Building 4343 RCRA Facility Investigation/Corrective Measures Study Report, Final Document, February 2004 for final disposition of this site. Therefore we believe no further work is needed at the former Building 4343, Area of Concern.

Please coordinate with and provide any questions or comments to myself at (540) 639-8658, Jerry Redder of my staff (540) 639-7536 or Jim McKenna, ACO Staff (540) 639-8641.

Sincerely,


P.W. Holt, Environmental Manager
Alliant Techsystems Inc.

c: Russell Fish, P.E., EPA Region III, 3WC23

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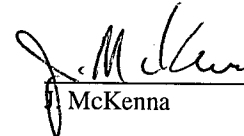
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bc: Administrative File
J. McKenna, ACO Staff
Rob Davie-ACO Staff
C. A. Jake
J. J. Redder
Env. File

Coordination:


McKenna

Response to USEPA Comments dated 3 April 2007

for

Draft Final Building 4343 Interim Measures Completion Report

Dated January 2007

USEPA Comment 1

It is recommended that more details with regard to completion be provided in Section 5.0 (Site Restoration and Demobilization), especially the final grading, asphalt repair and seeding. The photographic log should document completion of these activities. Also, please clarify if inspection of the area restored will be conducted to ensure grass has been established and that erosion of the disturbed areas is not occurring.

1.

Response

Additional details have been added to Section 5 – Site Restoration and Demobilization. Section 5.4 - Post Completion Inspection has also been added that details the results of Shaw's visit to the site on January 18, 2007. Photos from the January 18 visit that show the asphalt patch, and three views of the site that show the grass growing have been added to Appendix A – Photo Log. The revised Section 5 is presented below with changes highlighted in yellow.

5.0 SITE RESTORATION AND DEMOBILIZATION

This stage of the project commenced after the completion of the excavation and building demolition phases and the receipt of all analytical samples taken to confirm the areas of concern were completed and met the RG of 70.3 mg/kg for cadmium. This task included the backfill, topsoil and hydro-seeding of all excavated areas and the patching of the asphalt driveway disturbed during the removal of the 8-in. drainage pipe.

5.1 EXCAVATION BACKFILL AND FINAL GRADING

Certified clean general fill and top soil were obtained from a local contractor, Hodges Trucking of Christiansburg, Virginia. The borrow site was visited by site personnel and the material sampled and sent to a laboratory for analysis for target compound list (TCL) volatile organic compounds (VOCs), TCL semivolatile organic compounds (SVOCs), pesticides/PCBs, TAL metals and pH. Results from the samples indicated that VOCs, SVOCs, pesticides, and PCBs were not detected in either the topsoil or borrow material. Metals were present at levels below the RFAAP facility-wide background concentrations with the exception of beryllium. Beryllium concentrations were below the residential risk-based concentration. Results from the top soil and borrow material samples are presented in **Table 5-1**.

Upon receipt of the analytical results, the general fill material was transported to the site and placed using an excavator and a dozer in the excavation areas and compacted. The material was placed with the dozer and compacted using the excavator bucket. There were 53 loads or 636 cubic yards (CY) of general fill placed; it was estimated there were 12 CY per load hauled into the site. After completion of the placement of the general fill, an additional 49 loads or 539 CY of topsoil were hauled into the site again by Hodges Trucking. It was estimated that each load was approximately 11 CY. The top soil was placed over the general fill material in a one-foot lift and spread and graded using a John Deere 650 wide-track dozer. Final grading was performed so that the excavation was brought up-to-grade without the original process water ditch so that the

hill slopes uniformly from the former building location at the top of the hill to the former "delta" area at the base of the hill.

5.2 ASPHALT REPAIR

The asphalt was patched in the area where the asphalt was removed to excavate the pipe running under the driveway. A local subcontractor, Hodges Trucking, was hired to perform the asphalt patching activities. Prior to patching, the excavation was filled with clean, general fill and compacted using the excavator bucket. The area was then allowed to settle for approximately 10 days. The patching was performed on October 20, 2006. The asphalt patching subcontractor then re-compacted the area under the road with a vibratory plate compactor. A sub-base of crushed stone was laid down on top of the compacted fill and compacted again with the plate compactor. Asphalt was placed over the sub-base and rolled to compact and smooth the final patch. The patched area is shown in the photo-log on page six in **Appendix A**.

5.3 HYDRO-SEEDING

After the backfill of the excavation and placement of top soil was complete, Shaw subcontracted with a local, small business (Gregory Seeding of Pulaski, Virginia) to hydro-seed and mulch the entire 2.5-acre area, which was disturbed during site activities. Hydro-seeding is a process in which grass seed, fertilizer and mulch are applied suspended in a liquefied slurry and is typically sprayed onto the ground surface. Hydro-seeding at the Building 4343 project site was performed on October 19, 2006 and was finished in a single day. The results of the hydro-seeding can be seen in the photos on page six of the photo-log on **Appendix A**.

5.4 POST COMPLETION INSPECTION

An inspection was performed at the site on January 18, 2007, approximately 90 days after completion of the site restoration activities. The purpose of the inspection was to ensure that grass was growing and that the excavated areas were not eroding. At the time of the inspection, grass was established and growing in the hydro-seeded area and the hillside appeared to be stable (see photos on page 6 of the photo log in **Appendix A**). Additional sediments were not accumulating in the former delta area and the ditch was not re-established in the hillside.

USEPA Comment 2

2. Appendix B, Laboratory Data, contains two data validation reports with concerns identified which require further clarification. The September 26, 2006, Memorandum indicates on page 5 under the Field Duplicate Analysis section that the two duplicate pairs did not have good reproducibility, and therefore, the data was flagged as estimated. Please include a discussion in the Report that indicates how the flagged data affected evaluation of the data in the Report. The October 5, 2006, Memorandum similarly indicates on page 5 under the Field Duplicate Analysis section that one of the two duplicate pairs did not have good reproducibility, and therefore, the data was flagged as estimated as well. Please also ensure that the Report includes a discussion that indicates how this flagged data affected evaluation of the data in the Report as well.

Response

Section 3.4 of the report has been updated for clarification to include a discussion of the data validation performed for the **Appendix B** Laboratory Data and any impacts thereof. The revised section 3.4 is presented below in blue with changes resulting from this comment highlighted in yellow.

SECTION 3.4 POST-EXCAVATION SAMPLES AND ANALYTICAL RESULTS

Post-excavation samples were taken at various locations as initial excavation activities were completed. Samples were collected from the floor and sidewalls of the excavation to confirm that soil with cadmium concentrations above the RG had been removed. The analytical services for the sampling effort were provided using the National Environmental Laboratory Accreditation Conference (NELAC) accredited laboratory Accutest Laboratories, Inc. located in Orlando, Florida. Accutest provided analytical support for the collected soil samples using *USEPA SW-846, Third Edition, Test Methods for Evaluating Solid Waste, Update IIB* (USEPA, 2004). Results were requested on a 24-hour turnaround time to keep the project moving forward quickly.

Data obtained from the laboratory and data validation were reviewed by the Shaw Project Chemist to determine whether the project-specific DQOs, as defined in the associated work plans and sampling and analysis plans, were met. For the Building 4343 Interim Measures, the confirmatory samples and top soil/borrow material were validated. Data validation determines the acceptability or unacceptability of the data quality based on a set of pre-defined criteria and is defined as the systematic process for reviewing a data package against a set of criteria to provide assurance that the data is adequate for its intended uses. The data validation criteria is based on a combination of project specific Work Plan/QAPP criteria, method-specific criteria, *Department of Defense Quality Systems Manual Final Version 3* (DOD, 2006), and the subcontract laboratory SOPs. The data qualifier scheme was consistent with USEPA Region III guidance.

All data packages were validated to ensure compliance with specified analytical, QA/QC requirements, data reduction procedures, data reporting requirements, and required accuracy, precision, and completeness criteria. Results were assessed for accuracy and precision of laboratory analysis to determine the limitations and quality of the data. The quality of the data collected in support of the sampling activity was considered acceptable, unless qualified rejected "R" during the validation process. Samples qualified "J", "L", or "UL" were considered acceptable as estimated with noted definitions. No sample data points were determined to be rejected "R". Out of criteria lab control samples or calibration standards resulted in some data to be qualified estimated; however, did not impact the usability of the data to make informed conclusions in this report. Qualified data for where the matrix spike and spike duplicates, serial dilutions, and field duplicates exceeded criteria were most likely due to sample matrix or inhomogeneity effects with the given analytical methodology; however, the data was determined useable as estimated and did not impact the conclusions of this report. The data validation reports are presented in **Appendix B**.

Sample locations and results are presented on **Figure 3-1** and results are tabulated in **Table 3-1**. Results on **Figure 3-1** are shown in red where the concentration was greater than the RG and shown in green where the concentration was below the RG. In locations where sample results were greater than the RG (70.3 mg/kg), additional soil was removed from the excavation and another sample was collected. Successive 12"-18" excavations and samples are shown at each sample location on **Figure 3-1** until the result was below the RG. The maximum depth of the excavation is indicated on **Figure 3-1** where additional soil was removed. This process was continued until the confirmation sample result was below the RG. **Figure 3-2** presents the final confirmation samples after soil removal was complete.

In addition to the TAL cadmium confirmation samples collected throughout the excavation area, a TCLP cadmium sample (B43SC58T) was also collected to assess the soil for leachable cadmium. This sample was collocated with B43SC10 (43 mg/kg) which had the highest

cadmium concentration below the RG. Because TCLP results (4.9 mg/L) were greater than the TCLPRL, additional soil was removed from this area and three additional samples were collected. These samples were collocated and analyzed for TAL cadmium (B43SC57), TCLP cadmium (B43SC58) and Synthetic Precipitation Leaching Procedure (SPLP) cadmium (B43SC59).

The TAL cadmium result (30 mg/kg) was below the RG (70.3 mg/kg) and the TCLP cadmium (0.4 mg/L) was below the TCLPRL of 1 mg/L. Sample B43SC59 was analyzed for SPLP cadmium. This method is similar to the TCLP method except that it is intended to simulate leaching of metals under natural conditions (rain, groundwater, etc.), rather than under landfill conditions as the TCLP method is intended. SPLP cadmium was not detected in the sample. These results are presented at the bottom of **Table 3-1**

USEPA Comment 3

In Appendix F, Daily Quality Control Reports, the Remarks section initially begins to track the number of trucks taken off site. For September 7, 2006, it is indicated that the number of loads shipped off site is 18, while on September 8, 2006, an additional 4 trucks were loaded, and the total number of loads is still listed as 18. This number should be 22 loads based on the information presented in the Daily Quality Control Reports. Later, this tracking system is initiated again, but the semantics used to track the number of loads is different. Although different staff members may have been completing the Daily Quality Control Reports, a consistent approach to documenting the activities completed should be developed in the future to ensure consistency of the information presented in the Daily Quality Control Reports. If possible, please revise the Daily Quality Control Report for September 8, 2006, to accurately reflect the total number of loads shipped off site.

3.

Response

The cumulative number of trucks on the September 8, 2006 Daily QC report has been updated to 22. Truck logs that document the number of trucks and load weights are also included for both hazardous (soil) and non-hazardous (debris) loads. These truck logs are located in **Appendix D** and were intended to be the primary method of daily tracking. The "remarks" section in the Daily QC reports is intended to be a brief description of the day's events, rather than a formal tracking system.



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029**

April 3, 2007

Commander,
Radford Army Ammunition Plant
Attn: SJMRF-OP-EQ (Jim McKenna)
P.O. Box 2
Radford, VA 24141-0099

P.W. Holt
Environmental Manager
Alliant Techsystems, Inc.
Radford Army Ammunition Plant
P.O. Box 1
Radford, VA 24141-0100

Re: Radford Army Ammunition Plant, Va.
Building 4343
Review of the Army's draft Interim Measures Completion Report

Dear Mr. McKenna and Ms. Holt:

The U.S. Environmental Protection Agency (EPA) has reviewed the U.S. Army's (Army's) January, 2007 draft Interim Measures Completion Report for Building 4343, located at the Radford Army Ammunition Plant (RFAAP). Outlined below, please find EPA's comments based upon that review.

COMMENTS

1. It is recommended that more details with regard to completion be provided in Section 5.0 (Site Restoration and Demobilization), especially the final grading, asphalt repair and seeding. The photographic log should document completion of these activities. Also, please clarify if inspection of the area restored will be conducted to ensure grass has been established and that erosion of the disturbed areas is not occurring.
2. Appendix B, Laboratory Data, contains two data validation reports with concerns identified which require further clarification. The September 26, 2006, Memorandum indicates on page 5 under the Field Duplicate Analysis section that the two duplicate pairs did not have good reproducibility, and therefore, the data was flagged as estimated. Please include a discussion in the Report that indicates how the flagged data affected evaluation of the data in the Report. The October 5, 2006, Memorandum similarly



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Please revise the referenced Interim Measures Completion Report to reflect the comments above. If you have any questions, please call me at 215-814-3413. Thanks.

Sincerely,

William Geiger
RCRA Project Manager
General Operations Branch (3WC23)

cc: Russell Fish, EPA
James Cutler, VDEQ
Leslie Romanchik, VDEQ





07-55



received

4-5-07

C: Holt
Lockard
McKenna
Holt
ENV file

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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David K. Paylor
Director

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L. Preston Bryant, Jr.
Secretary of Natural Resources

March 30, 2007

Mr. Jim McKenna
Radford Army Ammunition Plant
Route 114, P.O. Box 1
Radford, Virginia 24143-0100

Re: Building 4343 Interim Measures Completion Report, Radford Army Ammunition Plant

Dear Mr. McKenna:

The Virginia Department of Environmental Quality (VDEQ) has reviewed the Draft Final Building 4343 Interim Measures Completion Report dated January 2007 and approves the report as finalized.

Please contact me at (804) 698-4498 if you have any questions or comments regarding the above site.

James L. Cutler, Jr., CPG
Federal Facilities Project Manager

cc: Paige Holt, ATK
Will Geiger, US EPA Region 3
Durwood Willis, VDEQ
Norman Auldridge, VDEQ-WCRO



DEPARTMENT OF THE ARMY
US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MD 21010-5403

20 FEB 2007

MCHB-TS-REH

MEMORANDUM FOR Office of Environmental Quality (SJMRF-OP-EQ/Mr. Jim McKenna),
Radford Army Ammunition Plant, P.O. Box 2, Radford, VA 24143-0002

SUBJECT: Review of the Draft Interim Measures Completion Report for Building 4343,
Radford Army Ammunition Plant, Virginia, January 2007

1. The U.S. Army Center for Health Promotion and Preventive Medicine reviewed the subject document on behalf of the Office of The Surgeon General pursuant to Army Regulation 200-1 (Environmental Protection and Enhancement). We appreciate the opportunity to review the report.

2. The interim measures taken at this site should be protective of human health and the environment.

3. The document was reviewed by Mr. Dennis Druck, Environmental Health Risk Assessment Program. He can be reached at DSN 584-2953, commercial (410) 436-2953 or electronic mail "dennis.druck@us.army.mil".

FOR THE COMMANDER:

CHRISTINE MOSER
LTC, MS
Acting Director, Health Risk Management

CF:
HQDA (DASG-HS-PE)
IMA, NERO (IMNE-PWD-E)
USACE (CENWO-HX-H)
USAEC (IMAE-CD/Mr. Rich Mendoza)

Readiness thru Health



Radford Army Ammunition Plant
Route 114, P.O. Box 1
Radford, VA 24143-0100
USA

January 24, 2007

Mr. Robert Thomson
U. S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

Subject: Building 4343 Interim Measures Completion Report, Draft Final Document, January 2007
Radford Army Ammunition Plant Installation Action Plan
EPA ID# VA1 210020730

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Please coordinate with and provide any questions or comments to myself at (540) 639-8658, Jerry Redder of my staff (540) 639-7536 or Jim McKenna, ACO Staff (540) 639-8641.

Sincerely,

A handwritten signature in black ink, appearing to read "P.W. Holt". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

P.W. Holt, Environmental Manager
Alliant Techsystems Inc.

c: Russell Fish, P.E., EPA Region III

Jim Cutler
Virginia Department of Environmental Quality
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Coordination:


J. McKenna

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Building 4343 Interim Measures Completion Report
Draft Final Document, January 2007

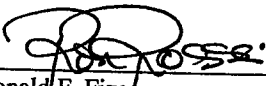
Radford Army Ammunition Plant

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

SIGNATURE:

PRINTED NAME:

TITLE:


for Ronald F. Fize *CIVILIAN EXECUTIVE*
Lieutenant Colonel, US Army
Commanding Officer

SIGNATURE:

PRINTED NAME:

TITLE:

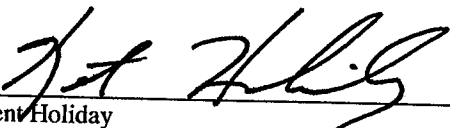

Kent Holiday
Vice President and General Manager
ATK Energetics Systems Division

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LIST OF ACRONYMS AND ABBREVIATIONS

ACM	Asbestos-Containing Materials
ATK	Alliant TechSystems, Inc.
CMS	Corrective Measures Study
CY	cubic yards
ft	foot or feet
ft bgs.....	feet below ground surface
ft msl	feet mean sea level
IMWP.....	Interim Measures Work Plan
in.	inch
lin ft.....	linear feet
mg/kg	milligrams per kilogram
mg/L.....	milligrams per liter
NELAC	National Environmental Laboratory Accreditation Conference
PCB	Polychlorinated Biphenyl
RCRA.....	Resource Conservation and Recovery Act
RFAAP.....	Radford Army Ammunition Plant
RFI	RCRA Facility Investigation
RG	Remedial Goal
Shaw.....	Shaw Environmental, Inc.
SPLP	Synthetic Precipitation Leaching Procedure
sq ft.....	square feet
SVOC	Semivolatile Organic Compound
TAL.....	Target Analyte List
TCL	Target Compound List
TCLP.....	Toxicity Characteristic Leaching Procedure
TCLPRL.....	TCLP Regulatory Limit
USACE	U.S. Army Corps of Engineers
USEPA.....	U.S. Environmental Protection Agency
UST	Underground Storage Tank
VDEQ	Virginia Department of Environment Quality
VOC	Volatile Organic Compound
WACO	WACO Corporation

1.0 INTRODUCTION

Shaw Environmental, Inc. (Shaw) has been contracted by the U.S. Army Corps of Engineers (USACE) to perform excavation and demolition activities at Building 4343, the Former Cadmium Plating Facility, at Radford Army Ammunition Plant (RFAAP), Radford, Virginia. This work was performed under Contract number W912DR-05-D-0026, Delivery Order 02. Specific elements of the project included: development of a work plan; delineation sampling of the area to determine the extent of contamination; the excavation and disposal of contaminated soils; the abatement and disposal of asbestos-containing materials (ACM) within the building; the demolition and disposal of Building 4343; the demolition and disposal of concrete footers associated with the former water tanks; restoration of the site and development of a final report. Work was performed in accordance with the *Final Building 4343 Interim Measures Work Plan (IMWP)* (Shaw, 2006), the *Radford Army Ammunition Plant, Radford, Virginia, Final Master Work Plan*, (URS, 2003) and the *U.S. Environmental Protection Agency (USEPA) Permit for Corrective Action and Waste Minimization* (USEPA, 2000).

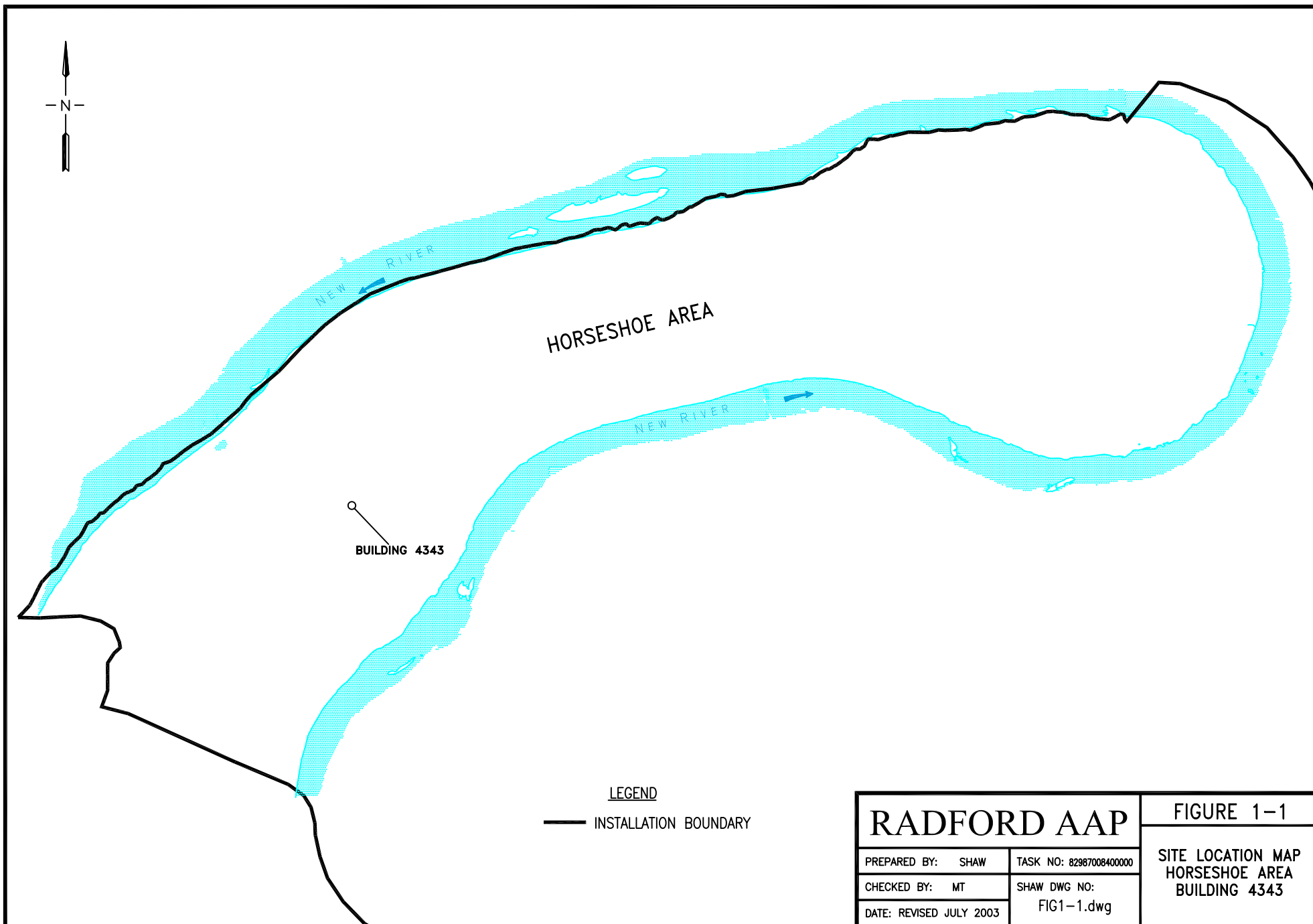
1.1 SITE DESCRIPTION AND LOCATION

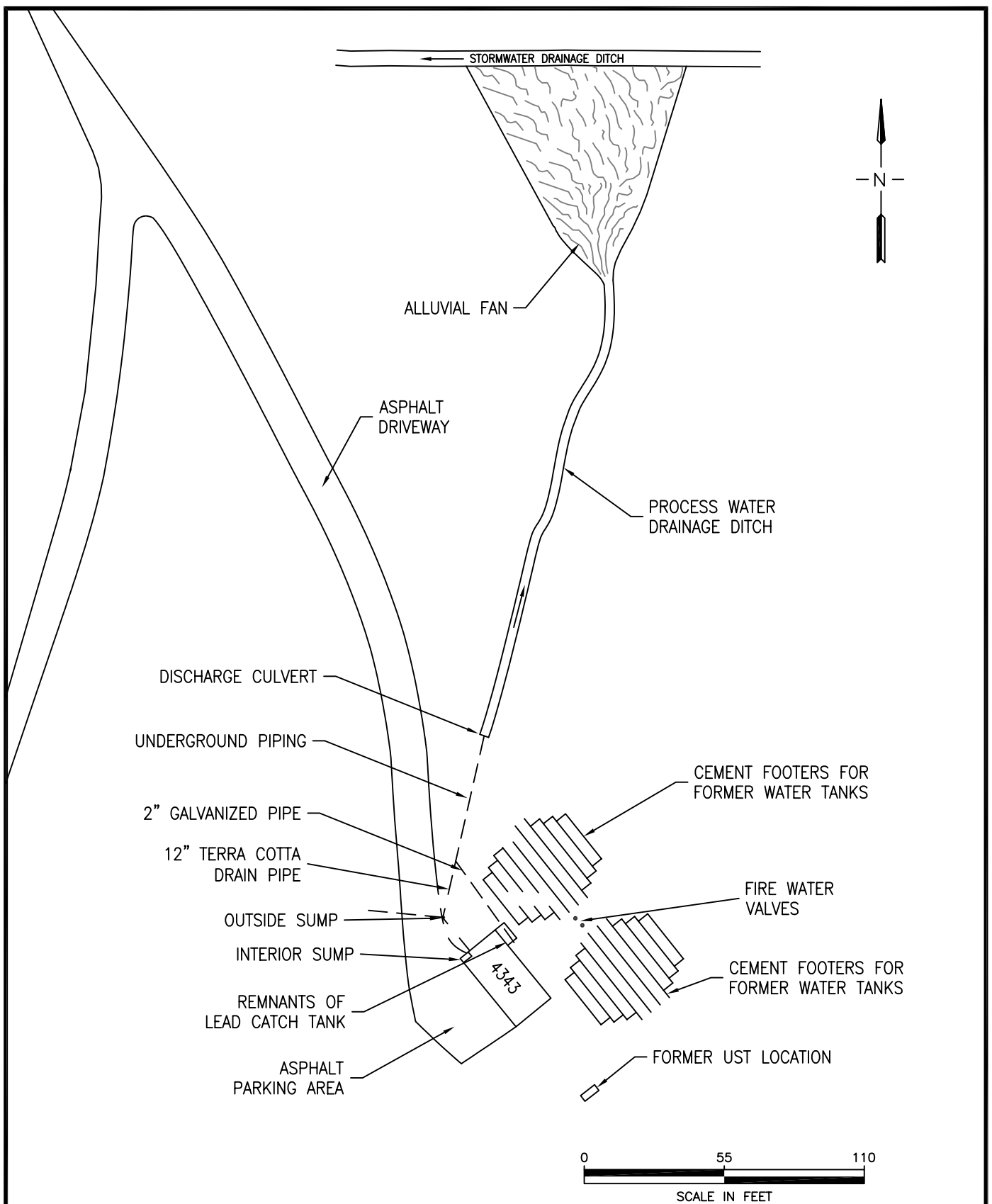
Building 4343, the Former Cadmium Plating Facility, is situated in the west central portion of the Horseshoe Area (**Figure 1-1**). The area surrounding the building is mowed grass at an elevation of approximately 1,830 feet mean sea level (ft msl). Surface water runoff flows to the north to an east-west trending storm water drainage ditch that grades to approximately 1,810 ft msl. Site features are depicted on **Figure 1-2** and include:

- Building 4343, approximately 34 feet (ft) long by 16 ft wide building, which housed the former cadmium plating operations equipment and a floor sump;
- an asphalt driveway leading to an asphalt parking lot southwest of Building 4343;
- underground piping that discharged to a north-south trending process water ditch (unlined) used to drain the sump within Building 4343, an exterior sump outside the building, a cemented closed pipe located under the road leading from the outside sump, and the former lead catch tank;
- cement footers used to support the former fire water tanks;
- aboveground fire water valves; and,
- an east-west trending storm water drainage ditch that receives overland flow from Building 4343.

1.2 SITE HISTORY

Building 4343 was originally designated as the Fire Water Pump House. The building was used to house a 5-inch (in.), one-stage, 500-gallon/minute gasoline-powered pump. A 550-gallon underground storage tank (UST), located approximately 40 ft south of Building 4343, was used to store the pump fuel. The tank and approximately seven tons of soil were subsequently removed in June 1998 (ATK, 1998). A letter from the Virginia Department of Environmental Quality (VDEQ) dated 24 August 1998 approved the closure and agreed that no further action was warranted at that time.





RADFORD AAP

FIGURE 1-2

PREPARED BY: SHAW

TASK NO: 82987002600000

CHECKED BY: GM

SHAW DWG NO:

DATE: REVISED OCT. 2005

Fig1-2.dwg

BUILDING 4343
SITE LAYOUT MAP

In 1956, the pump and pump engine were removed and the building was converted to conduct cadmium plating operations in support of the NIKE missile program. Conversion activities included the installation of a drying cabinet, cadmium plating, ammonium nitrate, and cyanide dip baths, an exterior lead catch tank, and an exhaust system for the acid fumes. Because cadmium ingots in an acid bath were used in the plating process, it is not believed that cadmium as a dust or volatile would be transported through the exhaust system. The initial procedures of the plating process involved the cleaning of parts using ammonium nitrate, cold water, Matawan 40-D, and hydrochloric acid baths. Following the cleaning process, the parts went through a series of baths including: cold and hot water, sodium cyanide dip, cadmium plating [using ingots of cadmium (Cd^0) and small amounts of cadmium oxide (CdO)], and sodium cyanide rinse water. Rinse water used in the plating process was then neutralized as described in the following paragraph.

Rinse water from the cadmium plating operations was process water containing cyanide, cadmium, and chromium. The probable source of the chromium contained in the process water most likely resulted from the cleaning of metal parts that may have contained chromium. The metal parts were subjected to acid bath cleaning prior to cadmium plating. The process water was collected and stored in the exterior lead-lined catch tank located on the northeast corner of the building. When a sufficient amount of process water accumulated in the tank, it was treated with an alkaline chlorine solution to neutralize the cyanide. This process would also cause trace metals to precipitate and form the sludge contained in the process sumps. Following treatment, the process water was checked for chlorine residual. If no free chlorine was found, additional chlorine solution was added to the process water. If free chlorine was found, the process water was then drained through underground pipes to the process water ditch north of Building 4343. The amount of cadmium and chromium present in the process water was not considered sufficient to require further treatment (Hercules, 1959).

1.3 PROJECT OBJECTIVES

Based on the *Building 4343 Resource Conservation and Recovery Act (RCRA) Facility Investigation/Corrective Measures Study (RFI/CMS) Report, Final Document* February 2004 (Shaw, 2004), interim measures were performed at Building 4343. The interim measures were conducted to mitigate the threat of a contaminant release, migration, and/or exposure to the public and the environment, as well as facilitate clean closeout in accordance with Part II (D) (11-21) Interim Measures of the RFAAP Corrective Action Permit (USEPA, 2000). The measures include:

1. **Soil Delineation.** Delineation of soil containing cadmium above the Residential Remedial Goal (RG) (70.3 milligrams per kilogram [mg/kg]);
2. **Soil Excavation.** Excavation of the delineated area such that the remaining soil is below the Residential RG;
3. **Sump Removal.** Removal of the sumps (2) and piping where elevated metals have been identified;
4. **Building 4343 Demolition.** Demolition of Building 4343 including outside concrete water tank supports;
5. **Transportation and Disposal of Wastes.** Transportation and off-site disposal of soil, sump material, and building debris; and,

6. **Site Restoration.** Backfill with clean fill and topsoil, hydro-seeding of disturbed areas, and asphalt patching where the driveway was cut.

2.0 PRE-EXCAVATION SAMPLING

2.1 DELINEATION SAMPLING

A total of 47 additional soil delineation samples were collected from surface and subsurface locations to supplement samples collected during earlier investigations and summarized in the Building 4343 RFI/CMS Report (Shaw, 2004). A composite waste characterization sample was also collected from within the boundary of the cadmium containing soil used to determine the appropriate disposal option for the soil during excavation activities.

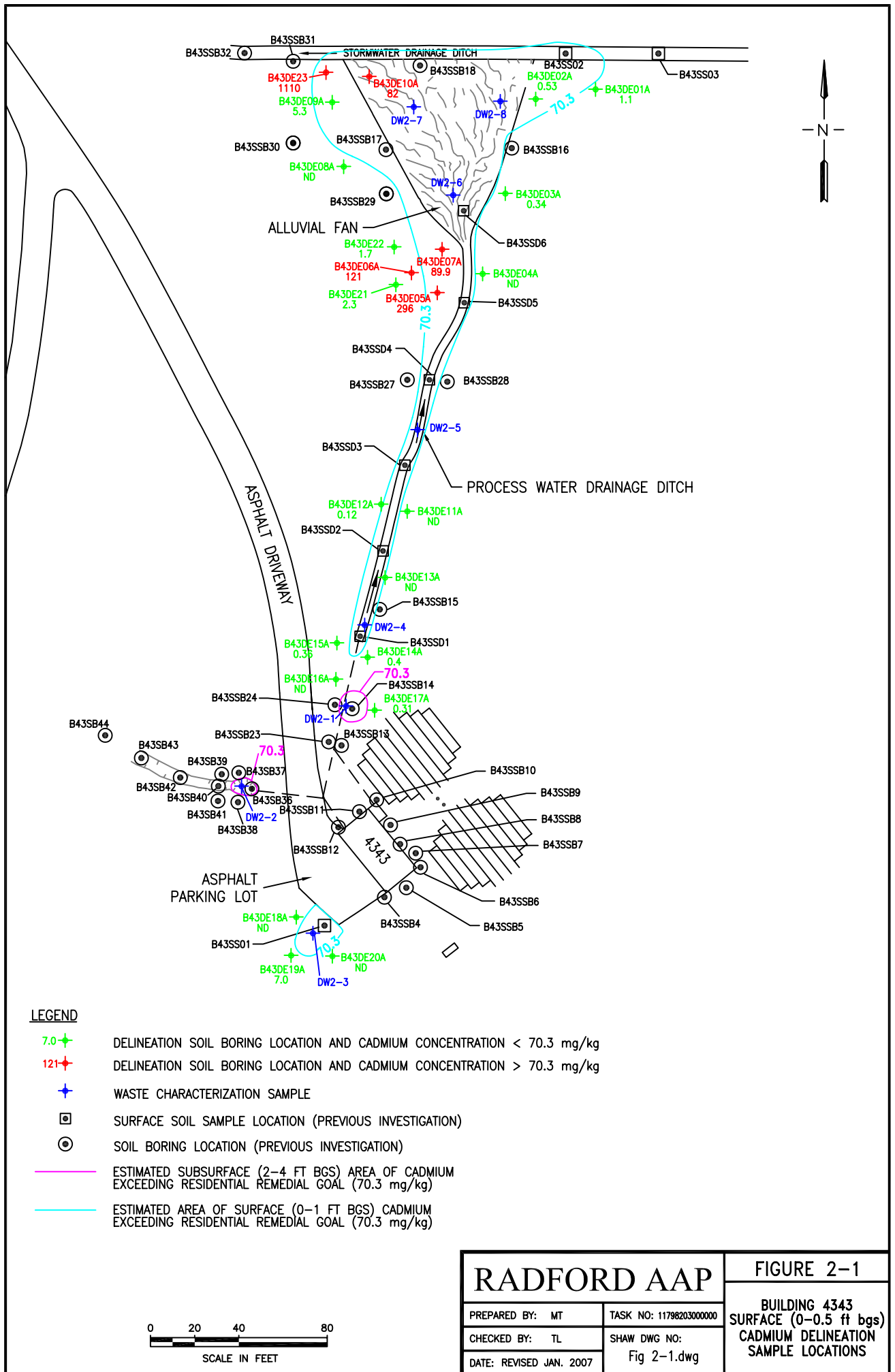
Surface and subsurface soil samples were taken prior to excavation activities to determine the extent of contamination. These samples were analyzed for target analyte list (TAL) cadmium. Locations of these samples and the cadmium concentrations are shown on **Figure 2-1** and **Figure 2-2**. Results from the samples are also tabulated in **Table 2-1**. Laboratory Form Is for the data are presented in **Appendix B**. Subsurface soil samples (“B” intervals) were collected from 2-4 feet below ground surface (ft bgs). Additional subsurface samples were collected from 4-6 ft bgs (“C” intervals). These samples were held and analyzed if the “B” samples from the same location were above the RG (70.3 mg/kg). All of the results from the “B” intervals were below RG. Three of the “C” samples (B43DE11C, B43DE12C, and B4315C) were analyzed where concentrations in the “B” interval were greater than the “A” sample. Results from these “C” samples were also below the RG.

The results from the samples indicated that elevated levels of cadmium were detected in surface soil near the sump, in the process water drainage ditch, and in the alluvial fan/storm water drainage ditch area. Boundary samples in the storm water drainage ditch to the north of the site indicate that cadmium is not being transported from the site. Boundary samples along the process water drainage ditch indicate that there is minimal migration of cadmium into the subsurface of the process water ditch. Subsurface soil samples (**Figure 2-2**) in the alluvial fan area indicate that cadmium concentrations decrease 95 percent from respective surface soil concentrations within the first six feet below the surface.

In areas where cadmium was present at concentrations above the residential RG (70.3 mg/kg), additional samples were collected stepping outward from the ditch or fan area. These samples and results are also presented on **Figure 2-1**. Subsurface sample concentrations were below the RG in the original set of delineation samples.

2.2 WASTE CHARACTERIZATION SAMPLING

A composite sample (B43DW02) was collected from eight locations within the excavation area to characterize the soil for disposal. This sample was analyzed for explosives, Toxicity Characteristic Leaching Procedure (TCLP) metals, and TCLP reactivity, ignitibility, and corrosivity (**Table 2-2**). Results from the sample indicated that the concentration of leachable cadmium (4.7 milligrams per liter [mg/L]) was greater than the TCLP Regulatory Limit (TCLPRL) of 1 mg/L and the soil was classified and disposed of as hazardous waste. Additional samples were collected from the other wastes at the site, including the concrete from the footers (B43DW03); floor and wall material of Building 4343 (B43DW05); and concrete/brick from the sump (B43DW04). These samples were also analyzed for explosives, TCLP metals, and TCLP reactivity, ignitibility, and corrosivity. Results from these samples are shown in **Table 2-2** and indicated that the debris material was non-hazardous.



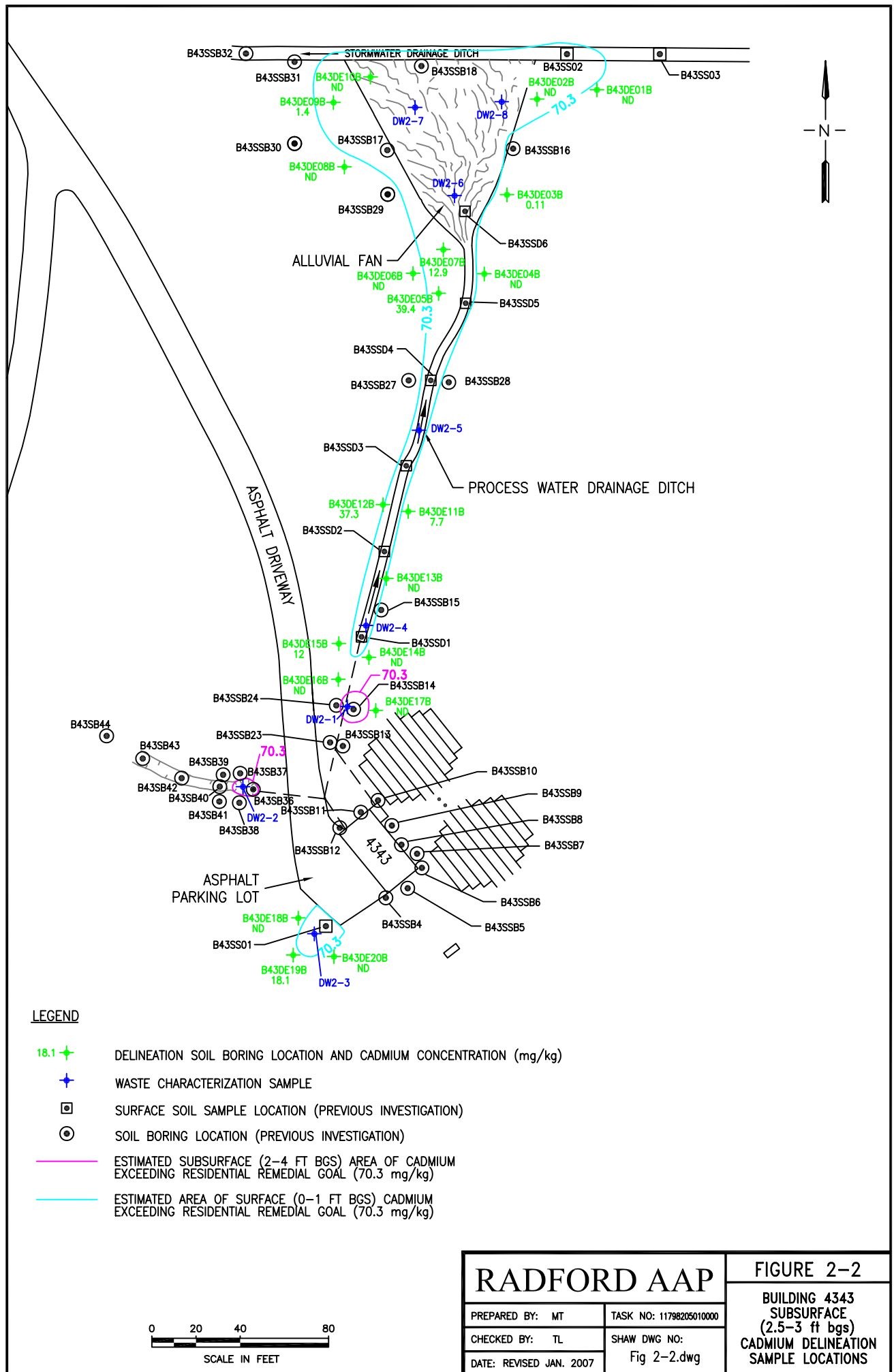


Table 2-1
Cadmium Delineation Sample Results
Building 4343 Interim Measures

Sample ID	Sample Depth	Sample Date	Result	Lab Flag	MRL	MDL
Surface Soil						
B43DE01A	0-0.5 ft bgs	08/15/06	1.1		0.023	0.47
B43DE02A	0-0.5 ft bgs	08/15/06	0.53		0.024	0.49
B43DE03A	0-0.5 ft bgs	08/15/06	0.34	J	0.023	0.45
B43DE04A	0-0.5 ft bgs	08/15/06	0.022	U	0.022	0.45
B43DE05A	0-0.5 ft bgs	08/15/06	296		0.024	0.47
B43DE06A	0-0.5 ft bgs	08/15/06	121		0.023	0.47
B43DE07A	0-0.5 ft bgs	08/15/06	89.9		0.023	0.46
B43DE08A	0-0.5 ft bgs	08/15/06	0.022	U	0.022	0.44
B43DE09A	0-0.5 ft bgs	08/15/06	5.3		0.022	0.43
B43DE10A	0-0.5 ft bgs	08/15/06	82.0		0.023	0.46
B43DE11A	0-0.5 ft bgs	08/15/06	0.022	U	0.022	0.44
B43DE12A	0-0.5 ft bgs	08/15/06	0.12	J	0.023	0.46
B43DE13A	0-0.5 ft bgs	08/15/06	0.022	U	0.022	0.44
B43DE14A	0-0.5 ft bgs	08/15/06	0.40	J	0.022	0.44
B43DE15A	0-0.5 ft bgs	08/15/06	0.36	J	0.022	0.44
B43DE16A	0-0.5 ft bgs	08/15/06	0.023	U	0.023	0.46
B43DE17A	0-0.5 ft bgs	08/15/06	0.31	J	0.023	0.45
B43DE18A	0-0.5 ft bgs	08/16/06	0.022	U	0.022	0.45
B43DE19A	0-0.5 ft bgs	08/16/06	7.0		0.023	0.46
B43DE20A	0-0.5 ft bgs	08/16/06	0.022	U	0.022	0.43
B43DE21A	0-0.5 ft bgs	08/28/06	2.3		0.022	0.44
B43DE22A	0-0.5 ft bgs	08/28/06	1.7		0.021	0.43
B43DE23A	0-0.5 ft bgs	08/28/06	1110		0.22	4.4
Subsurface Soil						
B43DE01B	2-4 ft bgs	08/15/06	0.022	U	0.022	0.44
B43DE02B	2-4 ft bgs	08/15/06	0.023	U	0.023	0.45
B43DE03B	2-4 ft bgs	08/15/06	0.11	J	0.022	0.45
B43DE04B	2-4 ft bgs	08/15/06	0.023	U	0.023	0.46
B43DE05B	2-4 ft bgs	08/15/06	39.4		0.023	0.45
B43DE06B	2-4 ft bgs	08/15/06	0.024	U	0.024	0.48
B43DE07B	2-4 ft bgs	08/15/06	12.9		0.023	0.47
B43DE08B	2-4 ft bgs	08/15/06	0.021	U	0.021	0.42
B43DE09B	2-4 ft bgs	08/15/06	1.4		0.022	0.44
B43DE10B	2-4 ft bgs	08/15/06	0.024	U	0.024	0.47
B43DE11B	2-4 ft bgs	08/15/06	7.7		0.025	0.49
B43DE11C	4-6 ft bgs	08/15/06	19.3		0.026	0.53
B43DE12B	2-4 ft bgs	08/15/06	37.3		0.026	0.52
B43DE12C	4-6 ft bgs	08/15/06	69.6		0.026	0.53
B43DE13B	2-4 ft bgs	08/15/06	0.025	U	0.025	0.50
B43DE14B	2-4 ft bgs	08/15/06	0.024	U	0.024	0.48
B43DE15B	2-4 ft bgs	08/15/06	12.0		0.024	0.47
B43DE15C	4-6 ft bgs	08/15/06	16.8		0.025	0.50
B43DE16B	2-4 ft bgs	08/15/06	0.026	U	0.026	0.52
B43DE17B	2-4 ft bgs	08/15/06	0.026	U	0.026	0.52
B43DE18B	2-4 ft bgs	08/16/06	0.025	U	0.025	0.50
B43DE19B	2-4 ft bgs	08/16/06	18.1		0.025	0.50
B43DE19C	4-6 ft bgs	08/16/06	17.4		0.024	0.49
B43DE20B	2-4 ft bgs	08/16/06	0.024	U	0.024	0.48

Cadmium concentrations, MRLs and MDLs are in mg/kg.

Shading indicates that the sample concentration was greater than the RG of 70.3 mg/kg.

Table 2-2
Waste Characterization Sample Results
Building 4343 Interim Measures

Sample ID Matrix Sample Date		B43DW02 Soil 8/16/2006		B43DW03 Concrete/Debris 8/26/2006		B43DW04 Concrete/Debris 8/26/2006		B43DW05 Concrete/Debris 8/26/2006	
Analyte	TCLP RL	Result	Lab Q	Result	Lab Q	Result	Lab Q	Result	Lab Q
Explosives (none detected)									
2,4,6-Trinitrotoluene	na	250	U	NT		230	U	240	U
2,4-Dinitrotoluene	na	250	U	NT		230	U	240	U
RDX	na	250	U	NT		230	U	240	U
4-amino-2,6-Dinitrotoluene	na	250	U	NT		230	U	240	U
HMX	na	250	U	NT		230	U	240	U
2-amino-4,6-Dinitrotoluene	na	250	U	NT		230	U	240	U
Tetryl	na	250	U	NT		230	U	240	U
2,6-Dinitrotoluene	na	250	U	NT		230	U	240	U
o-Nitrotoluene	na	250	U	NT		230	U	240	U
Nitrobenzene	na	250	U	NT		230	U	240	U
m-Nitrotoluene	na	250	U	NT		230	U	240	U
1,3,5-Trinitrobenzene	na	250	U	NT		230	U	240	U
1,3-Dinitrobenzene	na	250	U	NT		230	U	240	U
p-Nitrotoluene	na	250	U	NT		230	U	240	U
TCLP Metals									
TCLP Lead	5	0.013	J	0.023	J	0.057	J	0.02	J
TCLP Silver	5	0.00090	U	0.00070	U	0.00070	U	0.00070	U
TCLP Arsenic	5	0.0028	U	0.001	U	0.0043	J	0.006	J
TCLP Barium	100	0.37	J	0.53	J	0.51	J	0.56	J
TCLP Chromium	5	0.0064	J	0.0026	J	0.024		0.02	
TCLP Selenium	1	0.026	J	0.019	J	0.015	J	0.021	J
TCLP Cadmium	1	4.6		0.0004	U	0.012		0.39	
TCLP Mercury	0.2	0.001	U	0.002		0.0013	U	0.0013	U
TCLP Characteristics									
Ignitability (Flashpoint)	140 (°F)	>200		>210		>210		>210	
Corrosivity as pH	<2 or >12 (Units)	6.3		12.4		12.2		12	
Sulfide Reactivity	500 (mg/kg)	50	U	8	U	8	U	8	U
Cyanide Reactivity	250 (mg/kg)	1.8	U	0.4	U	0.4	U	0.4	U

Note: High pH of samples B43DW03--05 are due to the concrete that made up the majority of the samples.

3.0 SOIL EXCAVATION

The first phase of the project was the additional sample collection to delineate the extent of contamination in areas not previously sampled (Section 2), the removal of the concrete footers from the old water tank area, and the excavation and disposal of contaminated soils. During this time, Shaw mobilized the equipment and manpower required to begin the project. Photos depicting different aspects of the project are presented in **Appendix A**.

3.1 MOBILIZATION

Prior to intrusive activity at the site, a utility survey to identify underground service lines within or near the excavation area was performed and all lines were identified by Alliant TechSystems, Inc. (ATK). An Area Access Permit and a Hot Work Permit were issued by the ATK Safety Department for the duration of the project. A job safety analysis was completed by the site safety officer, was reviewed with the crew, and all potential hazards were identified prior to commencement of work activities. Daily tailgate safety meetings were held and daily work plans discussed with the crew every morning before work began.

Erosion and sediment controls, consisting of silt fencing and hay bales, were installed according to the *Building 4343 IMWP* (Shaw, 2006) and the requirements of USACE Representative onsite.

3.2 FOOTER REMOVAL

The concrete footers from the old water tanks were in an area adjacent to Building 4343 and were not associated with the cadmium contamination. These footers were excavated and broken into pieces approximately 2 ft by 2 ft using a backhoe with a 1500-pound hydraulic hammer. The concrete disposal waste sample (B4343DW03) demonstrated that the material was non-hazardous. The concrete was loaded into roll-off boxes and/or dump trailers and transported to First Piedmont Landfill in Ringgold, Virginia for disposal. Manifests and the waste profile for the non-hazardous debris are included in **Appendix C-1** and the non-hazardous shipping log is presented in **Appendix D-1**.

3.3 EXCAVATION ACTIVITIES

Upon receipt of the final delineation sample results and the waste characterization results, disposal profiles were completed and approved, excavation and direct loading into dump trailers was ready to begin. The disposal profile and shipping manifests for the hazardous soil are presented in **Appendix C-2** and the hazardous shipping log is presented in **Appendix D-2**.

ATK maintenance personnel also capped and removed an unused section of 8-in. fire main that connected Building 4343 to the main fire system through a cut-off valve located to the southwest of the building. Shaw removed the pipe to the outer wall of the building footprint.

Excavation was performed using a 20 Ton tracked excavator (trackhoe) and a front-end loader, and the loading of dump trailers was performed using the same two machines. No stockpiling of material was performed during the project; any excavated soils were shipped out the same day they were excavated. The first excavation was 12" – 18" along the delineated areas and each additional cut was the same, except in the areas of samples B43SSB14 and B43SSB36, which were excavated to 4 ft during the initial excavation, as outlined in the *Building 4343 IMWP* (Shaw, 2006).

Plastic sheeting was used to construct a temporary loading zone for the trucks to stage on while being loaded. The plastic sheeting extended from the truck to the edge of the excavation. The temporary loading zone was moved as the leading edge of the excavation moved forward. Excavations of two hot areas located on the western side of the driveway were completed first. Then excavation started at the top of the hill where the sumps were located and preceded toward the drainage ditch. A third hot spot was excavated to the depth of 4 ft to the north of the concrete sump and then progressed down the hillside towards the base of the ditch and the alluvial fan area. Confirmation samples were taken periodically as large enough areas were completed to the initial depths.

The piping that ran from the interior and exterior sumps to the main drainage ditch was removed. In addition, a 4-in. drain pipe (30 linear feet [lin ft]) that extended from the exterior sump under the asphalt driveway to a discharge to the west was also removed. Confirmation samples for cadmium analysis were collected from under the pipe to confirm that the pipe did not leak and contaminate the surrounding soils.

Backfilling commenced after the excavation had been completed and analytical results from the confirmation samples had demonstrated that soil above the RG (70.3 mg/kg) had been removed from the site. Areas which sample results still exceeded the RG were excavated again and additional samples were collected.

3.4 POST-EXCAVATION SAMPLES AND ANALYTICAL RESULTS

Post-excavation samples were taken at various locations as initial excavation activities were completed. Samples were collected from the floor and sidewalls of the excavation to confirm that soil with cadmium concentrations above the RG had been removed. The analytical services for the sampling effort were provided using the National Environmental Laboratory Accreditation Conference (NELAC) accredited laboratory Accutest Laboratories, Inc. located in Orlando, Florida. Accutest provided analytical support for the collected soil samples using *USEPA SW-846, Third Edition, Test Methods for Evaluating Solid Waste, Update IIIB* (USEPA, 2004). Results were requested on a 24-hour turnaround time to keep the project moving forward quickly.

Data obtained from the laboratory and data validation were reviewed by the Shaw Project Chemist to determine whether the project-specific data quality objectives, as defined in the associated work plans and sampling and analysis plans, were met. For the Building 4343 Interim Measures, the confirmatory samples and top soil/borrow material were validated. Data validation determines the acceptability or unacceptability of the data quality based on a set of pre-defined criteria and is defined as the systematic process for reviewing a data package against a set of criteria to provide assurance that the data is adequate for its intended uses. The data validation criteria is based on a combination of project specific Work Plan/Quality Assurance Project Plan criteria, method-specific criteria, *Department of Defense Quality Systems Manual Final Version 3* (DoD, 2006), and the subcontract laboratory standard operating procedures. The data qualifier scheme was consistent with USEPA Region III guidance.

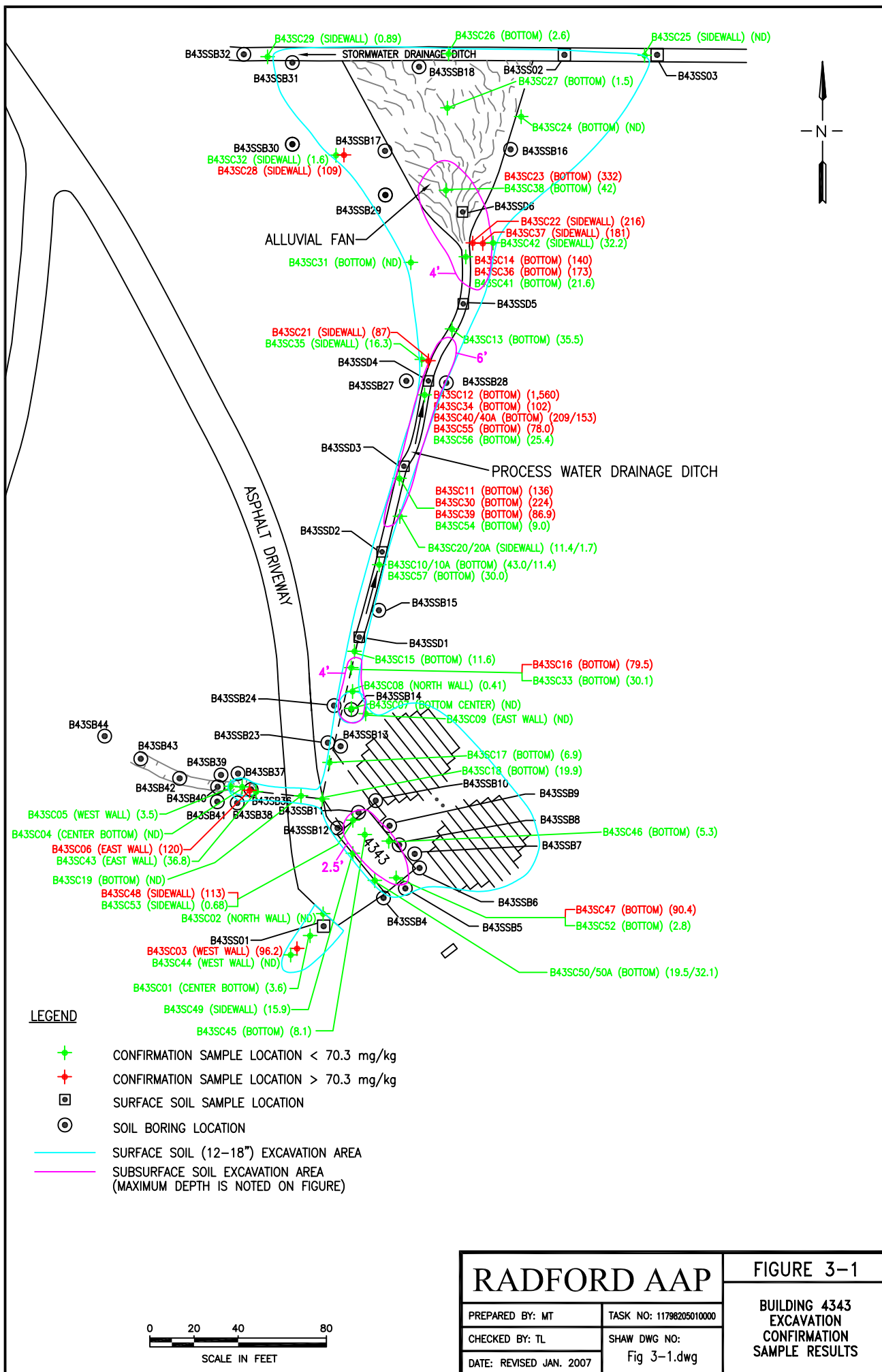
All data packages were validated to ensure compliance with specified analytical, quality assurance/quality control requirements, data reduction procedures, data reporting requirements, and required accuracy, precision, and completeness criteria. Results were assessed for accuracy and precision of laboratory analysis to determine the limitations and quality of the data. The quality of the data collected in support of the sampling activity was considered acceptable, unless

qualified rejected “R” during the validation process. Samples qualified “J”, “L”, or “UL” were considered acceptable as estimated with noted definitions. No sample data points were determined to be rejected “R”. Out of criteria lab control samples or calibration standards resulted in some data to be qualified estimated; however, did not impact the usability of the data to make informed conclusions in this report. Qualified data for where the matrix spike and spike duplicates, serial dilutions, and field duplicates exceeded criteria were most likely due to sample matrix or inhomogeneity effects with the given analytical methodology; however, the data was determined useable as estimated and did not impact the conclusions of this report. The data validation reports are presented in **Appendix B**.

Sample locations and results are presented on **Figure 3-1** and results are tabulated in **Table 3-1**. Results on **Figure 3-1** are shown in red where the concentration was greater than the RG and shown in green where the concentration was below the RG. In locations where sample results were greater than the RG (70.3 mg/kg), additional soil was removed from the excavation and another sample was collected. Successive 12”-18” excavations and samples are shown at each sample location on **Figure 3-1** until the result was below the RG. The maximum depth of the excavation is indicated on **Figure 3-1** where additional soil was removed. This process was continued until the confirmation sample result was below the RG. **Figure 3-2** presents the final confirmation samples after soil removal was complete.

In addition to the TAL cadmium confirmation samples collected throughout the excavation area, a TCLP cadmium sample (B43SC58T) was also collected to assess the soil for leachable cadmium. This sample was collocated with B43SC10 (43 mg/kg) which had the highest cadmium concentration below the RG. Because TCLP results (4.9 mg/L) were greater than the TCLPRL, additional soil was removed from this area and three additional samples were collected. These samples were collocated and analyzed for TAL cadmium (B43SC57), TCLP cadmium (B43SC58) and Synthetic Precipitation Leaching Procedure (SPLP) cadmium (B43SC59).

The TAL cadmium result (30 mg/kg) was below the RG (70.3 mg/kg) and the TCLP cadmium (0.4 mg/L) was below the TCLPRL of 1 mg/L. Sample B43SC59 was analyzed for SPLP cadmium. This method is similar to the TCLP method except that it is intended to simulate leaching of metals under natural conditions (rain, groundwater, etc.), rather than under landfill conditions as the TCLP method is intended. SPLP cadmium was not detected in the sample. These results are presented at the bottom of **Table 3-1**.



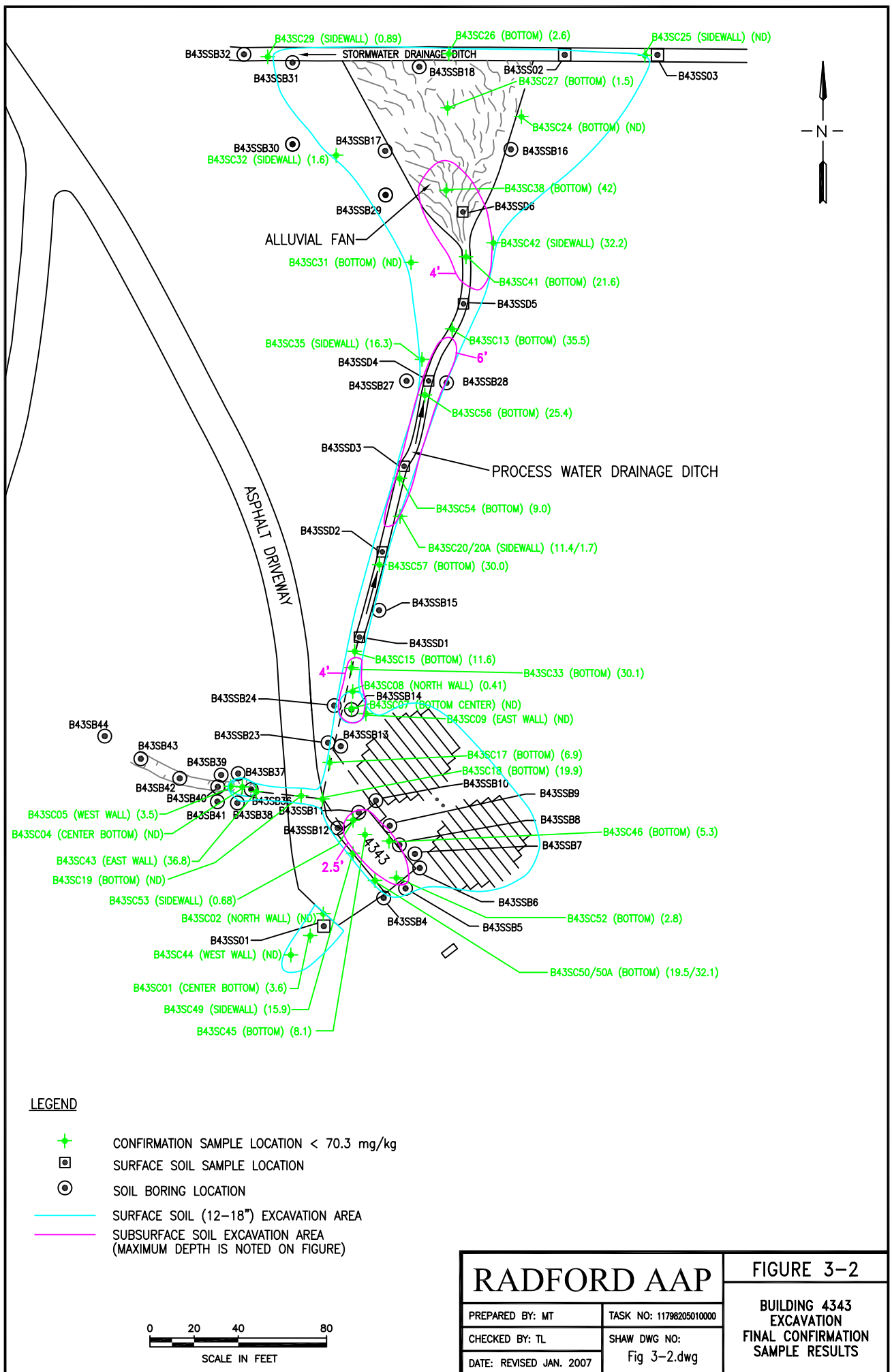


Table 3-1
Confirmation Sample Results
Building 4343 Interim Measures

Sample ID	Sample Date	TAL Cadmium Result	Lab Flag	Val Flag	MRL	MDL
B43SSC01	09/07/06	3.6			0.023	0.47
B43SSC02	09/07/06	0.023	U		0.023	0.46
B43SSC03	09/07/06	96.2			0.023	0.47
B43SSC04	09/07/06	0.025	U		0.025	0.51
B43SSC05	09/07/06	3.5			0.024	0.48
B43SSC06	09/07/06	120			0.025	0.5
B43SSC07	09/07/06	0.026	U		0.026	0.51
B43SSC08	09/07/06	0.41	J	J	0.022	0.45
B43SSC09	09/07/06	0.96	U		0.96	1.9
B43SC10	09/08/06	43.0		J	0.025	0.5
B43SC10A	09/08/06	11.4		J	0.023	0.46
B43SC11	09/08/06	136			0.024	0.47
B43SC12	09/08/06	1560			0.22	4.5
B43SC13	09/08/06	35.5			0.02	0.41
B43SC14	09/08/06	140			0.021	0.42
B43SC15	09/08/06	11.6			0.024	0.47
B43SC16	09/08/06	79.5			0.025	0.5
B43SC17	09/08/06	6.9			0.022	0.45
B43SC18	09/08/06	19.9			0.024	0.48
B43SC19	09/08/06	0.96	U		0.96	1.9
B43SC20	09/08/06	11.4		J	0.023	0.46
B43SC20A	09/08/06	1.7		J	0.023	0.46
B43SC21	09/08/06	87.0			0.02	0.4
B43SC22	09/08/06	216			0.022	0.44
B43SC23	09/08/06	332			0.021	0.43
B43SC24	09/08/06	0.021	U		0.021	0.41
B43SC25	09/08/06	0.022	U		0.022	0.44
B43SC26	09/08/06	2.6			0.02	0.4
B43SC27	09/08/06	1.5			0.021	0.43
B43SC28	09/08/06	109			0.022	0.44
B43SC29	09/08/06	0.89			0.022	0.45

Sample ID	Sample Date	TAL Cadmium Result	Lab Flag	Val Flag	MRL	MDL
B43SC30	09/18/06	224			0.023	0.46
B43SC30A	09/18/06	191			0.023	0.46
B43SC31	09/18/06	0.92	U		0.92	1.8
B43SC32	09/18/06	1.6			0.023	0.47
B43SC33	09/18/06	30.1			0.024	0.47
B43SC34	09/18/06	102			0.022	0.44
B43SC35	09/18/06	16.3			0.021	0.42
B43SC36	09/18/06	173			0.022	0.44
B43SC37	09/18/06	181			0.021	0.41
B43SC38	09/18/06	42			0.022	0.43
B43SC39	09/26/06	86.9		J	0.028	0.56
B43SC40	09/26/06	209		J	0.024	0.47
B43SC40A	09/26/06	153		J	0.023	0.46
B43SC41	09/26/06	21.6		J	0.022	0.45
B43SC42	09/26/06	32.2		J	0.022	0.44
B43SC43	09/26/06	36.8		J	0.022	0.44
B43SC44	09/26/06	0.92	U		0.92	1.8
B43SC45	09/26/06	8.1		J	0.026	0.51
B43SC46	09/26/06	5.3		J	0.024	0.47
B43SC47	09/26/06	90.4		J	0.024	0.48
B43SC48	09/26/06	113		J	0.025	0.50
B43SC49	09/26/06	15.9		J	0.026	0.51
B43SC50	09/26/06	19.5		J	0.026	0.51
B43SC50A	09/26/06	32.1		J	0.025	0.50
B43SC52	10/02/06	2.8			0.025	0.50
B43SC53	10/02/06	0.68			0.026	0.52
B43SC54	10/02/06	9.0			0.025	0.51
B43SC55	10/02/06	78			0.023	0.47
B43SC56	10/09/06	25.4			0.025	0.50
B43SC57	10/09/06	30.0			0.024	0.49

Units for the results, MRL and MDL are mg/kg.

Grey shading indicates that the result was greater than the RG of 70.3 mg/kg.

"A" at the end of a sample ID denotes a duplicate sample.

Sample ID	Sample Date	Test Procedure	Result	Lab Flag	MDL	MRL
B43SC51T	9/26/2006	TCLP Cadmium	4.9		0.001	0.025
B43SC58	10/09/06	TCLP Cadmium	0.40		0.0003	0.005
B43SC59	10/09/06	SPLP Cadmium	0.0003	U	0.0003	0.005

Note: Units for TCLP and SPLP results, MDLs and MRLs are MG/L.

4.0 BUILDING DEMOLITION

The second phase of the work at Building 4343 consisted of the Asbestos Abatement of approximately 450 square feet (sq ft) of transite ceiling panels and 10 lin ft of asbestos-containing pipe insulation. A certified asbestos abatement contractor was subcontracted to complete this task. A total of 76 bags of ACM were disposed of during this task.

4.1 ASBESTOS ABATEMENT

An asbestos survey was completed on May 16, 2006, to assess the building materials prior to demolition. Materials in and on the building that were identified as ACM and requiring abatement prior to demolition were:

- Transite ceiling tiles within the building (approximately 450 sq ft);
- Transite electrical box mount pad (approximately 1 sq ft);
- Debris piles associated with ceiling tiles (<5 sq ft); and,
- Cementitious (non-friable) pipe insulation (< 10 lin ft).

A copy of the Asbestos Survey Report is included in **Appendix E**.

Shaw subcontracted with WACO Corporation (WACO), to perform the Asbestos Abatement of Building 4343 and subcontracted with Trinidyne Corporation to perform the third party air monitoring required by the Asbestos Regulations. Trinidyne supplies a Virginia licensed Project Monitor to perform the air monitoring and collect the final air clearance sample. Results from the final air clearance sample are included in Trinidyne's field report, which is attached in **Appendix E**. WACO provided a memo stating that notification to USEPA and Virginia Department of Labor and Industry was not required for this project due to the quantity and type of asbestos present in the building. This memo is also attached in **Appendix E**.

Shaw's Site Safety and Health Officer reviewed the Health and Safety Plan with all subcontractors involved with the abatement plan and reviewed the air monitoring plan with Trinidyne. The area was secured with caution tape and the building was sealed with poly sheeting to minimize potential problems with plant personnel coming into the work area. The pipe insulation was wetted and removed using glove bags and the transite boards were removed and sized before being double-bagged and marked for disposal. WACO transported the asbestos bags to a roll-off located at their facility for disposal.

4.2 MISCELLANEOUS WASTE

Upon completion of the ACM abatement activities and collection of the final air clearance samples, additional special wastes were removed from the building. Six fluorescent light tubes were removed, boxed and sent to the Radford Electrical Shop for disposal as Universal Waste. Three polychlorinated biphenyl (PCB)-containing light ballasts were also removed and sent to the Radford Electrical Shop for disposal. Aside from the light tubes and ballasts, no other wastes requiring special handling were identified in or on the building.

4.3 BUILDING 4343 DEMOLITION

After the removal of miscellaneous waste, Shaw began the demolition and segregation of the building. Shaw mobilized a 3,000-gallon water truck for dust suppression during excavation

activities and then, using a Cat 320 excavator with a bucket and hydraulic thumb, began the demolition of Building 4343.

The metal roof of the building was removed and staged for recycling to a scrap yard. Then the wooden framework and roofing was removed to allow access to the interior of the building. While using the water truck to keep the dust to a minimum, the excavator continued demolishing the building and segregating materials.

Steel piping, metal roofing, and any other recyclables were segregated and transported to the Vinton Scrap and Metals Co. in Vinton, Virginia. Concrete, wood debris, and other non-recyclable material was separated and sent to the First Piedmont Landfill in Ringgold, Virginia. The transportation of waste was handled by either First Piedmont or Thompson Trucking, Inc. of Concord, Virginia. A total of 21 loads (360.2 tons) of demolition debris was transported and disposed of at First Piedmont, and 13,520 pounds of steel were transported to Vinton Scrap and Metals for recycling. Manifests and the waste profile for the non-hazardous debris are included in **Appendix C-1** and the non-hazardous shipping log is presented in **Appendix D-1**.

4.4 BUILDING 4343 FOOTPRINT EXCAVATION

After the demolition of the above grade portions of Building 4343, the concrete slab foundation was demolished using a backhoe with hydraulic hoe-ram attachment. The entire concrete slab was broken into manageable pieces and included with the demolition debris for disposal.

An additional one foot of soil was excavated from under the building foundation and sent to the Environmental Quality Company's Michigan Disposal Waste Treatment Plant in Belleville, Michigan for disposal as hazardous waste. Samples were taken from the floor and sidewalls of the excavated area and sent off site for cadmium analysis. The sample results (**Figures 3-1 and 3-2**) showed two areas (B43SC47 [90.4 mg/kg] and B43SC48 [96.2 mg/kg]) above the RG (70.3 mg/kg). One additional foot of soil was removed from the bottom of the excavation and the northwest wall of the excavation and disposed of as hazardous waste. Additional samples (B43SC52 [2.8 mg/kg] and B43SC53 [0.68 mg/kg]) were collected and the results were below the RG.

5.0 SITE RESTORATION AND DEMOBILIZATION

This stage of the project commenced after the completion of the excavation and building demolition phases and the receipt of all analytical samples taken to confirm the areas of concern were completed and met the RG of 70.3 mg/kg for cadmium. This task included the backfill, topsoil and hydro-seeding of all excavated areas and the patching of the asphalt driveway disturbed during the removal of the 8-in. drainage pipe.

5.1 EXCAVATION BACKFILL AND FINAL GRADING

Certified clean general fill and top soil were obtained from a local contractor, Hodges Trucking of Christiansburg, Virginia. The borrow site was visited by site personnel and the material sampled and sent to a laboratory for analysis for target compound list (TCL) volatile organic compounds (VOCs), TCL semivolatile organic compounds (SVOCs), pesticides/PCBs, TAL metals and pH. Results from the samples indicated that VOCs, SVOCs, pesticides, and PCBs were not detected in either the topsoil or borrow material. Metals were present at levels below the RFAAP facility-wide background concentrations with the exception of beryllium. Beryllium concentrations were below the residential risk-based concentration. Results from the top soil and borrow material samples are presented in **Table 5-1**.

Upon receipt of the analytical results, the general fill material was transported to the site and placed using an excavator and a dozer in the excavation areas and compacted. The material was placed with the dozer and compacted using the excavator bucket. There were 53 loads or 636 cubic yards (CY) of general fill placed; it was estimated there were 12 CY per load hauled into the site. After completion of the placement of the general fill, an additional 49 loads or 539 CY of topsoil were hauled into the site again by Hodges Trucking. It was estimated that each load was approximately 11 CY. The top soil was placed over the general fill material in a one-foot lift and spread and graded using a John Deere 650 wide-track dozer. Final grading was performed so that the excavation was brought up-to-grade without the original process water ditch so that the hill slopes uniformly from the former building location at the top of the hill to the former “delta” area at the base of the hill.

5.2 ASPHALT REPAIR

The asphalt was patched in the area where the asphalt was removed to excavate the pipe running under the driveway. A local subcontractor, Hodges Trucking, was hired to perform the asphalt patching activities. Prior to patching, the excavation was filled with clean, general fill and compacted using the excavator bucket. The area was then allowed to settle for approximately 10 days. The patching was performed on October 20, 2006. The asphalt patching subcontractor then re-compacted the area under the road with a vibratory plate compactor. A sub-base of crushed stone was laid down on top of the compacted fill and compacted again with the plate compactor. Asphalt was placed over the sub-base and rolled to compact and smooth the final patch. The patched area is shown in the photo log on page 6 in **Appendix A**.

5.3 HYDRO-SEEDING

After the backfill of the excavation and placement of top soil was complete, Shaw subcontracted with a local, small business (Gregory Seeding of Pulaski, Virginia) to hydro-seed and mulch the entire 2.5-acre area, which was disturbed during site activities. Hydro-seeding is a process in which grass seed, fertilizer and mulch are applied suspended in a liquefied slurry and is typically

Table 5-1
Top Soil and Borrow Material Characterization Samples
Building 4343 Interim Measures

Analyte	Sample ID Sample Date Sample Matrix			B43DW09 9/12/06 Topsoil					B43DW10 9/12/06 Borrow Material				
	i-RBC	r-RBC	Background	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL
VOCs (ug/kg) - None Detected													
SVOCs (ug/kg) - None Detected													
Pesticides (ug/kg) - None Detected													
PCBs (mg/kg) - None Detected													
Metals (mg/kg)													
Aluminum	na	na	40041	21000			2.6	24	15000			2.5	23
Arsenic	1.9	0.43	15.8	4.7			0.46	0.95	1.8			0.45	0.92
Barium	20000	1600	209	90.7			0.095	24	30.6			0.092	23
Beryllium	200	16	1.02	1.7			0.047	0.59	1.3			0.046	0.58
Calcium	na	na	na	1090			6.8	590	1240			6.6	580
Chromium	310	23	65.3	36.7			0.11	1.2	54.3			0.1	1.2
Cobalt	na	na	72.3	12.8			0.071	5.9	9.7			0.069	5.8
Copper	4100	310	53.5	12.1			0.11	3	8.6			0.1	2.9
Iron	31000	2300	50962	29700			1.4	12	24000			1.4	12
Lead	800	400	26.8	10.2	J	J	0.24	12	0.43	J	J	0.23	12
Magnesium	na	na	na	1900			0.88	590	8240			0.85	580
Manganese	2000	160	2543	960			0.36	8.9	238			0.069	1.7
Mercury	31	2.3	0.13	0.044	J	J	0.007	0.087	0.043	J	J	0.007	0.097
Nickel	2000	160	62.8	15.3			0.12	4.7	29.7			0.12	4.6
Potassium	na	na	na	1040	J	L	12	1200	1280		L	12	1200
Selenium	510	39	na	1.2	J	J	0.24	12	0.43	J	J	0.23	12
Sodium	na	na	na	549	J	L	98	1200	346	J	L	95	1200
Vanadium	102	7.8	108	56.1			0.071	5.9	22.3			0.069	5.8
Zinc	31000	2300	202	24.9			0.15	2.4	19.9			0.15	2.3
Misc.													
pH	na	na	na	5.8		J	NA	NA	6.6		J	NA	NA

12	J	Shading and black font indicates a i-RBC exceedance.
12	J	Bold outline indicates a r-RBC exceedance.
<u>12</u>	<u>J</u>	Bold, underlined font indicates a Background exceedance.
12	12	Shading in the MDL/MRL columns indicates the MDL exceeds a criterion.
RBCs for non-Carcinogenic compounds have been recalculated to an HI of 0.1.		
Inorganic results below background UTLs are not indicated as exceedances on the table.		
RBC source: USEPA Region III Risk Based Concentration Table. October 2006.		

sprayed onto the ground surface. Hydro-seeding at the Building 4343 project site was performed on October 19, 2006, and was finished in a single day. The results of the hydro-seeding can be seen in the photos on page 6 of the photo log in **Appendix A**.

5.4 POST COMPLETION INSPECTION

An inspection was performed at the site on January 18, 2007, approximately 90 days after completion of the site restoration activities. The purpose of the inspection was to ensure that grass was growing and that the excavated areas were not eroding. At the time of the inspection, grass was established and growing in the hydro-seeded area and the hillside appeared to be stable (see photos on page 6 of the photo log in **Appendix A**). Additional sediments were not accumulating in the former delta area and the ditch was not re-established in the hillside.

6.0 REFERENCES

- Alliant Techsystems, Inc. (ATK), 1998. *UST Closure Report*. Letter Report to VDEQ, dated 28 July 1998.
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- IT Corporation (IT), 2001. *Facility-Wide Background Study Report*. Radford Army Ammunition Plant, Virginia. Final Report. December 2001. Delivery Order No. 0013, Contract No. DACA31-94-D-0064.
- Shaw Environmental, Inc. (Shaw), 2004. *Building 4343 RCRA Facility Investigation /Corrective Measures Study Report*, Final Document. Prepared for the U.S. Army Corps of Engineers, Baltimore District. February 2004.
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- URS Corporation (URS), 2003. *Final Master Work Plan, Quality Assurance Plan, Health and Safety Plan*. Radford Army Ammunition Plant, Radford, Virginia. Prepared for the U.S. Army Corps of Engineers, Baltimore District. August 2003.
- U.S. Environmental Protection Agency (USEPA), 2000. *Permit for Corrective Action and Waste Minimization*: Pursuant to the Resource Conservation and Recovery Act as Amended by the Hazardous and Solid Waste Amendment of 1984, Radford Army Ammunition Plant, Radford, Virginia. VA1210020730.
- U.S. Environmental Protection Agency (USEPA), 2004. *USEPA Office of Solid Waste and Emergency Response Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW-846), Update IIIB*. November, 2004.
- U.S. Environmental Protection Agency (USEPA), 2006. *USEPA Region III Risk-Based Concentration Table*. October 2006.

Appendix A

Photo Log

Water Tower Footer Removal



Soil Excavation & Loading



Asbestos Abatement



Building Demolition



Appendix B

Laboratory Data

MEMORANDUM

TO: Tim Leahy, Shaw E&I RFAAP Project Manager

FROM: Eric Malarek, Shaw E&I RFAAP Project Chemist

SUBJECT: Radford Army Ammunition Plant (RFAAP) Data Validation – Cadmium in Soil
Accutest Laboratories, Inc., SDG F43497

DATE: September 25, 2006

The purpose of this memorandum is to present the data validation report for the samples collected at Building 4343 at the RFAAP on September 07, 2006. Samples were analyzed for cadmium in soil using USEPA Method 3050B/6010B. A total of nine soil samples were validated. The sample IDs are:


Field Sample ID	Lab Sample ID	Field Sample ID	Lab Sample ID
B43SSC01	F43497-1	B43SSC06	F43497-6
B43SSC02	F43497-2	B43SSC07	F43497-7
B43SSC03	F43497-3	B43SSC08	F43497-8
B43SSC04	F43497-4	B43SSC09	F43497-9
B43SSC05	F43497-5		

Data were reviewed by Eric Malarek and validated using a combination of project QAPP, DoD Quality Systems Manual for Environmental Laboratories, Final Version 3, January, 2006 (DoD, 2006) (DoD QSM), method-specific criteria, and laboratory SOP criteria. The data qualifier scheme was consistent with the *Region III Modifications to the National Functional Guidelines for Inorganic Data Review* (April, 1993). Parameters evaluated are presented in **Table 1**. Data associated with parameters in compliance with quality control specifications have not been qualified. Data associated with parameters that did not comply with quality control specifications and directly impacted project data have been qualified in accordance with USEPA Region III specifications.

Table 1 Laboratory Performance Criteria

Qualified		Parameter
Yes	No	
	X	Holding Times and Preservation
	X	Initial and Continuing Calibration
	X	Blank Analysis
	X	ICP Interference Check Sample (ICS)
	X	Laboratory Control Sample (LCS)
	X	Laboratory Duplicate
	X	Matrix Spike (MS) and Spike Duplicate (MSD)
	X	Field Duplicate
	X	ICP Serial Dilution
	X	Quantitation Verification

The quality of data collected in support of this sampling activity is considered acceptable.


Eric Malarek, Chemist

9/25/06
Date

**RFAAP VALIDATION REPORT
CADMIUM IN SOIL REVIEW
SDG F43497**

I-Holding Times and Preservation

The primary objective is to ascertain the validity of results based on the holding time of the sample from time of collection to time of sample analysis. For metals analysis, soil samples are received at ambient temperature and stored cool @4°C±2°C with a maximum holding time of 180 days for cadmium from collection (USEPA criteria).

- Temperature Review: The soil samples were collected for ICP metal cadmium only, therefore, ambient temperature was sufficient for shipment and recorded by the lab upon receipt. For samples collected on 09/07/06, cooler was received by the laboratory at ambient temperature. All criteria were met. No qualifiers were applied.
- Holding Time Review: Samples were collected on 09/07/06. They were digested on 09/12/06 and analyzed for ICP cadmium on 09/12/06. All holding time criteria were met. No qualifiers were applied.

II-Initial and Continuing Calibration

Requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable quantitative data. Initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analysis run, and continuing calibration verification documents that the initial calibration is still valid.

ICP-Cd: 1- blank (DoD QSM <1/2MRL)
3 – standards ($r \geq 0.995$)
ICV/CCV (90-110%) (DoD QSM 90-110%)
MRL (70-130%) (DoD QSM 80-120%)
High Std. (95-105%)

- The samples were analyzed for ICP cadmium on 09/12/06. All ICV/CCV standards were within criteria. **Table 2** summarizes the MRL standard analysis for metals. Samples with concentrations detected less than two times the MRL with out of criteria MRL recovery were qualified. All criteria were met. No qualifiers were applied.

Table 2 MRL Analysis Summary

Analysis Date	Analysis	MRL (µg/L)	MRL (mg/kg)	MRL %Recovery	Qualified samples @ <2xMRL	Validation Qualifiers
09/12/06	ICP-Cd	5	0.5	All within criteria	None	None

III-Blanks

Blanks (preparation and calibration blanks) are assessed to determine the existence and magnitude of contamination problems. No contaminants should be detected (i.e. <MDL) in any of the associated blanks. DoD QSM limits are <1/2MRL for the method blank and <2MDL for the calibration blanks. Samples are qualified "B" when they are less than 5X the absolute value of the maximum blank concentration. **Table 3** summarizes the blank contamination analysis. Action levels are based upon dilution factor of one and were converted to soil values (soil conversion factor = 10 for ICP).

Table 3 Blank Contamination Analysis Summary

Analysis Date	Analysis	QC Blank ID	Max Conc. mg/kg	Action Level mg/kg	B qualified samples
09/12/06	ICP-Cd	ICB/CCBs	<2MDL	NA	None
09/12/06	ICP-Cd	MP10296-MB1	<MRL	NA	None

MDL = Method Detection Limit.

MRL = Method Reporting Limit.

NA = Not Applicable.

IV-ICP Interference Check Sample (ICS)

The ICP interference check sample (ICS) verifies interelement and background correction factors. ICP Interference Check is performed at the beginning and end of each sample analysis run. Control limits are 80-120% (DoD QSM limits 80-120%).

- All criteria were met. No qualifiers were applied.

V-Laboratory Control Samples (LCS)

The laboratory control sample (LCS) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. All soil LCS results must fall within the control limits of 80-120% for ICP metals. DoD QSM limits for metals are 80-120%.

- Sample MP10296-SB1 was used as LCS for ICP cadmium analysis dated 09/12/06. All criteria were met. No qualifiers were applied.

VI-Laboratory Duplicate

Duplicate sample determinations are used to demonstrate acceptable method precision by the laboratory at the time of analysis. Duplicate analysis is also performed to generate data in order to determine the long-term precision of the analytical method on various matrices. RPDs must be within established control limits. DoD QSM limits for metals are 20% RPD for ICP metals.

- Sample F43547-1 was used for the duplicate analysis for the 09/12/06 ICP cadmium analysis. Since this was not a RFAAP sample, it was not evaluated.

VII-Matrix Spike (MS) and Spike Duplicate (MSD)

MS and MSD are generated to determine long-term accuracy and precision of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. Specific criteria include the analyses of matrix spike samples at a frequency of one MS/MSD per 20 samples of similar matrix. MS/MSD recoveries and relative percent differences between MS recoveries should be within the specified limits. DoD QSM limits for metals are 80-120%; RPD≤20% for ICP metals. Post digestion spikes limits are 75-125% for ICP metals.

- Sample F43547-1 was used for the MS/MSD analysis for the 09/12/06 ICP cadmium analysis. Since this was not a RFAAP sample, it was not evaluated.

VIII-Field Duplicate Sample Analysis

Field duplicates were collected to identify the cumulative precision of the sampling and analytical process and sent to the laboratory blind. The RPD was calculated only for those analytes which were detected at levels exceeding the method reporting limits in both samples of the duplicate pair. Analytes that were qualified rejected (R-qualified) in either sample of the duplicate pair were excluded from the duplicate assessment. Precision control criterion was established at 35% RPD for cadmium for the soil samples. Analytical results were qualified as estimated (J) for any RPDs exceeding criteria.

- No field groundwater samples were analyzed with this SDG.

IX-ICP Serial Dilution

An ICP serial dilution is performed to determine whether significant physical or chemical interferences exist due to sample matrix at high concentrations. An analysis of a 5-fold dilution should agree within 10% difference of the original result when the concentration in sample is a factor of 50 above MDL.

- The serial dilution for the 09/12/06 ICP cadmium analysis was analyzed on sample F43547-1. Since this was not a RFAAP sample, it was not evaluated.

X-Quantitation Verification

The accuracy of analytical results is verified through the calculation of several parameters. The percent difference (%D) between the calculated and the reported values should be within 10%. Any sample value >MDL and <MRL or <3*MDL (whichever was greater) was qualified as estimated, "J." The following calculations were performed for verification.

ICP Sample: B43SSC01 (F43497-1), Total Cadmium

$$\text{Conc. (mg/kg)} = \{(\text{conc. } \mu\text{g/L}) * (\text{Final Volume L}) * (\text{DF})\} / \{(\text{Weight Sample g}) * (\text{Fraction Solids})\}$$

$$\text{Conc. (mg/kg)} = \{(30.40 \mu\text{g/L}) * (0.050 \text{ L}) * (1)\} / \{(0.52 \text{ g}) * (0.8520)\} = 3.4 \mu\text{g/g} = 3.4 \text{ mg/kg}$$

Reported concentration = 3.6 mg/kg

%D = 5.6%

Values were within 10% difference.

USEPA Region III Validation Qualifiers

(No Code) = Confirmed identification.

B = The analyte has been detected in the sample and the associated laboratory or field blank.

J = Indicates an estimated value for (1) estimated value due to QC non-conformance. Reported value may not be accurate or precise, (2) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, or (3) estimating a concentration \geq MDL and $<$ MRL or $<3*$ MDL, whichever is greater.

K = Analyte present. Reported value may be biased high (estimated) due to QC non-conformance.

L = Analyte present. Reported value may be biased low (estimated) due to QC non-conformance.

R = Unreliable result. Analyte may or may not be present in the sample due to QC non-conformance.

UL = Value is estimated bias low and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise. Quantitation limit is probably higher.

UJ = Value is estimated and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise.

Laboratory Qualifiers

(No Code) = Confirmed identification.

A (Dioxins) = MDL is based upon the signal-to-noise measurement.

B (Metals) = The reported value was obtained from a reading $<$ MRL and \geq MDL and is considered estimated.

B (Organics and Dioxins) = The analyte or compound has been detected in the sample and laboratory method blank. It indicates probable blank contamination.

D (Organics) = Indicates sample was analyzed at a dilution.

E (Metals) = Reported value is estimated because of the presence of interferences.

E (Organics) = Identifies compounds whose concentrations exceed the upper level of the calibration range.

E (Dioxins) = Reported value is estimated because of the presence of ether interferences.

EMPC (Dioxins) = The ion-abundance ratio between the two characteristic PCDD/F ions is outside accepted ranges. The detected PCDD/F is reported as an estimated maximum possible concentration (EMPC).

I (Dioxins) = Reported value is estimated because of the incorrect isotope ratios were obtained.

J (All) = Indicates an estimated value for (1) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, (2) estimating a concentration $<$ MRL and \geq MDL, or estimating a concentration below the calibration range.

N (Organics) = Indicates presumptive evidence of a compound for tentatively identified compounds using a library search.

N (Metals) = Laboratory spike sample recovery not within control limits.

P (Organics) = Target analyte confirmation $>40\%$ difference for detected compound between the primary and secondary columns. The lower of the two values was reported.

U (All) = ND = BQL = Not detected. The associated number indicates the compound reporting limit for the sample.

* (Metals) = Duplicate analysis not within control limits.

* (Organics) = Surrogate outside of QC limits on both original and re-analysis.

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Report of Analysis

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Client Sample ID:	B43SSC01	Date Sampled:	09/07/06
Lab Sample ID:	F43497-1	Date Received:	09/08/06
Matrix:	SO - Soil	Percent Solids:	85.2
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	3.6	0.47	0.023	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10296

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID:	B43SSC02	Date Sampled:	09/07/06
Lab Sample ID:	F43497-2	Date Received:	09/08/06
Matrix:	SO - Soil	Percent Solids:	86.9
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	0.023 U	0.46	0.023	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10296

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID:	B43SSC03	Date Sampled:	09/07/06
Lab Sample ID:	F43497-3	Date Received:	09/08/06
Matrix:	SO - Soil	Percent Solids:	85.9
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	96.2	0.47	0.023	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10296

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

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Report of Analysis

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Client Sample ID:	B43SSC04	Date Sampled:	09/07/06
Lab Sample ID:	F43497-4	Date Received:	09/08/06
Matrix:	SO - Soil	Percent Solids:	78.6
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	0.025 U	0.51	0.025	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10296

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

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Report of Analysis

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Client Sample ID: B43SSC05
Lab Sample ID: F43497-5
Matrix: SO - Soil
Project: Radford AFB-Bldg 4343

Date Sampled: 09/07/06
Date Received: 09/08/06
Percent Solids: 79.7

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	3.5	0.48	0.024	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10296

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

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Report of Analysis

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Client Sample ID:	B43SSC06	Date Sampled:	09/07/06
Lab Sample ID:	F43497-6	Date Received:	09/08/06
Matrix:	SO - Soil	Percent Solids:	78.9
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	120	0.50	0.025	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10296

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

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Report of Analysis

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Client Sample ID:	B43SSC07	Date Sampled:	09/07/06
Lab Sample ID:	F43497-7	Date Received:	09/08/06
Matrix:	SO - Soil	Percent Solids:	76.5
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	0.026 U	0.51	0.026	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10296

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID:	B43SSC08	Date Sampled:	09/07/06
Lab Sample ID:	F43497-8	Date Received:	09/08/06
Matrix:	SO - Soil	Percent Solids:	89.6
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	0.41 J J	0.45	0.022	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10296

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

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Client Sample ID: B43SSC09
Lab Sample ID: F43497-9
Matrix: SO - Soil
Project: Radford AFB-Bldg 4343

Date Sampled: 09/07/06
Date Received: 09/08/06
Percent Solids: 82.5

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium ^a	0.96 U	1.9	0.96	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10296

(a) Elevated reporting limit(s) due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

MEMORANDUM

TO: Tim Leahy, Shaw E&I RFAAP Project Manager

FROM: Eric Malarek, Shaw E&I RFAAP Project Chemist

SUBJECT: Radford Army Ammunition Plant (RFAAP) Data Validation -- Cadmium in Soil
 Accutest Laboratories, Inc., SDG F43533

DATE: September 26, 2006

The purpose of this memorandum is to present the data validation report for the samples collected at Building 4343 at the RFAAP on September 08, 2006. Samples were analyzed for cadmium in soil using USEPA Method 3050B/6010B. A total of twenty-two soil samples were validated. The sample IDs are:

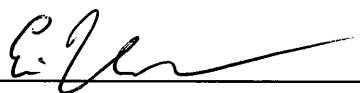
Field Sample ID	Lab Sample ID	Field Sample ID	Lab Sample ID
B43SC10	F43533-1	B43SC20	F43533-12
B43SC10A	F43533-2	B43SC20A	F43533-13
B43SC11	F43533-3	B43SC21	F43533-14
B43SC12	F43533-4	B43SC22	F43533-15
B43SC13	F43533-5	B43SC23	F43533-16
B43SC14	F43533-6	B43SC24	F43533-17
B43SC15	F43533-7	B43SC25	F43533-18
B43SC16	F43533-8	B43SC26	F43533-19
B43SC17	F43533-9	B43SC27	F43533-20
B43SC18	F43533-10	B43SC28	F43533-21
B43SC19	F43533-11	B43SC29	F43533-22

Data were reviewed by Eric Malarek and validated using a combination of project QAPP, DoD Quality Systems Manual for Environmental Laboratories, Final Version 3, January, 2006 (DoD, 2006) (DoD QSM), method-specific criteria, and laboratory SOP criteria. The data qualifier scheme was consistent with the *Region III Modifications to the National Functional Guidelines for Inorganic Data Review* (April, 1993). Parameters evaluated are presented in **Table 1**. Data associated with parameters in compliance with quality control specifications have not been qualified. Data associated with parameters that did not comply with quality control specifications and directly impacted project data have been qualified in accordance with USEPA Region III specifications.

Table 1 Laboratory Performance Criteria

Qualified		Parameter
Yes	No	
	X	Holding Times and Preservation
	X	Initial and Continuing Calibration
	X	Blank Analysis
	X	ICP Interference Check Sample (ICS)
	X	Laboratory Control Sample (LCS)
	X	Laboratory Duplicate
	X	Matrix Spike (MS) and Spike Duplicate (MSD)
X		Field Duplicate
	X	ICP Serial Dilution
	X	Quantitation Verification

The quality of data collected in support of this sampling activity is considered acceptable with noted qualifications.


Eric Malarek, Chemist

9/26/06
Date

**RFAAP VALIDATION REPORT
CADMIUM IN SOIL REVIEW
SDG F43533**

I-Holding Times and Preservation

The primary objective is to ascertain the validity of results based on the holding time of the sample from time of collection to time of sample analysis. For metals analysis, soil samples are received at ambient temperature and stored cool @4°C±2°C with a maximum holding time of 180 days for cadmium from collection (USEPA criteria).

- Temperature Review: The soil samples were collected for ICP metal cadmium only, therefore, ambient temperature was sufficient for shipment and recorded by the lab upon receipt. For samples collected on 09/08/06, cooler was received by the laboratory at ambient temperature. All criteria were met. No qualifiers were applied.
- Holding Time Review: Samples were collected on 09/08/06. They were digested on 09/12/06 and analyzed for ICP cadmium on 09/12/06 and 09/13/06. All holding time criteria were met. No qualifiers were applied.

II-Initial and Continuing Calibration

Requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable quantitative data. Initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analysis run, and continuing calibration verification documents that the initial calibration is still valid.

ICP-Cd: 1- blank (DoD QSM <1/2MRL)
3 – standards (r≥0.995)
ICV/CCV (90-110%) (DoD QSM 90-110%)
MRL (70-130%) (DoD QSM 80-120%)
High Std. (95-105%)

- The samples were analyzed for ICP cadmium on 09/12/06 and 09/13/06. All ICV/CCV standards were within criteria. **Table 2** summarizes the MRL standard analysis for metals. Samples with concentrations detected less than two times the MRL with out of criteria MRL recovery were qualified. All criteria were met. No qualifiers were applied.

Table 2 MRL Analysis Summary

Analysis Date	Analysis	MRL (µg/L)	MRL (mg/kg)	MRL %Recovery	Qualified samples @ <2xMRL	Validation Qualifiers
09/12/06	ICP-Cd	5	0.5	All within criteria	None	None
09/13/06	ICP-Cd	5	0.5	All within criteria	None	None

III-Blanks

Blanks (preparation and calibration blanks) are assessed to determine the existence and magnitude of contamination problems. No contaminants should be detected (i.e. <MDL) in any of the associated blanks. DoD QSM limits are <½MRL for the method blank and <2MDL for the calibration blanks. Samples are qualified "B" when they are less than 5X the absolute value of the maximum blank concentration. **Table 3** summarizes the blank contamination analysis. Action levels are based upon dilution factor of one and were converted to soil values (soil conversion factor = 10 for ICP).

Table 3 Blank Contamination Analysis Summary

Analysis Date	Analysis	QC Blank ID	Max Conc. mg/kg	Action Level mg/kg	B qualified samples
09/12/06	ICP-Cd	ICB/CCBs	<2MDL	NA	None
09/13/06	ICP-Cd	ICB/CCBs	<2MDL	NA	None
09/12/06	ICP-Cd	MP10296-MB1	<MRL	NA	None
09/13/06	ICP-Cd	MP10297-MB1	<MRL	NA	None

MDL = Method Detection Limit.

MRL = Method Reporting Limit.

NA = Not Applicable.

IV-ICP Interference Check Sample (ICS)

The ICP interference check sample (ICS) verifies interelement and background correction factors. ICP Interference Check is performed at the beginning and end of each sample analysis run. Control limits are 80-120% (DoD QSM limits 80-120%).

- All criteria were met. No qualifiers were applied.

V-Laboratory Control Samples (LCS)

The laboratory control sample (LCS) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. All soil LCS results must fall within the control limits of 80-120% for ICP metals. DoD QSM limits for metals are 80-120%.

- Sample MP10296-SB1 was used as LCS for ICP cadmium analysis dated 09/12/06. All criteria were met. No qualifiers were applied.
- Sample MP10297-SB1 was used as LCS for ICP cadmium analysis dated 09/13/06. All criteria were met. No qualifiers were applied.

VI-Laboratory Duplicate

Duplicate sample determinations are used to demonstrate acceptable method precision by the laboratory at the time of analysis. Duplicate analysis is also performed to generate data in order to determine the long-term precision of the analytical method on various matrices. RPDs must be within established control limits. DoD QSM limits for metals are 20% RPD for ICP metals.

- Sample F43547-1 was used for the duplicate analysis for the 09/12/06 ICP cadmium analysis. Since this was not a RFAAP sample, it was not evaluated.
- Sample F43534-1 was used for the duplicate analysis for the 09/13/06 ICP cadmium analysis. Since this was not a RFAAP sample, it was not evaluated.

VII-Matrix Spike (MS) and Spike Duplicate (MSD)

MS and MSD are generated to determine long-term accuracy and precision of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. Specific criteria include the analyses of matrix spike samples at a frequency of one MS/MSD per 20 samples of similar matrix. MS/MSD recoveries and relative percent differences between MS recoveries should be within the specified limits. DoD QSM limits for metals are 80-120%; RPD≤20% for ICP metals. Post digestion spikes limits are 75-125% for ICP metals.

- Sample F43547-1 was used for the MS/MSD analysis for the 09/12/06 ICP cadmium analysis. Since this was not a RFAAP sample, it was not evaluated.
- Sample F43534-1 was used for the MS/MSD analysis for the 09/13/06 ICP cadmium analysis. Since this was not a RFAAP sample, it was not evaluated.

VIII-Field Duplicate Sample Analysis

Field duplicates were collected to identify the cumulative precision of the sampling and analytical process and sent to the laboratory blind. The RPD was calculated only for those analytes which were detected at levels exceeding the method reporting limits in both samples of the duplicate pair. Analytes that were qualified rejected (R-qualified) in either sample of the duplicate pair were excluded from the duplicate assessment. Precision control criterion was established at 35% RPD for cadmium for the soil samples. Analytical results were qualified as estimated (J) for any RPDs exceeding criteria.

- Field groundwater sample duplicate pair B43SC10 (F43533-1) and B43SC10A (F43533-2) was collected for total cadmium. Cadmium was found in the sample at 43.0 mg/kg and in its duplicate pair at 11.4 mg/kg resulting in a RPD of 116%. The high RPD is probably due to sample inhomogeneity. Cadmium was qualified estimated "J" for the sample and its duplicate pair based upon the high RPD.
- Field groundwater sample duplicate pair B43SC20 (F43533-12) and B43SC20A (F43533-13) was collected for total cadmium. Cadmium was found in the sample at 11.4 mg/kg and in its duplicate pair at 1.7 mg/kg resulting in a RPD of 148%. The high RPD is probably due to sample inhomogeneity. Cadmium was qualified estimated "J" for the sample and its duplicate pair based upon the high RPD.

IX-ICP Serial Dilution

An ICP serial dilution is performed to determine whether significant physical or chemical interferences exist due to sample matrix at high concentrations. An analysis of a 5-fold dilution should agree within 10% difference of the original result when the concentration in sample is a factor of 50 above MDL.

- The serial dilution for the 09/12/06 ICP cadmium analysis was analyzed on sample F43547-1. Since this was not a RFAAP sample, it was not evaluated.
- The serial dilution for the 09/13/06 ICP cadmium analysis was analyzed on sample F43534-1. Since this was not a RFAAP sample, it was not evaluated.

X-Quantitation Verification

The accuracy of analytical results is verified through the calculation of several parameters. The percent difference (%D) between the calculated and the reported values should be within 10%. Any sample value >MDL and <MRL or <3*MDL (whichever was greater) was qualified as estimated, "J." The following calculations were performed for verification.

ICP Sample: B43SC10 (F43533-1), Total Cadmium

$$\text{Conc. (mg/kg)} = \{(\text{conc. } \mu\text{g/L}) * (\text{Final Volume L}) * (\text{DF})\} / \{(\text{Weight Sample g}) * (\text{Fraction Solids})\}$$

$$\text{Conc. (mg/kg)} = \{(346.4 \mu\text{g/L}) * (0.050 \text{ L}) * (1)\} / \{(0.51 \text{ g}) * (0.7890)\} = 43.0 \mu\text{g/g} = 43.0 \text{ mg/kg}$$

Reported concentration = 43.0 mg/kg

%D = 0.0%

Values were within 10% difference.

USEPA Region III Validation Qualifiers

(No Code) = Confirmed identification.

B = The analyte has been detected in the sample and the associated laboratory or field blank.

J = Indicates an estimated value for (1) estimated value due to QC non-conformance. Reported value may not be accurate or precise, (2) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, or (3) estimating a concentration \geq MDL and $<$ MRL or $<3*$ MDL, whichever is greater.

K = Analyte present. Reported value may be biased high (estimated) due to QC non-conformance.

L = Analyte present. Reported value may be biased low (estimated) due to QC non-conformance.

R = Unreliable result. Analyte may or may not be present in the sample due to QC non-conformance.

UL = Value is estimated bias low and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise. Quantitation limit is probably higher.

UJ = Value is estimated and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise.

Laboratory Qualifiers

(No Code) = Confirmed identification.

A (Dioxins) = MDL is based upon the signal-to-noise measurement.

B (Metals) = The reported value was obtained from a reading $<$ MRL and \geq MDL and is considered estimated.

B (Organics and Dioxins) = The analyte or compound has been detected in the sample and laboratory method blank. It indicates probable blank contamination.

D (Organics) = Indicates sample was analyzed at a dilution.

E (Metals) = Reported value is estimated because of the presence of interferences.

E (Organics) = Identifies compounds whose concentrations exceed the upper level of the calibration range.

E (Dioxins) = Reported value is estimated because of the presence of ether interferences.

EMPC (Dioxins) = The ion-abundance ratio between the two characteristic PCDD/F ions is outside accepted ranges. The detected PCDD/F is reported as an estimated maximum possible concentration (EMPC).

I (Dioxins) = Reported value is estimated because of the incorrect isotope ratios were obtained.

J (All) = Indicates an estimated value for (1) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, (2) estimating a concentration $<$ MRL and \geq MDL, or estimating a concentration below the calibration range.

N (Organics) = Indicates presumptive evidence of a compound for tentatively identified compounds using a library search.

N (Metals) = Laboratory spike sample recovery not within control limits.

P (Organics) = Target analyte confirmation $>40\%$ difference for detected compound between the primary and secondary columns. The lower of the two values was reported.

U (All) = ND = BQL = Not detected. The associated number indicates the compound reporting limit for the sample.

* (Metals) = Duplicate analysis not within control limits.

* (Organics) = Surrogate outside of QC limits on both original and re-analysis.

Accutest Laboratories

Report of Analysis

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Client Sample ID: B43SC10

Lab Sample ID: F43533-1

Matrix: SO - Soil

Project: Radford AFB-Bldg 4343

Date Sampled: 09/08/06

Date Received: 09/09/06

Percent Solids: 78.9

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	43.0 J	0.50	0.025	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10296

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

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Client Sample ID:	B43SC10A	Date Sampled:	09/08/06
Lab Sample ID:	F43533-2	Date Received:	09/09/06
Matrix:	SO - Soil	Percent Solids:	86.4
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	11.4 J	0.46	0.023	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10296

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

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Client Sample ID: B43SC11
Lab Sample ID: F43533-3
Matrix: SO - Soil
Project: Radford AFB-Bldg 4343

Date Sampled: 09/08/06
Date Received: 09/09/06
Percent Solids: 84.6

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	136	0.47	0.024	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10296

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID:	B43SC12	Date Sampled:	09/08/06
Lab Sample ID:	F43533-4	Date Received:	09/09/06
Matrix:	SO - Soil	Percent Solids:	87.5
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	1560	4.5	0.22	mg/kg	10	09/12/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5230

(2) Prep QC Batch: MP10296

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Client Sample ID: B43SC13
Lab Sample ID: F43533-5
Matrix: SO - Soil
Project: Radford AFB-Bldg 4343

Date Sampled: 09/08/06
Date Received: 09/09/06
Percent Solids: 92.6

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	35.5	0.41	0.020	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10296

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Client Sample ID: B43SC14	Date Sampled: 09/08/06
Lab Sample ID: F43533-6	Date Received: 09/09/06
Matrix: SO - Soil	Percent Solids: 88.8
Project: Radford AFB-Bldg 4343	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	140	0.42	0.021	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10297

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Client Sample ID:	B43SC15	Date Sampled:	09/08/06
Lab Sample ID:	F43533-7	Date Received:	09/09/06
Matrix:	SO - Soil	Percent Solids:	84.6
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	11.6	0.47	0.024	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10297

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Client Sample ID: B43SC16

Lab Sample ID: F43533-8

Matrix: SO - Soil

Project: Radford AFB-Bldg 4343

Date Sampled: 09/08/06

Date Received: 09/09/06

Percent Solids: 80.8

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	79.5	0.50	0.025	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10297

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID:	B43SC17	Date Sampled:	09/08/06
Lab Sample ID:	F43533-9	Date Received:	09/09/06
Matrix:	SO - Soil	Percent Solids:	85.7
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	6.9	0.45	0.022	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10297

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID:	B43SC18	Date Sampled:	09/08/06
Lab Sample ID:	F43533-10	Date Received:	09/09/06
Matrix:	SO - Soil	Percent Solids:	79.1
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	19.9	0.48	0.024	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10297

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID:	B43SC19	Date Sampled:	09/08/06
Lab Sample ID:	F43533-11	Date Received:	09/09/06
Matrix:	SO - Soil	Percent Solids:	82.9
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium ^a	0.96 U	1.9	0.96	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10297

(a) Elevated reporting limit(s) due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID:	B43SC20	Date Sampled:	09/08/06
Lab Sample ID:	F43533-12	Date Received:	09/09/06
Matrix:	SO - Soil	Percent Solids:	86.9
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	11.4 J	0.46	0.023	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10297

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID:	B43SC20A	Date Sampled:	09/08/06
Lab Sample ID:	F43533-13	Date Received:	09/09/06
Matrix:	SO - Soil	Percent Solids:	87.0
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	1.7 J	0.46	0.023	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10297

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID:	B43SC21	Date Sampled:	09/08/06
Lab Sample ID:	F43533-14	Date Received:	09/09/06
Matrix:	SO - Soil	Percent Solids:	94.0
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	87.0	0.40	0.020	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10297

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID:	B43SC22	Date Sampled:	09/08/06
Lab Sample ID:	F43533-15	Date Received:	09/09/06
Matrix:	SO - Soil	Percent Solids:	90.5
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	216	0.44	0.022	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10297

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID:	B43SC23	Date Sampled:	09/08/06
Lab Sample ID:	F43533-16	Date Received:	09/09/06
Matrix:	SO - Soil	Percent Solids:	94.1
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	332	0.43	0.021	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10297

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID:	B43SC24	Date Sampled:	09/08/06
Lab Sample ID:	F43533-17	Date Received:	09/09/06
Matrix:	SO - Soil	Percent Solids:	96.4
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	0.021 U	0.41	0.021	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10297

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID:	B43SC25	Date Sampled:	09/08/06
Lab Sample ID:	F43533-18	Date Received:	09/09/06
Matrix:	SO - Soil	Percent Solids:	91.3
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	0.022 U	0.44	0.022	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10297

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID:	B43SC26	Date Sampled:	09/08/06
Lab Sample ID:	F43533-19	Date Received:	09/09/06
Matrix:	SO - Soil	Percent Solids:	95.7
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	2.6	0.40	0.020	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10297

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID: B43SC27
Lab Sample ID: F43533-20
Matrix: SO - Soil
Project: Radford AFB-Bldg 4343

Date Sampled: 09/08/06
Date Received: 09/09/06
Percent Solids: 88.3

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	1.5	0.43	0.021	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10297

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID: B43SC28
Lab Sample ID: F43533-21
Matrix: SO - Soil
Project: Radford AFB-Bldg 4343

Date Sampled: 09/08/06
Date Received: 09/09/06
Percent Solids: 88.3

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	109	0.44	0.022	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10297

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID: B43SC29
Lab Sample ID: F43533-22
Matrix: SO - Soil
Project: Radford AFB-Bldg 4343

Date Sampled: 09/08/06
Date Received: 09/09/06
Percent Solids: 89.2

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	0.89	0.45	0.022	mg/kg	1	09/12/06	09/12/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5228

(2) Prep QC Batch: MP10297

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

MEMORANDUM

TO: Tim Leahy, Shaw E&I RFAAP Project Manager

FROM: Eric Malarek, Shaw E&I RFAAP Project Chemist

SUBJECT: Radford Army Ammunition Plant (RFAAP) Data Validation – TAL Metals in Soil
Accutest Laboratories, Inc., SDG F43603

DATE: October 2, 2006

The purpose of this memorandum is to present the data validation report for the samples collected at Building 4343 at the RFAAP on September 12, 2006. Samples were analyzed for target analyte list (TAL) metals in soil using USEPA Method 3050B/6010B for ICP analysis and USEPA Method 7471A for mercury analysis. A total of two soil samples were validated. The sample IDs are:

Field Sample ID	Lab Sample ID	Field Sample ID	Lab Sample ID
B43DW09	F43603-1	B43DW10	F43603-2

Data were reviewed by Eric Malarek and validated using a combination of project QAPP, *DoD Quality Systems Manual for Environmental Laboratories, Final Version 3, January, 2006* (DoD, 2006) (DoD QSM), method-specific criteria, and laboratory SOP criteria. The data qualifier scheme was consistent with the *Region III Modifications to the National Functional Guidelines for Inorganic Data Review* (April, 1993). Parameters evaluated are presented in **Table 1**. Data associated with parameters in compliance with quality control specifications have not been qualified. Data associated with parameters that did not comply with quality control specifications and directly impacted project data have been qualified in accordance with USEPA Region III specifications.

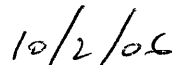
Table 1 Laboratory Performance Criteria

Qualified		Parameter
Yes	No	
	X	Holding Times and Preservation
X		Initial and Continuing Calibration
X		Blank Analysis
	X	ICP Interference Check Sample (ICS)
	X	Laboratory Control Sample (LCS)
	X	Laboratory Duplicate
	X	Matrix Spike (MS) and Spike Duplicate (MSD)
	X	Field Duplicate
	X	ICP Serial Dilution
X		Quantitation Verification

The quality of data collected in support of this sampling activity is considered acceptable with noted qualifications.



Eric Malarek, Chemist



Date

**RFAAP VALIDATION REPORT
TAL METALS IN SOIL REVIEW
SDG F43603**

I-Holding Times and Preservation

The primary objective is to ascertain the validity of results based on the holding time of the sample from time of collection to time of sample analysis. For metals analysis, soil samples are received at ambient temperature and stored cool @4°C±2°C with a maximum holding time of 180 days for ICP metals (28 days for mercury) from collection (USEPA criteria).

- **Temperature Review:** The temperature blank was sent with each cooler and recorded by the lab upon receipt. For samples collected on 09/12/06, the cooler was received by the laboratory at 4.8°C. All criteria were met. No qualifiers were applied.
- **Holding Time Review:** Samples were collected on 09/12/06. They were digested on 09/13/06 for ICP metals and 09/14/06 for mercury. The samples were analyzed for ICP metals on 09/13/06 (09/14/06 for manganese dilution) and for mercury on 09/14/06. All holding time criteria were met. No qualifiers were applied.

II-Initial and Continuing Calibration

Requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable quantitative data. Initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analysis run, and continuing calibration verification documents that the initial calibration is still valid.

ICP-Cd: 1- blank (DoD QSM <1/2MRL)

3 – standards (r≥0.995)

ICV/CCV (90-110%) (DoD QSM 90-110%)

MRL (70-130%) (DoD QSM 80-120%)

High Std. (95-105%)

Hg:

1- blank (DoD QSM <1/2MRL)

5 – standards (r≥0.995)

ICV/CCV (90-110%) (DoD QSM 80-120%)

MRL (80-120%) (DoD QSM 80-120%)

- The samples were analyzed for ICP metals on 09/13/06 (09/14/06 for manganese dilution) and for mercury on 09/14/06. ICP 09/13/06 run for CCV10 was above criteria for zinc (113%). No samples reported were bracketed by this CCV; therefore, no qualifiers were applied based upon this outlier. All other ICV/CCV standards were within criteria. **Table 2** summarizes the MRL standard analysis for metals. Beryllium (136%), potassium (70.0%, 68.8%), and sodium (70.3%, 69.4%) were below criteria. Samples with concentrations detected less than two times the MRL with out of criteria MRL recovery were qualified as noted in **Table 2**.

Table 2 MRL Analysis Summary

Analysis Date	Analysis	MRL (µg/L)	MRL (mg/kg)	MRL %Recovery	Qualified samples @ <2xMRL	Validation Qualifiers
09/13/06	ICP-Be	5	0.5	136%	None	None
09/13/06	ICP-K	10000	1000	70.0%, 68.8%	B43DW09, B43DW10	L
09/13/06	ICP-Na	10000	1000	70.3%, 69.4%	B43DW09, B43DW10	L
09/14/06	ICP-Mn	15	1.5	All within criteria	None	None
09/14/06	Hg	1.0	0.080	All within criteria	None	None

III-Blanks

Blanks (preparation and calibration blanks) are assessed to determine the existence and magnitude of contamination problems. No contaminants should be detected (i.e. <MDL) in any of the associated blanks. DoD QSM limits are <½MRL for the method blank and <2MDL for the calibration blanks. Samples are qualified "B" when they are less than 5X the absolute value of the maximum blank concentration. **Table 3** summarizes the blank contamination analysis. Action levels are based upon dilution factor of one and were converted to soil values (soil conversion factor = 10 for ICP and Hg = 12).

III-Blanks

Blanks (preparation and calibration blanks) are assessed to determine the existence and magnitude of contamination problems. No contaminants should be detected (i.e. <MDL) in any of the associated blanks. DoD QSM limits are <½MRL for the method blank and <2MDL for the calibration blanks. Samples are qualified "B" when they are less than 5X the absolute value of the maximum blank concentration. **Table 3** summarizes the blank contamination analysis. Action levels are based upon dilution factor of one and were converted to soil values (soil conversion factor = 10 for ICP and Hg = 12). The thallium reporting limit was raised due account for negative bias (more than 2 times MDL) of method blank. Thallium was non-detect for all associated samples and were qualified bias low "UL" based upon the method blank negative bias.

Table 3 Blank Contamination Analysis Summary

Analysis Date	Analysis	QC Blank ID	Max Conc. mg/kg	Action Level mg/kg	B qualified samples
09/13/06	ICP Metals	ICB/CCBs	<2MDL	NA	None
09/14/06	ICP-Mn	ICB/CCBs	<2MDL	NA	None
09/14/06	Hg	ICB/CCBs	<2MDL	NA	None
09/13/06	ICP	MP10305-MB1	<MRL	NA	None
09/14/06	Hg	MP10307-MB1	<MRL	NA	None

MDL = Method Detection Limit.

MRL = Method Reporting Limit.

NA = Not Applicable.

IV-ICP Interference Check Sample (ICS)

The ICP interference check sample (ICS) verifies interelement and background correction factors. ICP Interference Check is performed at the beginning and end of each sample analysis run. Control limits are 80-120% (DoD QSM limits 80-120%).

- All criteria were met. No qualifiers were applied.

V-Laboratory Control Samples (LCS)

The laboratory control sample (LCS) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. All soil LCS results must fall within the control limits of 80-120% for ICP metals. DoD LCS soil recovery limits are specified in Table D-19 of the DoD QSM (DoD, 2006). DoD QSM soil limits for metals are 80-120% (75%-120% for silver).

- Sample MP10305-SB1 was used as LCS for ICP metals analysis dated 09/13/06. All criteria were met. No qualifiers were applied.
- Sample MP10307-SB1 was used as LCS for mercury analysis dated 09/14/06. All criteria were met. No qualifiers were applied.

VI-Laboratory Duplicate

Duplicate sample determinations are used to demonstrate acceptable method precision by the laboratory at the time of analysis. Duplicate analysis is also performed to generate data in order to determine the long-term precision of the analytical method on various matrices. RPDs must be within established control limits. DoD QSM soil limits for metals are 20% RPD for ICP metals and mercury.

- Sample F43603-14 was used for the duplicate analysis for the 09/13/06 ICP metals analysis. Since this was not a RFAAP sample, it was not evaluated.
- Sample B43DW09 (F43603-1) was used for the duplicate analysis for the 09/14/06 mercury analysis. All criteria were met. No qualifiers were applied.

VII-Matrix Spike (MS) and Spike Duplicate (MSD)

MS and MSD are generated to determine long-term accuracy and precision of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. Specific criteria include the analyses of matrix spike samples at a frequency of one MS/MSD per 20 samples of similar matrix. MS/MSD recoveries and relative percent differences between MS recoveries should be within the specified limits. DoD MS and MSD soil recovery limits use the LCS criteria specified in Table D-19 of the DoD QSM (DoD, 2006). DoD QSM soil limits for metals are 80-120% (75-120% for silver); $RPD \leq 20\%$ for ICP metals and mercury. Post digestion spikes soil limits are 75-125% for ICP metals.

- Sample F43603-14 was used for the MS/MSD analysis for the 09/13/06 ICP metals analysis. Since this was not a RFAAP sample, it was not evaluated.
- Sample B43DW09 (F43603-1) was used for the MS analysis for the 09/14/06 mercury analysis. All criteria were met. No qualifiers were applied.

VIII-Field Duplicate Sample Analysis

Field duplicates were collected to identify the cumulative precision of the sampling and analytical process and sent to the laboratory blind. The RPD was calculated only for those analytes which were detected at levels exceeding the method reporting limits in both samples of the duplicate pair. Analytes that were qualified rejected (R-qualified) in either sample of the duplicate pair were excluded from the duplicate assessment. Precision control criterion was established at 35% RPD for metals for the soil samples. Analytical results were qualified as estimated (J) for any RPDs exceeding criteria.

- No field sample duplicate pair was analyzed with this SDG.

IX-ICP Serial Dilution

An ICP serial dilution is performed to determine whether significant physical or chemical interferences exist due to sample matrix at high concentrations. An analysis of a 5-fold dilution should agree within 10% difference of the original result when the concentration in sample is a factor of 50 above MDL.

- The serial dilution for the 09/13/06 ICP metals analysis was analyzed on sample F43603-14. Since this was not a RFAAP sample, it was not evaluated.

X-Quantitation Verification

The accuracy of analytical results is verified through the calculation of several parameters. The percent difference (%D) between the calculated and the reported values should be within 10%. Any sample value >MDL and <MRL or <3*MDL (whichever was greater) was qualified as estimated, "J." The following calculations were performed for verification.

ICP Sample: B43DW09 (F43603-1), Barium

$$\text{Conc. (mg/kg)} = \{(\text{conc. } \mu\text{g/L}) * (\text{Final Volume L}) * (\text{DF})\} / \{(\text{Weight Sample g}) * (\text{Fraction Solids})\}$$

$$\text{Conc. (mg/kg)} = \{(765.2 \mu\text{g/L}) * (0.050 \text{ L}) * (1)\} / \{(0.50 \text{ g}) * (0.8440)\} = 90.7 \mu\text{g/g} = 90.7 \text{ mg/kg}$$

Reported concentration = 90.7 mg/kg

%D = 0.0%

Values were within 10% difference.

Hg Sample: B43DW09 (F43603-1), Mercury

$$\text{Conc. (mg/kg)} = \{(\text{conc. } \mu\text{g/L}) * (\text{Final Volume L}) * (\text{DF})\} / \{(\text{Weight Sample g}) * (\text{Fraction Solids})\}$$

$$\text{Conc. (mg/kg)} = \{(0.505 \mu\text{g/L}) * (0.050 \text{ L}) * (1)\} / \{(0.67 \text{ g}) * (0.8440)\} = 0.045 \mu\text{g/g} = 0.045 \text{ mg/kg}$$

Reported concentration = 0.044 mg/kg

%D = 2.3%

Values were within 10% difference.

USEPA Region III Validation Qualifiers

(No Code) = Confirmed identification.

B = The analyte has been detected in the sample and the associated laboratory or field blank.

J = Indicates an estimated value for (1) estimated value due to QC non-conformance. Reported value may not be accurate or precise, (2) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, or (3) estimating a concentration \geq MDL and $<$ MRL or $<3*$ MDL, whichever is greater.

K = Analyte present. Reported value may be biased high (estimated) due to QC non-conformance.

L = Analyte present. Reported value may be biased low (estimated) due to QC non-conformance.

R = Unreliable result. Analyte may or may not be present in the sample due to QC non-conformance.

UL = Value is estimated bias low and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise. Quantitation limit is probably higher.

UJ = Value is estimated and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise.

Laboratory Qualifiers

(No Code) = Confirmed identification.

A (Dioxins) = MDL is based upon the signal-to-noise measurement.

B (Metals) = The reported value was obtained from a reading $<$ MRL and \geq MDL and is considered estimated.

B (Organics and Dioxins) = The analyte or compound has been detected in the sample and laboratory method blank. It indicates probable blank contamination.

D (Organics) = Indicates sample was analyzed at a dilution.

E (Metals) = Reported value is estimated because of the presence of interferences.

E (Organics) = Identifies compounds whose concentrations exceed the upper level of the calibration range.

E (Dioxins) = Reported value is estimated because of the presence of ether interferences.

EMPC (Dioxins) = The ion-abundance ratio between the two characteristic PCDD/F ions is outside accepted ranges. The detected PCDD/F is reported as an estimated maximum possible concentration (EMPC).

I (Dioxins) = Reported value is estimated because of the incorrect isotope ratios were obtained.

J (All) = Indicates an estimated value for (1) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, (2) estimating a concentration $<$ MRL and \geq MDL, or estimating a concentration below the calibration range.

N (Organics) = Indicates presumptive evidence of a compound for tentatively identified compounds using a library search.

N (Metals) = Laboratory spike sample recovery not within control limits.

P (Organics) = Target analyte confirmation $>40\%$ difference for detected compound between the primary and secondary columns. The lower of the two values was reported.

U (All) = ND = BQL = Not detected. The associated number indicates the compound reporting limit for the sample.

* (Metals) = Duplicate analysis not within control limits.

* (Organics) = Surrogate outside of QC limits on both original and re-analysis.

Report of Analysis

Client Sample ID: B43DW09

Lab Sample ID: F43603-1

Matrix: SO - Soil

Date Sampled: 09/12/06

Date Received: 09/13/06

Percent Solids: 84.4

Project: Radford AFB-Bldg 4343

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	21000	24	2.6	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Antimony	0.63 U	7.1	0.63	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Arsenic	4.7	0.95	0.46	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Barium	90.7	24	0.095	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Beryllium	1.7	0.59	0.047	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Cadmium ^a	0.96 U	1.9	0.96	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Calcium	1090	590	6.8	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Chromium	36.7	1.2	0.11	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Cobalt	12.8	5.9	0.071	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Copper	12.1	3.0	0.11	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Iron	29700	12	1.4	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Lead	10.2 J J	12	0.24	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Magnesium	1900	590	0.88	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Manganese	960	8.9	0.36	mg/kg	5	09/13/06	09/14/06 RS	SW846 6010B ³	SW846 3050B ⁴
Mercury	0.044 J J	0.087	0.0070	mg/kg	1	09/14/06	09/14/06 MS	SW846 7471A ²	SW846 7471A ⁵
Nickel	15.3	4.7	0.12	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Potassium	1040 J L	1200	12	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Selenium	1.2 J J	12	0.24	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Silver	0.11 U	1.2	0.11	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Sodium	549 J L	1200	98	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Thallium ^b	0.54 U UL	2.4	0.54	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Vanadium	56.1	5.9	0.071	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴
Zinc	24.9	2.4	0.15	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ⁴

(1) Instrument QC Batch: MA5230

(2) Instrument QC Batch: MA5231

(3) Instrument QC Batch: MA5232

(4) Prep QC Batch: MP10305

(5) Prep QC Batch: MP10307

(a) Elevated reporting limit(s) due to matrix interference.

(b) Elevated RL/MDL due to negative bias of Method Blank.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result ≥ MDL but < RL

Report of Analysis

Client Sample ID: B43DW10

Lab Sample ID: F43603-2

Matrix: SO - Soil

Date Sampled: 09/12/06

Date Received: 09/13/06

Percent Solids: 82.0

Project: Radford AFB-Bldg 4343

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	15000	23	2.5	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Antimony	0.61 U	6.9	0.61	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Arsenic	1.8	0.92	0.45	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Barium	30.6	23	0.092	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Beryllium	1.3	0.58	0.046	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Cadmium ^a	0.92 U	1.8	0.92	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Calcium	1240	580	6.6	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Chromium	54.3	1.2	0.10	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Cobalt	9.7	5.8	0.069	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Copper	8.6	2.9	0.10	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Iron	24000	12	1.4	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Lead	0.43 J J	12	0.23	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Magnesium	8240	580	0.85	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Manganese	238	1.7	0.069	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Mercury	0.043 J J	0.097	0.0077	mg/kg	1	09/14/06	09/14/06 MS	SW846 7471A ²	SW846 7471A ⁴
Nickel	29.7	4.6	0.12	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Potassium	1280 L	1200	12	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Selenium	0.43 J J	12	0.23	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Silver	0.10 U	1.2	0.10	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Sodium	346 J L	1200	95	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Thallium ^b	0.52 U VL	2.4	0.52	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Vanadium	22.3	5.8	0.069	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³
Zinc	19.9	2.3	0.15	mg/kg	1	09/13/06	09/13/06 RS	SW846 6010B ¹	SW846 3050B ³

(1) Instrument QC Batch: MA5230

(2) Instrument QC Batch: MA5231

(3) Prep QC Batch: MP10305

(4) Prep QC Batch: MP10307

(a) Elevated reporting limit(s) due to matrix interference.

(b) Elevated RL/MDL due to negative bias of Method Blank.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

MEMORANDUM

TO: Tim Leahy, Shaw E&I RFAAP Project Manager

FROM: Eric Malarek, Shaw E&I Project Chemist

SUBJECT: RFAAP Data Validation – Pesticides and PCBs
Accutest Laboratories, Inc., SDG F43603

DATE: September 29, 2006

The purpose of this memorandum is to present the data validation report for the samples collected at Building 4343 at the RFAAP on September 12, 2006. Samples were analyzed for pesticides and PCBs using USEPA Method 3550B/8081A and 3550B/8082, respectively. A total of two soil samples were validated. The sample ids are:


Field Sample ID	Lab Sample ID	Field Sample ID	Lab Sample ID
B43DW09	F43603-1	B43DW10	F43603-2

Data were reviewed by Eric Malarek and validated using a combination of project QAPP, *DOD Quality Systems Manual for Environmental Laboratories, Final Version 3, January, 2006* (DoD, 2006) (DoD QSM), method-specific criteria, and laboratory SOP criteria. The data qualifier scheme was consistent with the *Region III Modifications to the National Functional Guidelines for Organic Data Review* (September 1994). Parameters evaluated are presented in Table 1. Data associated with parameters in compliance with quality control specifications have not been qualified. Data associated with parameters that did not comply with quality control specifications and directly impacted project data have been qualified in accordance with USEPA Region III specifications.

Table 1 Laboratory Performance Criteria

Qualified		Parameter
Yes	No	
	X	Holding Times and Preservation
	X	Instrument Performance Check
	X	Initial Calibration
	X	Continuing Calibration
	X	Blank Analysis
	X	System Monitoring Compounds
X		Laboratory Control Samples
X		Matrix Spike/Spike Duplicate
	X	Field Duplicate
	X	Quantitation Verification

The quality of data collected in support of this sampling activity is considered acceptable with noted qualifications.



 Eric Malarek, Chemist

9/29/06

 Date

**RFAAP VALIDATION REPORT
PESTICIDE/PCB REVIEW
SDG F43603**

I-Holding Times and Preservation

The objective is to ascertain the validity of results based on the holding time of the sample from time of collection to time of sample extraction and analysis. Holding time criteria: For pesticides and PCB compounds in cooled ($4^{\circ}\text{C} \pm 2^{\circ}\text{C}$) soil samples, the maximum holding time is 14 days from sample collection to preparative extraction and 40 days from preparative extraction to determinative analysis.

- Temperature Review: The temperature blank was sent with each cooler and recorded by the lab upon receipt. For samples collected on 09/12/06, the cooler was received by the laboratory at 4.8°C . All criteria were met. No qualifiers were applied.
- Holding Time Review: The soil samples were collected on 09/12/06. The pesticides and PCBs were extracted on 09/13/06. The samples were analyzed on 09/14/06 for the pesticides and PCBs. All criteria were met. No qualifiers were applied.

II-Instrument Performance Check (Degradation Standard)

Performance checks on the gas chromatograph with electron capture detector (GC/ECD) system are performed to ensure adequate resolution and instrument sensitivity. The performance evaluation mixture (PEM) must be analyzed at the beginning of the analytical sequence. The breakdown of Endrin and 4,4'-DDT must be $\leq 15\%$ on both columns.

- For analysis performed on 09/05/06 @13:02, endrin and 4,4'-DDT percent breakdowns were 2.1% and 1.0% on column #1 and 1.5% and 1.3% on column #2, respectively. All criteria were met. No qualifiers were applied.
- For analysis performed on 09/14/06 @15:59, endrin and 4,4'-DDT percent breakdowns were 3.5% and 1.6% on column #1 and 2.0% and 2.0% on column #2, respectively. All criteria were met. No qualifiers were applied.

III-Initial Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for the target compounds. The initial 5 point calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run. Calibration factors are generated for each compound. The percent relative standard deviation (%RSD) for all single peak target analytes, and PCBs 1016, 1242, 1254, and 1260 must be $<20\%$ or the mean %RSD for all analytes in the standard must be $\leq 20\%$. If linear regression is used, the correlation coefficient must be ≥ 0.995 (coefficient of determination $r^2 > 0.99$ for higher order). All detects are qualified as estimated "J" for where there were exceeding %RSDs, and all non-detects are qualified as estimated "UJ" for where there were grossly exceeding recoveries, unless determined to be unusable "R". Grossly exceeding is defined as twice the established criteria limits.

- For the pesticide initial calibration performed on 09/05/06 on instrument ECD5, all criteria were met. No qualifiers were applied. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) were analyzed using this initial calibration.
- For the PCB initial calibration performed on 09/12/06 on instrument ECD3, all criteria were met for signal #1. For signal #2, PCB1016-A (25.7%) and PCB1016-B (22.3%) were above criteria. PCB1016-A ($r=0.9954$) and PCB1016-B ($r=0.9966$) were quantified using quadratic equations with $r > 0.995$. No qualifiers were applied based upon the high %RSDs. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) were analyzed using this initial calibration.

IV-Continuing Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for pesticide/PCB target compounds. Continuing calibration standards containing both target compounds and surrogates are analyzed at the beginning of each 12-hour analytical shift and after every 20 samples. The percent difference (%D) or the average %Ds for all analytes in the standard from the initial calibration should be no greater than $\pm 15\%$. The DoD QSM states that the average %Ds for all analytes in the standard from the initial calibration should be no greater than $\pm 20\%$.

- For pesticide continuing calibration performed on 09/14/06 @16:21 on instrument ECD5, all criteria were met. No qualifiers were applied. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) were analyzed using this continuing calibration.
- For toxaphene pesticide continuing calibration performed on 09/14/06 @16:45 on instrument ECD5, all criteria were met. No qualifiers were applied. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) were analyzed using this continuing calibration.
- For chlordane pesticide continuing calibration performed on 09/14/06 @17:06 on instrument ECD5, all criteria were met on column #1 with an average %D of 13.4%. For column #2, the average %D was 15.2%. Chlordane was non-detect for all associated samples, therefore no qualifiers were applied based upon this outlier. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) were analyzed using this continuing calibration.
- For pesticide continuing calibration performed on 09/14/06 @19:36 on instrument ECD5, all criteria were met. No qualifiers were applied. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) were analyzed using this continuing calibration.
- For pesticide continuing calibration performed on 09/14/06 @21:45 on instrument ECD5, 4,4'-DDD (15.5%) and 4,4'-DDT (20.3%) were outside criteria for the column #1. 4,4'-DDE (17.0%), 4,4'-DDD (19.6%), and 4,4'-DDT (20.2%) were outside criteria for column #2. 4,4'-DDE, 4,4'-DDD, and 4,4'-DDT were non-detect for all associated samples, therefore no qualifiers were applied based upon these outliers. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) were analyzed using this continuing calibration.
- For PCB 1016/1260 continuing calibration performed on 09/14/06 @09:02 on instrument ECD3, all criteria were met. No qualifiers were applied. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) were analyzed using this continuing calibration.
- For PCB 1248 continuing calibration performed on 09/14/06 @09:30 on instrument ECD3, PCB1248-C (25.7%) was outside criteria for the column #1. The average PCB 1248 %D for column #1 was 6.0%. PCB1248-D (19.9%) was outside criteria for the column #2. The average PCB 1248 %D for column #2 was 5.2%. No qualifiers were applied based upon these outliers. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) were analyzed using this continuing calibration.
- For PCB 1242 continuing calibration performed on 09/14/06 @09:43 on instrument ECD3, PCB1242-A (20.7%) was outside criteria for the column #1. The average PCB 1242 %D for column #1 was 10.7%. PCB1242-A (19.7%) was outside criteria for the column #2. The average PCB 1242 %D for column #2 was 7.8%. No qualifiers were applied based upon these outliers. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) were analyzed using this continuing calibration.

- For PCB 1232/1268 continuing calibration performed on 09/14/06 @09:57 on instrument ECD3, PCB1232-A (26.0%) and PCB1232-D were outside criteria for the column #1. The average PCB 1232 %D for column #1 was 13.1%. PCB1242-A (19.7%) was outside criteria for the column #2. The average PCB 1242 %D for column #2 was 12.1%. All criteria were met for PCB 1268 for columns #1 and #2. No qualifiers were applied based upon these outliers. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) were analyzed using this continuing calibration.
- For PCB 1221/1254 continuing calibration performed on 09/14/06 @10:10 on instrument ECD3, PCB1221-A (41.5%), PCB1221-B (20.7%), PCB1221-C (25.1%), PCB1221-D (20.3%), and PCB1221-E (19.4%) were outside criteria for the column #1. The average PCB 1221 %D for column #1 was 25.4%. PCB1221-A (37.9%), PCB1221-B (41.0%), PCB1221-C (26.2%), PCB1221-D (22.3%), and PCB1221-E (21.2%) were outside criteria for the column #2. The average PCB 1221 %D for column #2 was 29.7%. All criteria were met for PCB 1254 for columns #1 and #2. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) were non-detect; therefore no qualifiers were applied based upon these outliers. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) were analyzed using this continuing calibration.
- For PCB 1221/1254 continuing calibration performed on 09/14/06 @10:10 on instrument ECD3, all criteria were met for signal #1. For signal #2, PCB1016-A (18.6%), PCB1016-B (18.2%), PCB1016-C (17.5%), PCB1016-D (21.3%), PCB1016-E (23.1%), and PCB1016-F (25.2%) with a resulting average recovery of 20.6%. For signal #2, PCB1260-A (24.3%), PCB1260-B (24.3%), PCB1260-C (23.5%), PCB1260-D (13.9%), PCB1260-E (20.7%), and PCB1260-F (18.4%) with a resulting average recovery of 20.9%. PCB 1016 and PCB 1260 were non-detect for all samples, therefore no qualifiers were applied based upon the high %Ds. Samples 51MW1 (F39990-1), 51MW2 (F39990-2), 16-4 (F39990-3), 28MW2 (F39990-4), 28MW1 (F39990-5), C4 (F39990-6), 48MW4 (F39990-7), 13MW1 (F39990-9), TM13MW1 (F39990-10), 13MW2 (F39990-11), and C1 (F39990-12) were analyzed using this continuing calibration.
- For PCB 1016/1260 continuing calibration performed on 09/14/06 @12:03 on instrument ECD3, all criteria were met. No qualifiers were applied. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) were analyzed using this continuing calibration.

V-Blank Analysis

The purpose of laboratory or field blank analyses is to determine the existence and magnitude of contamination problems resulting from laboratory or field activities. One method blank per analytical batch must be run on each instrument used to analyze samples. No contaminants should be present in the blanks >MDL or >MRL. DoD QSM criteria specifies all concentrations should be less than one-half MRL. Positive sample results are reported and qualified "B", if the concentration of the compound in the sample is ≤ 5 times (5X) the maximum amount for pesticide and PCB target compounds. **Table 2** summarizes the blank contamination analysis. Action levels are based upon dilution factor of one, 100% solids, and were converted to soil values (soil conversion factor = 33).

Table 2 Blank Contamination Analysis Summary

Parameter	Analysis Date	QC Blank ID	Compound	Max Conc. µg/kg	Action Level µg/kg	B qualified samples
Pesticides	09/14/06	OP17847-MB	All <1/2MRL	NA	NA	None
PCBs	09/14/06	OP17848-MB	All <1/2MRL	NA	NA	None

NA = Not Applicable

MRL = Method Reporting Limit

VI-System Monitoring Compound (Surrogates)

Laboratory performance on individual samples is evaluated through the review of surrogate spike samples. Surrogate spikes are added to all samples and blanks to measure their recovery in sample and blank matrices. The percent recoveries (%Rs) must be within the specified control limits.

Criteria: Tetrachloro-m-xylene: Pesticides: 60-142% (DoD QSM Criteria: 70-125%)
Decachlorobiphenyl: Pesticides: 61-153% (DoD QSM Criteria: 55-130%)

Criteria: Tetrachloro-m-xylene: PCBs: 52-136% (DoD QSM Criteria: Not Available)
Decachlorobiphenyl: PCBs: 49-148% (DoD QSM Criteria: 60-125%)

- All criteria were met. No qualifiers were applied.

VII-Laboratory Control Samples

Laboratory control samples (LCS) are used to monitor laboratory accuracy by calculating the percent recoveries of the spiked compounds. All LCS percent recoveries must be within the specified control limits. DoD LCS soil recovery limits are specified in Table D-15 and Table D-17 of the DoD QSM (DoD, 2006).

- Sample OP17847-BS was used as the LCS for the pesticide analysis on 09/14/06. Compound endrin aldehyde (14%) was outside DoD QSM criteria, however within laboratory criteria. Compound endrin aldehyde was qualified estimated bias low "UL" for non-detects based upon very low recovery. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) apply to this LCS.
- Sample OP17848-BS was used as the LCS for the PCB analysis on 09/14/06. All criteria were met. No qualifiers were applied. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) apply to this LCS.

VIII-Matrix Spike/Matrix Spike Duplicate

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 and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. The percent recoveries (%Rs) and the relative percent difference (RPD) must be within the specified control limits. DoD MS and MSD soil recovery limits use the LCS criteria specified in Table D-15 and Table D-17 of the DoD QSM (DoD, 2006). The DoD MS/MSD precision RPD criteria is $\leq 30\%$.

- Sample B43DW09 (F43603-1) was used as the MS/MSD for the pesticide analysis on 09/14/06. Compound endrin aldehyde (13%, 14%) was outside DoD QSM criteria, however within laboratory criteria. Compound endrin aldehyde was qualified estimated bias low "UL" for non-detects based upon very low recoveries.
- Sample B43DW10 (F43603-2) was used as the MS/MSD for the PCB analysis on 09/14/06. All criteria were met. No qualifiers were applied.

IX-Field Duplicate Sample Analysis

Field duplicates were collected to identify the cumulative precision of the sampling and analytical process and sent to the laboratory blind. The RPD was calculated only for those analytes which were detected at levels exceeding the method reporting limits in both samples of the duplicate pair. Analytes that were rejected (R-qualified) in either sample of the duplicate pair were excluded from the duplicate assessment. Precision control criterion was established at 50% RPD for the soil samples. Analytical results were qualified as estimated (J) for any RPDs exceeding criteria.

- No field sample duplicate pair was analyzed with this SDG.

X-Quantitation Verification

The accuracy of analytical results was verified through the calculation of several parameters. The difference between the calculated value and the reported value must be within 10% difference. All positive values must have less than or equal to 40% %D between the primary and secondary columns. Any sample value > MDL and < MRL is qualified as estimated, "J". All criteria were met.

- The %D between the primary and secondary columns was within criteria for pesticides and PCBs for all detected samples.

Sample: OP17847-BS, endrin

$$\text{Conc. } \mu\text{g/kg} = (\text{Ax} * \text{Vt} * \text{DF}) / (\text{CF} * \text{Vi} * \text{Ws} * \text{D})$$

where: Conc. = Sample concentration in $\mu\text{g/kg}$

Ax = Area/response for compound being measured.

Vt = Volume of total extract, taking into account dilutions (i.e., a 1-to-10 dilution of a 1-mL extract will mean $\text{V(t)} = 10000 \mu\text{L}$).

CF = Ave calibration response factor for compound being measured from ICAL (Area/pg)

Vi = Volume of extract injected (mL).

W(s) = Weight of sample extracted or diluted in grams.

D = Percent dry weight $(100 - \% \text{ moisture in sample})/100 = 1.0$ for Wet Weight

DF = Dilution factor

$$\text{Conc. } \mu\text{g/kg} = (1039701 \text{ Area} * 10000 \mu\text{L} * 1) / (18190 \text{ Area/pg} * (1000 \text{ pg/ng}) * 1 \mu\text{L} * 30\text{g} * 1.0000) = 19.1 \mu\text{g/kg}$$

Reported Value = 19.0 $\mu\text{g/kg}$

% Difference = 0.5%

Values were within 10% difference

Sample: OP17848-BS, Aroclor 1260

$$\text{Conc. } \mu\text{g/kg} = (\text{Ax} * \text{Vt} * \text{DF}) / (\text{CF} * \text{Vi} * \text{Ws} * \text{D})$$

where: Conc. = Sample concentration in $\mu\text{g/kg}$
Ax = Area/response for compound being measured.
Vt = Volume of total extract, taking into account dilutions (i.e., a 1-to-10 dilution of a 1-mL extract will mean $\text{V(t)} = 10000 \mu\text{L}$.
CF = Ave calibration response factor for compound being measured from ICAL (Area/pg)
Vi = Volume of extract injected (μL).
W(s) = Weight of sample extracted or diluted in grams.
D = Percent dry weight (100 - % moisture in sample)/100 = 1.0 for Wet Weight
DF = Dilution factor

Signal #1

$$\begin{aligned}\text{Conc1 } \mu\text{g/kg} &= (508738\text{Area} * 10000\mu\text{L} * 1) / (1168\text{Area/pg} * (1000 \text{ pg/ng}) * 1 \mu\text{L} * 30\text{g} * 1.0000) = 145.19 \mu\text{g/kg} \\ \text{Conc2 } \mu\text{g/kg} &= (732632\text{Area} * 10000\mu\text{L} * 1) / (1694\text{Area/pg} * (1000 \text{ pg/ng}) * 1 \mu\text{L} * 30\text{g} * 1.0000) = 144.16 \mu\text{g/kg} \\ \text{Conc3 } \mu\text{g/kg} &= (511168\text{Area} * 10000\mu\text{L} * 1) / (1384\text{Area/pg} * (1000 \text{ pg/ng}) * 1 \mu\text{L} * 30\text{g} * 1.0000) = 123.11 \mu\text{g/kg} \\ \text{Conc4 } \mu\text{g/kg} &= (984558\text{Area} * 10000\mu\text{L} * 1) / (2611\text{Area/pg} * (1000 \text{ pg/ng}) * 1 \mu\text{L} * 30\text{g} * 1.0000) = 125.69 \mu\text{g/kg} \\ \text{Conc5 } \mu\text{g/kg} &= (412122\text{Area} * 10000\mu\text{L} * 1) / (986\text{Area/pg} * (1000 \text{ pg/ng}) * 1 \mu\text{L} * 30\text{g} * 1.0000) = 139.32 \mu\text{g/kg} \\ \text{Conc6 } \mu\text{g/kg} &= (219595\text{Area} * 10000\mu\text{L} * 1) / (619.5\text{Area/pg} * (1000 \text{ pg/ng}) * 1 \mu\text{L} * 30\text{g} * 1.0000) = 118.16 \mu\text{g/kg} \\ \text{Average concentration} &= 132.61 \mu\text{g/kg}\end{aligned}$$

Signal #2

$$\begin{aligned}\text{Conc1 } \mu\text{g/kg} &= (2222061\text{Area} * 10000\mu\text{L} * 1) / (5613\text{Area/pg} * (1000 \text{ pg/ng}) * 1 \mu\text{L} * 30\text{g} * 1.0000) = 131.96 \mu\text{g/kg} \\ \text{Conc2 } \mu\text{g/kg} &= (3142386\text{Area} * 10000\mu\text{L} * 1) / (7644\text{Area/pg} * (1000 \text{ pg/ng}) * 1 \mu\text{L} * 30\text{g} * 1.0000) = 137.03 \mu\text{g/kg} \\ \text{Conc3 } \mu\text{g/kg} &= (2744321\text{Area} * 10000\mu\text{L} * 1) / (6445\text{Area/pg} * (1000 \text{ pg/ng}) * 1 \mu\text{L} * 30\text{g} * 1.0000) = 141.94 \mu\text{g/kg} \\ \text{Conc4 } \mu\text{g/kg} &= (4710328\text{Area} * 10000\mu\text{L} * 1) / (13210\text{Area/pg} * (1000 \text{ pg/ng}) * 1 \mu\text{L} * 30\text{g} * 1.0000) = 118.86 \mu\text{g/kg} \\ \text{Conc5 } \mu\text{g/kg} &= (1858526\text{Area} * 10000\mu\text{L} * 1) / (4734\text{Area/pg} * (1000 \text{ pg/ng}) * 1 \mu\text{L} * 30\text{g} * 1.0000) = 130.86 \mu\text{g/kg} \\ \text{Conc6 } \mu\text{g/kg} &= (864097\text{Area} * 10000\mu\text{L} * 1) / (2535\text{Area/pg} * (1000 \text{ pg/ng}) * 1 \mu\text{L} * 30\text{g} * 1.0000) = 113.62 \mu\text{g/kg} \\ \text{Average concentration} &= 129.40 \mu\text{g/kg}\end{aligned}$$

Reported Value = 133 $\mu\text{g/kg}$ (signal #1)

% Difference = 0.0%

Values were within 10% difference.

USEPA Region III Validation Qualifiers

(No Code) = Confirmed identification.

B = The analyte has been detected in the sample and the associated laboratory or field blank.

J = Indicates an estimated value for (1) estimated value due to QC non-conformance. Reported value may not be accurate or precise, (2) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, or (3) estimating a concentration \geq MDL and $<$ MRL or $<3 \times$ MDL, whichever is greater.

K = Analyte present. Reported value may be biased high (estimated) due to QC non-conformance.

L = Analyte present. Reported value may be biased low (estimated) due to QC non-conformance.

R = Unreliable result. Analyte may or may not be present in the sample due to QC non-conformance.

UL = Value is estimated bias low and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise. Quantitation limit is probably higher.

UJ = Value is estimated and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise.

Laboratory Qualifiers

(No Code) = Confirmed identification.

U = Not detected. The associated number indicates the compound reporting limit for the sample.

A (Dioxins) = B (Metals) = The reported value was obtained from a reading $<$ MRL and \geq MDL and is considered estimated.

B (Organics) = The analyte or compound has been detected in the sample and laboratory method blank. It indicates probable blank contamination.

E (Metals) = Reported value is estimated because of the presence of interferences.

E (Organics) = Identifies compounds whose concentrations exceed the upper level of the calibration range.

EMPC (Dioxins) = The ion-abundance ratio between the two characteristic PCDD/PCDF ions was outside accepted ranges. The detected PCDD/PCDF was reported as an estimated maximum possible concentration (EMPC).

D = Indicates sample was analyzed at a dilution.

J = Indicates an estimated value for (1) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, or (2) estimating a concentration $<$ MRL and \geq MDL.

N (Organics) = Indicates presumptive evidence of a compound for tentatively identified compounds using a library search.

P (Organics) = Target analyte confirmation $>40\%$ difference for detected compound between the primary and secondary columns. The lower of the two values was reported.

N (Metals) = Laboratory spike sample recovery not within control limits.

* (Metals) = Duplicate analysis not within control limits.

* (Organics) = Surrogate outside of QC limits on both original and re-analysis.

Report of Analysis

Client Sample ID:	B43DW09	Date Sampled:	09/12/06
Lab Sample ID:	F43603-1	Date Received:	09/13/06
Matrix:	SO - Soil	Percent Solids:	84.4
Method:	SW846 8081A SW846 3550B		
Project:	Radford AFB-Bldg 4343		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK14684.D	1	09/14/06	VS	09/13/06	OP17847	GKK551
Run #2							

	Initial Weight	Final Volume
Run #1	30.8 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	1.9	0.77	ug/kg	
319-84-6	alpha-BHC	ND	1.9	0.77	ug/kg	
319-85-7	beta-BHC	ND	1.9	0.77	ug/kg	
319-86-8	delta-BHC	ND	1.9	0.77	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.9	0.77	ug/kg	
5103-71-9	alpha-Chlordane	ND	1.9	0.77	ug/kg	
5103-74-2	gamma-Chlordane	ND	1.9	0.77	ug/kg	
60-57-1	Dieldrin	ND	1.9	0.77	ug/kg	
72-54-8	4,4'-DDD	ND	3.8	0.77	ug/kg	
72-55-9	4,4'-DDE	ND	3.8	0.77	ug/kg	
50-29-3	4,4'-DDT	ND	3.8	1.2	ug/kg	
72-20-8	Endrin	ND	3.8	0.77	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.8	0.77	ug/kg	
7421-93-4	Endrin aldehyde	ND <i>VL</i>	3.8	1.5	ug/kg	
53494-70-5	Endrin ketone	ND	3.8	0.77	ug/kg	
959-98-8	Endosulfan-I	ND	1.9	0.77	ug/kg	
33213-65-9	Endosulfan-II	ND	3.8	0.77	ug/kg	
76-44-8	Heptachlor	ND	1.9	0.77	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.9	0.77	ug/kg	
72-43-5	Methoxychlor	ND	3.8	1.5	ug/kg	
8001-35-2	Toxaphene	ND	190	96	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	94%		60-142%
2051-24-3	Decachlorobiphenyl	104%		61-153%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	B43DW09						
Lab Sample ID:	F43603-1			Date Sampled:	09/12/06		
Matrix:	SO - Soil			Date Received:	09/13/06		
Method:	SW846 8082 SW846 3550B			Percent Solids:	84.4		
Project:	Radford AFB-Bldg 4343						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ST51885.D	1	09/14/06	NAF	09/13/06	OP17848	GST1478
Run #2							

	Initial Weight	Final Volume
Run #1	30.8 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	19	9.6	ug/kg	
11104-28-2	Aroclor 1221	ND	19	15	ug/kg	
11141-16-5	Aroclor 1232	ND	19	15	ug/kg	
53469-21-9	Aroclor 1242	ND	19	9.6	ug/kg	
12672-29-6	Aroclor 1248	ND	19	9.6	ug/kg	
11097-69-1	Aroclor 1254	ND	19	9.6	ug/kg	
11096-82-5	Aroclor 1260	ND	19	9.6	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	97%		52-136%
2051-24-3	Decachlorobiphenyl	104%		49-148%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	B43DW10	Date Sampled:	09/12/06
Lab Sample ID:	F43603-2	Date Received:	09/13/06
Matrix:	SO - Soil	Percent Solids:	82.0
Method:	SW846 8081A SW846 3550B		
Project:	Radford AFB-Bldg 4343		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK14687.D	1	09/14/06	VS	09/13/06	OP17847	GKK551
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.2 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	2.0	0.81	ug/kg	
319-84-6	alpha-BHC	ND	2.0	0.81	ug/kg	
319-85-7	beta-BHC	ND	2.0	0.81	ug/kg	
319-86-8	delta-BHC	ND	2.0	0.81	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	2.0	0.81	ug/kg	
5103-71-9	alpha-Chlordane	ND	2.0	0.81	ug/kg	
5103-74-2	gamma-Chlordane	ND	2.0	0.81	ug/kg	
60-57-1	Dieldrin	ND	2.0	0.81	ug/kg	
72-54-8	4,4'-DDD	ND	4.0	0.81	ug/kg	
72-55-9	4,4'-DDE	ND	4.0	0.81	ug/kg	
50-29-3	4,4'-DDT	ND	4.0	1.2	ug/kg	
72-20-8	Endrin	ND	4.0	0.81	ug/kg	
1031-07-8	Endosulfan sulfate	ND	4.0	0.81	ug/kg	
7421-93-4	Endrin aldehyde	ND VL	4.0	1.6	ug/kg	
53494-70-5	Endrin ketone	ND	4.0	0.81	ug/kg	
959-98-8	Endosulfan-I	ND	2.0	0.81	ug/kg	
33213-65-9	Endosulfan-II	ND	4.0	0.81	ug/kg	
76-44-8	Heptachlor	ND	2.0	0.81	ug/kg	
1024-57-3	Heptachlor epoxide	ND	2.0	0.81	ug/kg	
72-43-5	Methoxychlor	ND	4.0	1.6	ug/kg	
8001-35-2	Toxaphene	ND	200	100	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	96%		60-142%
2051-24-3	Decachlorobiphenyl	108%		61-153%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	B43DW10						
Lab Sample ID:	F43603-2			Date Sampled:	09/12/06		
Matrix:	SO - Soil			Date Received:	09/13/06		
Method:	SW846 8082 SW846 3550B			Percent Solids:	82.0		
Project:	Radford AFB-Bldg 4343						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ST51886.D	1	09/14/06	NAF	09/13/06	OP17848	GST1478
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	20	10	ug/kg	
11104-28-2	Aroclor 1221	ND	20	16	ug/kg	
11141-16-5	Aroclor 1232	ND	20	16	ug/kg	
53469-21-9	Aroclor 1242	ND	20	10	ug/kg	
12672-29-6	Aroclor 1248	ND	20	10	ug/kg	
11097-69-1	Aroclor 1254	ND	20	10	ug/kg	
11096-82-5	Aroclor 1260	ND	20	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	108%		52-136%
2051-24-3	Decachlorobiphenyl	98%		49-148%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

MEMORANDUM

TO: Tim Leahy, Shaw E&I RFAAP Project Manager

FROM: Eric Malarek, Shaw E&I RFAAP Project Chemist

SUBJECT: Radford Army Ammunition Plant (RFAAP) Data Validation – pH in Soil
Accutest Laboratories, Inc., SDG F43603

DATE: October 3, 2006

The purpose of this memorandum is to present the data validation report for the samples collected at Building 4343 at the RFAAP on September 12, 2006. Samples were analyzed for pH in soil using USEPA Method 9045C. A total of two soil samples were validated. The sample IDs are:


Field Sample ID	Lab Sample ID	Field Sample ID	Lab Sample ID
B43DW09	F43603-1	B43DW10	F43603-2

Data were reviewed by Eric Malarek and validated using a combination of project QAPP, *DoD Quality Systems Manual for Environmental Laboratories, Final Version 3, January, 2006* (DoD, 2006) (DoD QSM), method-specific criteria, and laboratory SOP criteria. The data qualifier scheme was consistent with the *Region III Modifications to the National Functional Guidelines for Inorganic Data Review* (April, 1993). Parameters evaluated are presented in **Table 1**. Data associated with parameters in compliance with quality control specifications have not been qualified. Data associated with parameters that did not comply with quality control specifications and directly impacted project data have been qualified in accordance with USEPA Region III specifications.

Table 1 Laboratory Performance Criteria

Qualified		Parameter
Yes	No	
X		Holding Times
	X	Initial and Continuing Calibration
	X	Sample Duplicate
	X	Calculation Verification

The quality of data collected in support of this sampling activity is considered acceptable with noted qualifications.


Eric Malarek, Chemist

10/3/06
Date

RFAAP VALIDATION REPORT
pH REVIEW
SDG F43603

I-Holding Times and Preservation

Holding time criteria: Preserved, Cool $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$, ASAP within 24 hours for pH. The dates and times were compared between the sample collection and laboratory analysis.

- Temperature Review: The temperature blank was sent with each cooler and recorded by the lab upon receipt. For samples collected on 09/12/06, the cooler was received by the laboratory at 4.8°C . All criteria were met. No qualifiers were applied.
- Holding Time Review: Samples were collected on 09/12/06. They were analyzed for pH on 09/15/06. pH should be analyzed ASAP within 24 hours. All samples were estimated as "J".

II-Initial and Continuing Calibration

Bench and run summary sheets were reviewed to determine whether calibration was performed at the beginning of sample analysis using the following criteria. Percent recoveries for initial and continuing calibration must be ± 0.05 units for pH.

pH: 1 - blank
3 - buffer standards (4.00, 7.00, 10.00)

- pH analysis was run on 09/15/06. The instrument was calibrated 09/13/06. All criteria were met. No qualifiers were applied.

III-Duplicate Sample Analysis

Duplicate sample determinations are used to demonstrate acceptable method precision by the laboratory at the time of analysis. Duplicate analysis is also performed to generate data in order to determine the long-term precision of the analytical method on various matrices. RPDs must be within established control limits ($\text{RPD} \leq 20\%$).

- Sample B43DW09 (F43603-1) was used as sample duplicate. All criteria were met. No qualifiers were applied.

IV-Calculation Verification

The accuracy of analytical results is verified through the calculation of several parameters. The percent difference (%D) between the calculated and the reported values should be within 10%. The following calculations were performed for verification:

pH Sample: B43DW09 (F43603-1)

pH (units) = Reading

pH (units) = 5.84

Reported Value = 5.8 units

% Difference = 0.0%

Report of Analysis

Client Sample ID: B43DW10

Lab Sample ID: F43603-2

Matrix: SO - Soil

Project: Radford AFB-Bldg 4343

Date Sampled: 09/12/06

Date Received: 09/13/06

Percent Solids: 82.0

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	82		%	1	09/13/06	SJL	EPA 160.3 M
pH	6.6 J		su	1	09/15/06	KG	SW846 9045

RL = Reporting Limit

Report of Analysis

Client Sample ID: B43DW09

Lab Sample ID: F43603-1

Matrix: SO - Soil

Project: Radford AFB-Bldg 4343

Date Sampled: 09/12/06

Date Received: 09/13/06

Percent Solids: 84.4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	84.4		%	1	09/13/06	SJL	EPA 160.3 M
pH	5.8 J		su	1	09/15/06	KG	SW846 9045

RL = Reporting Limit

MEMORANDUM

TO: Tim Leahy, Shaw E&I RFAAP Project Manager

FROM: Eric Malarek, Shaw E&I Project Chemist

SUBJECT: RFAAP Data Validation – Semi-Volatiles and PAHs
Accutest Laboratories, Inc., SDG F43603

DATE: September 27, 2006

The purpose of this memorandum is to present the data validation report for the samples collected at Building 4343 at the RFAAP on September 12, 2006. Samples were analyzed for semivolatile organic compounds (SVOCs) using USEPA SW846 Methods 3550B/8270C. The polynuclear aromatic hydrocarbons (PAHs) were analyzed using selective ion monitoring (SIM) techniques. A total of two soil samples were validated. The sample ids are:

Field Sample ID	Lab Sample ID	Field Sample ID	Lab Sample ID
B43DW09	F43603-1	B43DW10	F43603-2

Data were reviewed by Eric Malarek and validated using a combination of project QAPP, *DOD Quality Systems Manual for Environmental Laboratories, Final Version 3, January, 2006* (DoD, 2006) (DoD QSM), method-specific criteria, and laboratory SOP criteria. The data qualifier scheme was consistent with the *Region III Modifications to the National Functional Guidelines for Organic Data Review* (September 1994). Parameters evaluated are presented in **Table 1**. Data associated with parameters in compliance with quality control specifications have not been qualified. Data associated with parameters that did not comply with quality control specifications and directly impacted project data have been qualified in accordance with USEPA Region III specifications.

Table 1 Laboratory Performance Criteria

Qualified		Parameter
Yes	No	
	X	Holding Times and Preservation
	X	Instrument Performance Check
	X	Initial Calibration
	X	Continuing Calibration
	X	Blank Analysis
	X	Surrogate Spikes
	X	Internal Standards
	X	Laboratory Control Sample
	X	Matrix Spike/Spike Duplicate
	X	Field Duplicate
	X	Quantitation Verification

The quality of data collected in support of this sampling activity is considered acceptable.



Eric Malarek, Chemist

9/27/06

Date

**RFAAP VALIDATION REPORT
SEMIVOLATILES AND PAH REVIEW
SDG F43603**

I-Holding Times and Preservation

The objective is to ascertain the validity of results based on the holding time of the sample from time of collection to time of sample extraction and analysis. Holding time criteria: For semivolatile (SVOC) and polynuclear aromatic hydrocarbons (PAH) compounds is cooled ($@4^{\circ}\text{C} \pm 2^{\circ}\text{C}$) for soil samples, the maximum holding time is 14 days from sample collection to preparative extraction and 40 days from preparative extraction to determinative analysis.

- Temperature Review: The temperature blank was sent with each cooler and recorded by the lab upon receipt. For samples collected on 09/12/06, the cooler was received by the laboratory at 4.8°C . All criteria were met. No qualifiers were applied.
- Holding Time Review: The soil samples were collected on 09/12/06. The SVOC were extracted on 09/14/06 and PAH samples were extracted on 09/13/06. The samples were analyzed on 09/14/06 for the SVOCs and on 09/14/06 for the PAHs. All criteria were met. No qualifiers were applied.

II-Instrument Performance Check

GC/MS instrument performance checks are performed to ensure mass resolution, identification and, to some degree, sensitivity. The analysis of the instrument performance check solution must be performed at the beginning of each 12-hour period during which samples are analyzed.

- The instrument performance check, decafluorotriphenylphosphine (DFTPP), met the ion abundance criteria. No qualification was applied.

III-Initial Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument used is capable of producing acceptable qualitative and quantitative data for compounds on the semivolatile target compound list (TCL). Initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run and of producing a linear calibration curve. For compounds analyzed using linear regression or second order, correlation coefficients must be >0.995 (coefficient of determination $r^2 > 0.99$ for higher order). The minimum relative response factor (RRF) criteria must be ≥ 0.05 . Initial calibration percent relative standard deviation (%RSD) must be $\leq 15\%$ on the average for all compounds ($\leq 30\%$ for CCCs). All detects are qualified as estimated "J" for where there were exceeding %RSDs, and all non-detects are qualified as estimated "UJ" for where there were grossly exceeding recoveries, unless determined to be unusable "R". Grossly exceeding is defined as twice the established criteria limits. For where there were low RRFs, all detects are qualified as estimated "J" and non-detects are rejected "R".

- Initial calibration for the SVOCs was performed on 09/12/06 on instrument MSBNA02. Target compounds 2,4-dinitrophenol (39.1%) and 4,6-dinitro-2-methylphenol (16.7%) were outside criteria. All other target compounds were within criteria ($\%RSD \leq 15\%$ or $\leq 30\%$; $RRF \geq 0.05$). Compounds 2,4-dinitrophenol ($r=0.9956$) and 4,6-dinitro-2-methylphenol ($r=0.9996$) were quantified using linear or second order regression with correlation coefficients >0.99 , therefore, no qualifiers were applied based upon the high %RSDs. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) were analyzed using this initial calibration.
- Initial calibration for the PAHs by SIM was performed on 08/08/06 on instrument MSBNA01. All target compounds were within criteria ($\%RSD \leq 15\%$ or $\leq 30\%$; $RRF \geq 0.05$). No qualifiers were applied. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) were analyzed using this initial calibration.

IV-Continuing Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument used was capable of producing acceptable qualitative and quantitative data for semivolatile target compounds. Continuing calibration standards containing both target and surrogates compounds are analyzed at the beginning of each 12-hour analysis period following the analysis of the instrument performance check and prior to the analysis of blanks and samples. The minimum relative response factors (RRF) for semivolatile target compounds and surrogates must be ≥ 0.05 . The percent difference (%D) between the initial calibration RRF and the continuing calibration RRF must be within $\pm 20\%$ for all target compounds. Grossly exceeding is defined where $\%D > 40\%$. All detects are qualified as estimated "J" for where there were exceeding %Ds, and all non-detects are qualified as estimated "UJ" for where there were grossly exceeding recoveries, unless determined to be unusable "R". Grossly exceeding is defined as twice the established criteria limits. For where there were low RRFs, all detects are qualified as estimated "J" and non-detects are rejected "R".

- For SVOC continuing calibration performed on 09/14/06 @14:22 on instrument MSBNA02, all criteria were met for all target compounds. No qualifiers were applied. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) apply to this continuing calibration.
- For PAH by SIM continuing calibration performed on 09/14/06 @09:27 on instrument MSBNA01, all criteria were met for all target compounds. No qualifiers were applied. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) apply to this continuing calibration.

V-Blank Analysis

The purpose of blank analyses is to determine the presence and magnitude of contamination problems resulting from field and laboratory activities. A method blank analysis must be performed after the calibration standards and once every 12-hour time period beginning with the injection of DFTPP. No contaminants should be detected in any of the associated blanks > the MDL. DoD QSM criteria specifies all concentrations should be less than one-half MRL ($< \text{MRL}$ for common laboratory contaminants phthalate esters). Positive sample results are reported and qualified "B", if the concentration of the compound in the sample is ≤ 10 times (10x) the maximum amount in any blank for the common laboratory contaminants phthalate esters, or 5 times (5X) the maximum amount for other semivolatile target compounds. **Table 2** summarizes the blank contamination analysis. Action levels are based upon dilution factor of one, 100% solids, and were converted to soil values (soil conversion factor = 33).

Table 2 Blank Contamination Analysis Summary

Analysis Date	QC Blank ID	Compound	Max Conc. $\mu\text{g/kg}$	Action Level $\mu\text{g/kg}$	B qualified samples
09/14/06	OP17861-MB	All SVOC target $< 1/2\text{MRL}$	NA	NA	None
09/14/06	OP17846-MB	All PAH SIM target $< 1/2\text{MRL}$	NA	NA	None

MRL = Method Reporting Limit

NA = Not Applicable

VI-Surrogate Spikes

Laboratory performance on individual samples is evaluated through the review of surrogate spike samples. Surrogate spikes are added to all samples and blanks to measure their recovery in sample and blank matrices. The percent recoveries (%Rs) must be within the specified control limits.

Criteria: 2-Fluorophenol (45-114%) – S1 (DoD QSM Criteria: 35-105%)
Phenol – d5 (44-124%) – S2 (DoD QSM Criteria: 40-100%)
2,4,6-Tribromophenol (50-128%) – S3 (DoD QSM Criteria: 35-125%)
Nitrobenzene-d5 (41-123%) – S4 (DoD QSM Criteria: 35-100%)
2-Fluorobiphenyl (46-122%) – S5 (DoD QSM Criteria: 35-105%)
p-Terphenyl – d14 (45-135%) – S6 (DoD QSM Criteria: 30-125%)

- All criteria were met. No qualifiers were applied.

VII-Internal Standards

Internal standards performance criteria ensure that GC/MS sensitivity and response are stable during every analytical run. Internal standard area counts for samples and blanks must not vary by more than a factor of two (-50% to +100%) from the associated calibration standard. The retention time of the internal standards in samples and blanks must not vary by more than ± 30 seconds from the retention time of the associated calibration standard.

- All criteria were met. No qualifiers were applied.

VIII-Laboratory Control Sample

Laboratory control samples (LCS) are used to monitor laboratory accuracy by calculating the percent recoveries of the spiked compounds. All LCS percent recoveries must be within the specified control limits. DoD LCS soil recovery limits are specified in Table D-7 of the DoD QSM (DoD, 2006).

- Sample OP17861-BS was used as the LCS for the SVOC analysis on 09/14/06. All criteria were met. No qualifiers were applied. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) apply to this LCS.
- Sample OP17846-BS was used as the LCS for the PAH SIM analysis on 09/14/06. All criteria were met. No qualifiers were applied. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) apply to this LCS.

IX-Matrix Spike/Matrix Spike Duplicate

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 and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. The percent recoveries (%Rs) and the relative percent difference (RPD) must be within the specified control limits. DoD MS and MSD soil recovery limits use the LCS criteria specified in Table D-7 of the DoD QSM (DoD, 2006). The DoD MS/MSD precision RPD criteria is $\leq 30\%$.

- Sample B43DW09 (F43603-1) was used for the MS/MSD for SVOC analysis on 09/14/06. All recoveries were within criteria limits. 2,4-Dinitrophenol (RPD=36%) was above DoD QSM criteria and within laboratory criteria limits. 2,4-Dinitrophenol was non-detect for all samples. No qualifiers were applied based upon this outlier. All other RPDs were within criteria limits.
- Sample F43567-2 was used for the MS/MSD for PAH SIM analysis on 09/14/06. The spiked sample is not a RFAAP site sample; therefore was not evaluated.

X-Field Duplicate Sample Analysis

Field duplicates were collected to identify the cumulative precision of the sampling and analytical process and sent to the laboratory blind. The RPD was calculated only for those analytes which were detected at levels exceeding the method reporting limits in both samples of the duplicate pair. Analytes that were rejected (R-qualified) in either sample of the duplicate pair were excluded from the duplicate assessment. Precision control criterion was established at 50% RPD for the soil samples. Analytical results were qualified as estimated (J) for any RPDs exceeding criteria.

- No field sample duplicate pair was analyzed with this SDG.

XI-Quantitation Verification

The accuracy of analytical results was verified through the calculation of several parameters. Percent difference (%D) between the calculated and reported values must be $\leq 10\%$. Any sample value $> \text{MDL}$ and $< \text{MRL}$ or $< 3 * \text{MDL}$ (whichever is greater) was qualified as estimated, "J."

Sample: OP17861-BS, bis(2-ethylhexyl)phthalate

$$\text{Conc. } \mu\text{g/kg} = (\text{Ax} * \text{Is} * \text{Vt} * \text{DF}) / (\text{Ais} * \text{RRF} * \text{Vi} * \text{Ws} * \text{D})$$

where: Conc. = Sample concentration in $\mu\text{g/kg}$
Ax = Area of characteristic ion for compound being measured.
Is = Amount of internal standard injected (ng).
Vt = Volume of total extract, taking into account dilutions (i.e., a 1-to-10 dilution of a 1-mL extract will mean $\text{V(t)} = 10,000 \text{ uL}$.
Ais = Area of characteristic ion for the internal standard.
RRF = Average relative response factor for compound being measured (from ICAL)
Vi = Volume of extract injected (uL).
W(s) = Weight of sample extracted or diluted in grams.
D = Percent dry weight (100 - % moisture in sample)/100
DF = Dilution factor

$$\text{Conc. } \mu\text{g/kg} = (624234 * 40 * 1000 * 1) / (550686 * 1.006 * 1 * 30.0 * 1.0000) = 1500 \mu\text{g/kg}$$

Reported Value = 1500 $\mu\text{g/kg}$

% Difference = 0.0%

Values were within 10% difference

Sample: OP17846-BS, chrysene

$$\text{Conc. } \mu\text{g/kg} = (\text{Ax} * \text{Is} * \text{Vt} * \text{DF}) / (\text{Ais} * \text{RRF} * \text{Vi} * \text{Ws} * \text{D})$$

where: Conc. = Sample concentration in $\mu\text{g/kg}$
Ax = Area of characteristic ion for compound being measured.
Is = Amount of internal standard injected (ng).
Vt = Volume of total extract, taking into account dilutions (i.e., a 1-to-10 dilution of a 1-mL extract will mean $\text{V(t)} = 10,000 \text{ uL}$.
Ais = Area of characteristic ion for the internal standard.
RRF = Average relative response factor for compound being measured (from ICAL)
Vi = Volume of extract injected (uL).
W(s) = Weight of sample extracted or diluted in grams.
D = Percent dry weight (100 - % moisture in sample)/100
DF = Dilution factor

$$\text{Conc. } \mu\text{g/kg} = (86150 * 4.0 * 1000 * 1) / (92518 * 1.724 * 1 * 30.0 * 1.0000) = 72.0 \mu\text{g/kg}$$

Reported Value = 72.0 $\mu\text{g/kg}$

% Difference = 0.0%

Values were within 10% difference

USEPA Region III Validation Qualifiers

(No Code) = Confirmed identification.

B = The analyte has been detected in the sample and the associated laboratory or field blank.

J = Indicates an estimated value for (1) estimated value due to QC non-conformance. Reported value may not be accurate or precise, (2) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, or (3) estimating a concentration \geq MDL and <MRL or $<3 \times$ MDL, whichever is greater.

K = Analyte present. Reported value may be biased high (estimated) due to QC non-conformance.

L = Analyte present. Reported value may be biased low (estimated) due to QC non-conformance.

R = Unreliable result. Analyte may or may not be present in the sample due to QC non-conformance.

UL = Value is estimated bias low and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise. Quantitation limit is probably higher.

UJ = Value is estimated and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise.

Laboratory Qualifiers

(No Code) = Confirmed identification.

U = Not detected. The associated number indicates the compound reporting limit for the sample.

A (Dioxins) = B (Metals) = The reported value was obtained from a reading <MRL and \geq MDL and is considered estimated.

B (Organics) = The analyte or compound has been detected in the sample and laboratory method blank. It indicates probable blank contamination.

E (Metals) = Reported value is estimated because of the presence of interferences.

E (Organics) = Identifies compounds whose concentrations exceed the upper level of the calibration range.

EMPC (Dioxins) = The ion-abundance ratio between the two characteristic PCDD/PCDF ions was outside accepted ranges. The detected PCDD/PCDF was reported as an estimated maximum possible concentration (EMPC).

D = Indicates sample was analyzed at a dilution.

J = Indicates an estimated value for (1) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, or (2) estimating a concentration <MRL and \geq MDL.

N (Organics) = Indicates presumptive evidence of a compound for tentatively identified compounds using a library search.

N (Metals) = Laboratory spike sample recovery not within control limits.

P (Organics) = Target analyte confirmation >40% difference for detected compound between the primary and secondary columns. The lower of the two values was reported.

* (Metals) = Duplicate analysis not within control limits.

* (Organics) = Surrogate outside of QC limits on both original and re-analysis.

Report of Analysis

Client Sample ID:	B43DW09		
Lab Sample ID:	F43603-1	Date Sampled:	09/12/06
Matrix:	SO - Soil	Date Received:	09/13/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	84.4
Project:	Radford AFB-Bldg 4343		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	L033814.D	1	09/14/06	NJ	09/14/06	OP17861	SL1738
Run #2							

	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	980	390	ug/kg	
95-57-8	2-Chlorophenol	ND	200	39	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	39	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	39	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	39	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	980	390	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	390	78	ug/kg	
95-48-7	2-Methylphenol	ND	200	39	ug/kg	
	3&4-Methylphenol	ND	200	39	ug/kg	
88-75-5	2-Nitrophenol	ND	200	39	ug/kg	
100-02-7	4-Nitrophenol	ND	980	390	ug/kg	
87-86-5	Pentachlorophenol	ND	980	390	ug/kg	
108-95-2	Phenol	ND	200	39	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	39	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	39	ug/kg	
83-32-9	Acenaphthene	ND	200	39	ug/kg	
208-96-8	Acenaphthylene	ND	200	39	ug/kg	
120-12-7	Anthracene	ND	200	39	ug/kg	
56-55-3	Benzo(a)anthracene	ND	200	39	ug/kg	
50-32-8	Benzo(a)pyrene	ND	200	39	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	200	39	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	200	78	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	200	39	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	200	39	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	390	98	ug/kg	
100-51-6	Benzyl Alcohol	ND	200	39	ug/kg	
91-58-7	2-Chloronaphthalene	ND	200	39	ug/kg	
106-47-8	4-Chloroaniline	ND	390	160	ug/kg	
86-74-8	Carbazole	ND	200	39	ug/kg	
218-01-9	Chrysene	ND	200	39	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	200	39	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	200	78	ug/kg	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	B43DW09	Date Sampled:	09/12/06
Lab Sample ID:	F43603-1	Date Received:	09/13/06
Matrix:	SO - Soil	Percent Solids:	84.4
Method:	SW846 8270C SW846 3550B		
Project:	Radford AFB-Bldg 4343		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
108-60-1	bis(2-Chloroisopropyl)ether	ND	200	39	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	200	39	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	200	39	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	200	39	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	200	39	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	200	78	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	200	78	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	390	200	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	200	78	ug/kg	
132-64-9	Dibenzofuran	ND	200	39	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	390	98	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	390	200	ug/kg	
84-66-2	Diethyl phthalate	ND	390	98	ug/kg	
131-11-3	Dimethyl phthalate	ND	390	98	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	390	200	ug/kg	
206-44-0	Fluoranthene	ND	200	39	ug/kg	
86-73-7	Fluorene	ND	200	39	ug/kg	
118-74-1	Hexachlorobenzene	ND	200	39	ug/kg	
87-68-3	Hexachlorobutadiene	ND	200	78	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	200	78	ug/kg	
67-72-1	Hexachloroethane	ND	200	78	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	200	78	ug/kg	
78-59-1	Isophorone	ND	200	39	ug/kg	
91-57-6	2-Methylnaphthalene	ND	200	39	ug/kg	
88-74-4	2-Nitroaniline	ND	390	98	ug/kg	
99-09-2	3-Nitroaniline	ND	390	98	ug/kg	
100-01-6	4-Nitroaniline	ND	390	140	ug/kg	
91-20-3	Naphthalene	ND	200	39	ug/kg	
98-95-3	Nitrobenzene	ND	200	39	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	200	78	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	39	ug/kg	
85-01-8	Phenanthrene	ND	200	39	ug/kg	
129-00-0	Pyrene	ND	200	78	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	200	39	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	73%		45-114%
4165-62-2	Phenol-d5	74%		44-124%
118-79-6	2,4,6-Tribromophenol	81%		50-128%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	B43DW09	Date Sampled:	09/12/06
Lab Sample ID:	F43603-1	Date Received:	09/13/06
Matrix:	SO - Soil	Percent Solids:	84.4
Method:	SW846 8270C SW846 3550B		
Project:	Radford AFB-Bldg 4343		

ABN TCL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	66%		41-123%
321-60-8	2-Fluorobiphenyl	65%		46-122%
1718-51-0	Terphenyl-d14	78%		45-135%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	B43DW09		
Lab Sample ID:	F43603-1	Date Sampled:	09/12/06
Matrix:	SO - Soil	Date Received:	09/13/06
Method:	SW846 8270C BY SIM SW846 3550B	Percent Solids:	84.4
Project:	Radford AFB-Bldg 4343		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W031351.D	4	09/14/06	NJ	09/13/06	OP17846	SW1644
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	310	78	ug/kg	
208-96-8	Acenaphthylene	ND	310	78	ug/kg	
120-12-7	Anthracene	ND	310	47	ug/kg	
56-55-3	Benzo(a)anthracene	ND	63	16	ug/kg	
50-32-8	Benzo(a)pyrene	ND	63	16	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	63	16	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	63	16	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	63	16	ug/kg	
218-01-9	Chrysene	ND	63	16	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	63	16	ug/kg	
206-44-0	Fluoranthene	ND	310	55	ug/kg	
86-73-7	Fluorene	ND	310	47	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	63	16	ug/kg	
90-12-0	1-Methylnaphthalene	ND	310	47	ug/kg	
91-57-6	2-Methylnaphthalene	ND	310	47	ug/kg	
91-20-3	Naphthalene	ND	310	47	ug/kg	
85-01-8	Phenanthrene	ND	310	47	ug/kg	
129-00-0	Pyrene	ND	310	55	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	75%		41-123%
321-60-8	2-Fluorobiphenyl	75%		46-122%
1718-51-0	Terphenyl-d14	90%		45-135%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: B43DW10		Date Sampled: 09/12/06	
Lab Sample ID: F43603-2		Date Received: 09/13/06	
Matrix: SO - Soil		Percent Solids: 82.0	
Method: SW846 8270C SW846 3550B			
Project: Radford AFB-Bldg 4343			

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	L033817.D	1	09/14/06	NJ	09/14/06	OP17861	SL1738
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	1000	400	ug/kg	
95-57-8	2-Chlorophenol	ND	200	40	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	40	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	40	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	40	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	1000	400	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	400	80	ug/kg	
95-48-7	2-Methylphenol	ND	200	40	ug/kg	
	3&4-Methylphenol	ND	200	40	ug/kg	
88-75-5	2-Nitrophenol	ND	200	40	ug/kg	
100-02-7	4-Nitrophenol	ND	1000	400	ug/kg	
87-86-5	Pentachlorophenol	ND	1000	400	ug/kg	
108-95-2	Phenol	ND	200	40	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	40	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	40	ug/kg	
83-32-9	Acenaphthene	ND	200	40	ug/kg	
208-96-8	Acenaphthylene	ND	200	40	ug/kg	
120-12-7	Anthracene	ND	200	40	ug/kg	
56-55-3	Benzo(a)anthracene	ND	200	40	ug/kg	
50-32-8	Benzo(a)pyrene	ND	200	40	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	200	40	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	200	80	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	200	40	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	200	40	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	400	100	ug/kg	
100-51-6	Benzyl Alcohol	ND	200	40	ug/kg	
91-58-7	2-Chloronaphthalene	ND	200	40	ug/kg	
106-47-8	4-Chloroaniline	ND	400	160	ug/kg	
86-74-8	Carbazole	ND	200	40	ug/kg	
218-01-9	Chrysene	ND	200	40	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	200	40	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	200	80	ug/kg	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	B43DW10	Date Sampled:	09/12/06
Lab Sample ID:	F43603-2	Date Received:	09/13/06
Matrix:	SO - Soil	Percent Solids:	82.0
Method:	SW846 8270C SW846 3550B		
Project:	Radford AFB-Bldg 4343		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
108-60-1	bis(2-Chloroisopropyl)ether	ND	200	40	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	200	40	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	200	40	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	200	40	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	200	40	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	200	80	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	200	80	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	400	200	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	200	80	ug/kg	
132-64-9	Dibenzofuran	ND	200	40	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	400	100	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	400	200	ug/kg	
84-66-2	Diethyl phthalate	ND	400	100	ug/kg	
131-11-3	Dimethyl phthalate	ND	400	100	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	400	200	ug/kg	
206-44-0	Fluoranthene	ND	200	40	ug/kg	
86-73-7	Fluorene	ND	200	40	ug/kg	
118-74-1	Hexachlorobenzene	ND	200	40	ug/kg	
87-68-3	Hexachlorobutadiene	ND	200	80	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	200	80	ug/kg	
67-72-1	Hexachloroethane	ND	200	80	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	200	80	ug/kg	
78-59-1	Isophorone	ND	200	40	ug/kg	
91-57-6	2-Methylnaphthalene	ND	200	40	ug/kg	
88-74-4	2-Nitroaniline	ND	400	100	ug/kg	
99-09-2	3-Nitroaniline	ND	400	100	ug/kg	
100-01-6	4-Nitroaniline	ND	400	140	ug/kg	
91-20-3	Naphthalene	ND	200	40	ug/kg	
98-95-3	Nitrobenzene	ND	200	40	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	200	80	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	40	ug/kg	
85-01-8	Phenanthrene	ND	200	40	ug/kg	
129-00-0	Pyrene	ND	200	80	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	200	40	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	76%		45-114%
4165-62-2	Phenol-d5	78%		44-124%
118-79-6	2,4,6-Tribromophenol	82%		50-128%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	B43DW10	Date Sampled:	09/12/06
Lab Sample ID:	F43603-2	Date Received:	09/13/06
Matrix:	SO - Soil	Percent Solids:	82.0
Method:	SW846 8270C SW846 3550B		
Project:	Radford AFB-Bldg 4343		

ABN TCL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	68%		41-123%
321-60-8	2-Fluorobiphenyl	67%		46-122%
1718-51-0	Terphenyl-d14	74%		45-135%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	B43DW10	Date Sampled:	09/12/06
Lab Sample ID:	F43603-2	Date Received:	09/13/06
Matrix:	SO - Soil	Percent Solids:	82.0
Method:	SW846 8270C BY SIM SW846 3550B		
Project:	Radford AFB-Bldg 4343		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W031352.D	4	09/14/06	NJ	09/13/06	OP17846	SW1644
Run #2							

	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	320	80	ug/kg	
208-96-8	Acenaphthylene	ND	320	80	ug/kg	
120-12-7	Anthracene	ND	320	48	ug/kg	
56-55-3	Benzo(a)anthracene	ND	64	16	ug/kg	
50-32-8	Benzo(a)pyrene	ND	64	16	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	64	16	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	64	16	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	64	16	ug/kg	
218-01-9	Chrysene	ND	64	16	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	64	16	ug/kg	
206-44-0	Fluoranthene	ND	320	56	ug/kg	
86-73-7	Fluorene	ND	320	48	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	64	16	ug/kg	
90-12-0	1-Methylnaphthalene	ND	320	48	ug/kg	
91-57-6	2-Methylnaphthalene	ND	320	48	ug/kg	
91-20-3	Naphthalene	ND	320	48	ug/kg	
85-01-8	Phenanthrene	ND	320	48	ug/kg	
129-00-0	Pyrene	ND	320	56	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	85%		41-123%
321-60-8	2-Fluorobiphenyl	84%		46-122%
1718-51-0	Terphenyl-d14	97%		45-135%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

MEMORANDUM

TO: Tim Leahy, Shaw E&I RFAAP Project Manager

FROM: Eric Malarek, Shaw E&I RFAAP Project Chemist

SUBJECT: RFAAP Data Validation - Volatiles
Accutest Laboratories, Inc., SDG F43603

DATE: September 26, 2006

The purpose of this memorandum is to present the data validation report for the samples collected at Building 4343 at the RFAAP on September 12, 2006. The samples were analyzed for volatile organic compounds (VOCs) using USEPA SW846 Method 5035/8260B. A total of two soil field samples were validated. The sample IDs are:


Field Sample ID	Lab Sample ID	Field Sample ID	Lab Sample ID
B43DW09	F43603-1	B43DW10	F43603-2

Data were reviewed by Eric Malarek and validated using a combination of project QAPP, *DOD Quality Systems Manual for Environmental Laboratories, Final Version 3, January, 2006* (DoD, 2006) (DoD QSM), method-specific criteria, and laboratory SOP criteria. The data qualifier scheme was consistent with the *Region III Modifications to the National Functional Guidelines for Organic Data Review* (September 1994). Parameters evaluated under data validation procedure Level M3 are presented in **Table 1**. Data associated with parameters in compliance with quality control specifications have not been qualified. Data associated with parameters that did not comply with quality control specifications and directly impacted project data have been qualified in accordance with USEPA Region III specifications.

Table 1 Laboratory Performance Criteria

Qualified		Parameter
Yes	No	
	X	Holding Times and Preservation
	X	Instrument Performance Results
	X	Initial Calibration
	X	Continuing Calibration
	X	Blank Analysis
	X	Laboratory Control Sample
X		Matrix Spike/ Spike Duplicate Sample
	X	System Monitoring Compounds
	X	Internal Standards
	X	Field Sample Duplicate
	X	Quantitation Verification

The quality of data collected in support of this sampling activity is considered acceptable with the noted qualifications.



 Eric Malarek, Chemist

9/26/06

 Date

**RFAAP VALIDATION REPORT
VOLATILES REVIEW
SDG F43603**

I-Holding Times and Preservation

The objective is to ascertain the validity of results based on the holding time of the sample from time of collection to time of analysis. The samples were field preserved in methanol as well as de-ionized ultra filtered water. Holding time criteria: For soil samples cooled @ $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$; the maximum holding time is 14 days from sample collection to analysis.

- Temperature Review: The temperature blank was sent with each cooler and recorded by the lab upon receipt. For samples collected on 09/12/06, the cooler was received by the laboratory at 4.8°C . All criteria were met. No qualifiers were applied.
- Holding Time Review: The soil samples were collected for VOCs on 09/12/06 and analyzed 09/13/06. All criteria were met. No qualifiers were applied.

II-Instrument Performance Check

The analysis of the instrument performance check solution must be performed at the beginning of each 12-hour period during which samples are analyzed.

- The instrument performance check, bromofluorobenzene (BFB), met the ion abundance criteria. No qualification was applied.

III-Initial Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument used is capable of producing acceptable qualitative and quantitative data for volatile target compounds. Initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run and of producing a linear calibration curve. The RRF must be greater than 0.1 for chloromethane, 1,1-dichloroethane, and bromoform and greater than 0.3 for 1,1,2,2-tetrachloroethane and chlorobenzene. The minimum relative response factor (RRF) must be ≥ 0.05 for all other compounds. Percent relative standard deviation (%RSD) must be $\leq 15\%$ for each target compound and must be $\leq 30\%$ for each calibration check compound. For compounds analyzed using linear regression, correlation coefficients must be $r > 0.995$ (coefficient of determination $r^2 > 0.99$ for higher order). All detects are qualified as estimated "J" for where there were exceeding %RSDs, and all non-detects are qualified as estimated "UJ" for where there were grossly exceeding recoveries, unless determined to be unusable "R". Grossly exceeding is defined as twice the established criteria limits. For where there were low RRFs, all detects are qualified as estimated "J" and non-detects are rejected "R".

- For initial calibration performed on 08/29/06 on instrument MSVOA2, target compounds bromomethane (17.8%), chloroethane (16.4%), and methylene chloride (101%) were outside %RSD criteria. All RRFs were within criteria ($\text{RRF} \geq 0.05$) for all target compounds. Compounds bromomethane, chloroethane, and methylene chloride were quantified using linear or second order equations with correlation coefficients > 0.995 or coefficient of determination > 0.99 ; therefore, no qualifiers were applied based upon these outliers. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) were analyzed using this initial calibration.

IV-Continuing Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument used is capable of producing acceptable qualitative and quantitative data for volatile target compounds. Continuing calibration establishes the 12-hour relative response factors on which the quantitations are based and checks satisfactory performance of the instrument on a day-to-day basis. The RRF must be greater than 0.1 for chloromethane, 1,1-dichloroethane, and bromoform and greater than 0.3 for 1,1,2,2-tetrachloroethane and chlorobenzene. The minimum relative response factor (RRF) must be ≥ 0.05 for all other compounds. The percent difference (%D) between the initial calibration RRF and the continuing calibration RRF must be within 20% for all target compounds. All detects are qualified as estimated "J" for where there were exceeding %Ds, and all non-detects are qualified as estimated "UJ" for where there were grossly exceeding recoveries, unless determined to be unusable "R". Grossly exceeding is defined as twice the established criteria limits. For where there were low RRFs, all detects are qualified as estimated "J" and non-detects are rejected "R".

- For continuing calibration performed on 09/13/06 @10:16 on instrument MSVOA2, all target compounds were within criteria. No qualifiers were applied. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) apply to this continuing calibration.

V-Blank Analysis

The purpose of blank analyses is to determine the presence and magnitude of contamination problems resulting from field and laboratory activities. A method blank analysis must be performed after the calibration standards and once every 12-hour time period beginning with the injection of BFB. No contaminants should be detected in any of the associated blanks > the MDL. DoD QSM criteria specifies all concentrations should be less than one-half MRL (<MRL for common laboratory contaminants methylene chloride, acetone, and 2-butanone). Positive sample results are reported and qualified "B", if the concentration of the compound in the sample is ≤ 10 times (10x) the maximum amount in any blank for the common laboratory contaminants methylene chloride, acetone, and 2-butanone, or 5 times (5X) the maximum amount for other volatile target compounds. **Table 2** summarizes the blank contamination analysis. Action levels are based upon dilution factor of one, 100% solids, and were converted to soil values (soil conversion factor = 1).

Table 2 Blank Contamination Analysis Summary

Analysis Date	QC Blank ID	Compound	Max Conc. $\mu\text{g/kg}$	Action Level $\mu\text{g/kg}$	B qualified samples
09/13/06	VK1262-MB	All target <1/2MRL	NA	NA	None

MRL = Method Reporting Limit
NA = Not Applicable

VI-Laboratory Control Sample

Data for laboratory control samples (LCS) are evaluated to determine long-term accuracy of the analytical method on various matrices. Percent recoveries (%Rs) should be within the specified control limits. DoD LCS soil recovery limits are specified in Table D-5 of the DoD QSM (DoD, 2006).

- Sample VK1262-BS was used as the LCS for the VOC analysis on 09/13/06. All criteria were met. No qualifiers were applied. Samples B43DW09 (F43603-1) and B43DW10 (F43603-2) apply to this LCS.

VII-Matrix Spike/Matrix Spike Duplicate

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 and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. The percent recoveries (%Rs) and the relative percent difference (RPD) must be within the specified control limits. DoD MS and MSD soil recovery limits use the LCS criteria specified in Table D-5 of the DoD QSM (DoD, 2006). The DoD MS/MSD precision RPD criteria is $\leq 30\%$.

- Sample B43DW09 (F43603-1) was used for the MS/MSD analysis performed on 09/13/06. Compound cis-1,3-dichloropropene (68%) was outside DoD criteria and within laboratory criteria. Compound cis-1,3-dichloropropene was qualified as bias low "UL" based upon the low recovery. The LCS was within recovery limits for cis-1,3-dichloropropene for the 09/13/06 run. For all other target compounds, all criteria were met.

VIII-System Monitoring Compounds (Surrogates)

Laboratory performance on individual samples is evaluated through the review of surrogate spike samples. Recoveries for system monitoring compounds in volatile samples and blanks must be within the specified control limits.

Criteria: Dibromofluoromethane (78-123%) – SMC1 (DoD QSM Criteria: Not Available)
 1,2-Dichloroethane-d4 (74-125%) – SMC2 (DoD QSM Criteria: Not Available)
 Toluene-d8 (71-137%) – SMC3 (DoD QSM Criteria: 85-115%)
 4-Bromofluorobenzene (61-157%) – SMC4 (DoD QSM Criteria: 85-120%)

- Surrogate Toluene-d8 (116%) was above DoD criteria and within lab criteria for sample B43DW10 (F43603-2). All other surrogates were within criteria for B43DW10 (F43603-2) and all target compounds were non-detect. No qualifiers were applied based upon this outlier. All criteria were met for all other samples.

IX-Internal Standards (IS)

Internal standards performance criteria ensure that GC/MS sensitivity and response are stable during every analytical run. Specific criteria include: area counts (-50% to +100%) of the associated calibration standard, and retention time (± 30 seconds) from that of the associated calibration standard.

- All criteria were met. No qualifiers were applied.

X-Field Duplicate Sample Analysis

Field duplicates were collected to identify the cumulative precision of the sampling and analytical process and sent to the laboratory blind. The RPD was calculated only for those analytes which were detected at levels exceeding the method reporting limits in both samples of the duplicate pair. Analytes that were qualified rejected (R-qualified) in either sample of the duplicate pair were excluded from the duplicate assessment. Precision control criterion was established at 50% RPD for the soil samples. Analytical results were qualified as estimated (J) for any RPDs exceeding criteria.

- No field sample duplicate pair was analyzed with this SDG.

XI-Quantitation Verification

The accuracy of analytical results is verified through the calculation of several parameters. The percent difference (%D) between the calculated and the reported values should be within 10%. Any sample value >MDL and <MRL or <3*MDL (whichever is greater) was qualified as estimated, "J."

Sample: B43DW09-MS (F43603-1MS), tetrachloroethene

$$\text{Conc. } (\mu\text{g/kg}) = \{(A_x) \cdot (I_s) \cdot (DF) \cdot (V_p)\} / \{(A_{is}) \cdot (RRF) \cdot (W_s) \cdot F_s\}$$

where: A_x is the compound area

I_s is the corresponding internal standard concentration (ng/mL)

DF is the dilution factor

V_p is the volume purged (mL)

A_{is} is the corresponding internal standard area

RRF is the relative response factor

W_s is the weight of the sample (g)

F_s is the fraction solids for the sample = 1.0 for Wet Weight

$$\text{Conc. } \mu\text{g/kg} = (350068 \cdot 50 \text{ ng/mL} \cdot 1 \cdot 5 \text{ mL}) / (1029354 \cdot 0.330 \cdot 3.98 \text{ g} \cdot 0.8440) = 76.7 \mu\text{g/kg}$$

$$\text{Reported Conc.} = 76.7 \mu\text{g/kg}$$

$$\%D = 0.0$$

Values were within 10% difference.

USEPA Region III Validation Qualifiers

(No Code) = Confirmed identification.

B = The analyte has been detected in the sample and the associated laboratory or field blank.

J = Indicates an estimated value for (1) estimated value due to QC non-conformance. Reported value may not be accurate or precise, (2) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, or (3) estimating a concentration \geq MDL and $<$ MRL or $<3*$ MDL, whichever is greater.

K = Analyte present. Reported value may be biased high (estimated) due to QC non-conformance.

L = Analyte present. Reported value may be biased low (estimated) due to QC non-conformance.

R = Unreliable result. Analyte may or may not be present in the sample due to QC non-conformance.

UL = Value is estimated bias low and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise. Quantitation limit is probably higher.

UJ = Value is estimated and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise.

Laboratory Qualifiers

(No Code) = Confirmed identification.

U = Not detected. The associated number indicates the compound reporting limit for the sample.

B (Metals) = The reported value was obtained from a reading $<$ MRL and \geq MDL and is considered estimated.

B (Organics) = The analyte or compound has been detected in the sample and laboratory method blank. It indicates probable blank contamination.

E (Metals) = Reported value is estimated because of the presence of interferences.

E (Organics) = Identifies compounds whose concentrations exceed the upper level of the calibration range.

D = Indicates sample was analyzed at a dilution.

J = Indicates an estimated value for (1) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, or (2) estimating a concentration $<$ MRL and \geq MDL.

N (Organics) = Indicates presumptive evidence of a compound for tentatively identified compounds using a library search.

N (Metals) = Laboratory spike sample recovery not within control limits.

P (Organics) = Target analyte confirmation $>40\%$ difference for detected compound between the primary and secondary columns. The lower of the two values was reported.

* (Metals) = Duplicate analysis not within control limits.

* (Organics) = Surrogate outside of QC limits on both original and re-analysis.

Report of Analysis

Client Sample ID:	B43DW09	Date Sampled:	09/12/06
Lab Sample ID:	F43603-1	Date Received:	09/13/06
Matrix:	SO - Soil	Percent Solids:	84.4
Method:	SW846 8260B		
Project:	Radford AFB-Bldg 4343		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K028328.D	1	09/13/06	WJ	n/a	n/a	VK1262
Run #2							

Run #	Initial Weight
Run #1	4.58 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	65	32	ug/kg	
71-43-2	Benzene	ND	6.5	2.6	ug/kg	
75-27-4	Bromodichloromethane	ND	6.5	2.6	ug/kg	
75-25-2	Bromoform	ND	6.5	2.6	ug/kg	
108-90-7	Chlorobenzene	ND	6.5	2.6	ug/kg	
75-00-3	Chloroethane	ND	6.5	3.9	ug/kg	
67-66-3	Chloroform	ND	6.5	2.6	ug/kg	
75-15-0	Carbon disulfide	ND	6.5	2.6	ug/kg	
56-23-5	Carbon tetrachloride	ND	6.5	2.6	ug/kg	
75-34-3	1,1-Dichloroethane	ND	6.5	2.6	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	6.5	2.6	ug/kg	
107-06-2	1,2-Dichloroethane	ND	6.5	2.6	ug/kg	
78-87-5	1,2-Dichloropropane	ND	6.5	2.6	ug/kg	
124-48-1	Dibromochloromethane	ND	6.5	2.6	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	ND	6.5	2.6	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND <i>VL</i>	6.5	2.6	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	ND	6.5	2.6	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	6.5	2.6	ug/kg	
100-41-4	Ethylbenzene	ND	6.5	2.6	ug/kg	
591-78-6	2-Hexanone	ND	32	13	ug/kg	
108-10-1	4-Methyl-2-pentanone	ND	32	13	ug/kg	
74-83-9	Methyl bromide	ND	6.5	2.6	ug/kg	
74-87-3	Methyl chloride	ND	6.5	2.6	ug/kg	
75-09-2	Methylene chloride	ND	13	6.5	ug/kg	
78-93-3	Methyl ethyl ketone	ND	32	13	ug/kg	
100-42-5	Styrene	ND	6.5	2.6	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	6.5	2.6	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	6.5	2.6	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	6.5	2.6	ug/kg	
127-18-4	Tetrachloroethylene	ND	6.5	2.6	ug/kg	
108-88-3	Toluene	ND	6.5	2.6	ug/kg	
79-01-6	Trichloroethylene	ND	6.5	2.6	ug/kg	

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	B43DW09	Date Sampled:	09/12/06
Lab Sample ID:	F43603-1	Date Received:	09/13/06
Matrix:	SO - Soil	Percent Solids:	84.4
Method:	SW846 8260B		
Project:	Radford AFB-Bldg 4343		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl chloride	ND	6.5	2.6	ug/kg	
1330-20-7	Xylene (total)	ND	19	6.5	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		78-123%
2037-26-5	Toluene-D8	114%		71-137%
460-00-4	4-Bromofluorobenzene	105%		61-157%
17060-07-0	1,2-Dichloroethane-D4	102%		74-125%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	B43DW10	Date Sampled:	09/12/06
Lab Sample ID:	F43603-2	Date Received:	09/13/06
Matrix:	SO - Soil	Percent Solids:	82.0
Method:	SW846 8260B		
Project:	Radford AFB-Bldg 4343		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K028331.D	1	09/13/06	WJ	n/a	n/a	VK1262
Run #2							

Run #	Initial Weight
Run #1	6.73 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	45	23	ug/kg	
71-43-2	Benzene	ND	4.5	1.8	ug/kg	
75-27-4	Bromodichloromethane	ND	4.5	1.8	ug/kg	
75-25-2	Bromoform	ND	4.5	1.8	ug/kg	
108-90-7	Chlorobenzene	ND	4.5	1.8	ug/kg	
75-00-3	Chloroethane	ND	4.5	2.7	ug/kg	
67-66-3	Chloroform	ND	4.5	1.8	ug/kg	
75-15-0	Carbon disulfide	ND	4.5	1.8	ug/kg	
56-23-5	Carbon tetrachloride	ND	4.5	1.8	ug/kg	
75-34-3	1,1-Dichloroethane	ND	4.5	1.8	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	4.5	1.8	ug/kg	
107-06-2	1,2-Dichloroethane	ND	4.5	1.8	ug/kg	
78-87-5	1,2-Dichloropropane	ND	4.5	1.8	ug/kg	
124-48-1	Dibromochloromethane	ND	4.5	1.8	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	ND	4.5	1.8	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND <i>UL</i>	4.5	1.8	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	ND	4.5	1.8	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	4.5	1.8	ug/kg	
100-41-4	Ethylbenzene	ND	4.5	1.8	ug/kg	
591-78-6	2-Hexanone	ND	23	9.1	ug/kg	
108-10-1	4-Methyl-2-pentanone	ND	23	9.1	ug/kg	
74-83-9	Methyl bromide	ND	4.5	1.8	ug/kg	
74-87-3	Methyl chloride	ND	4.5	1.8	ug/kg	
75-09-2	Methylene chloride	ND	9.1	4.5	ug/kg	
78-93-3	Methyl ethyl ketone	ND	23	9.1	ug/kg	
100-42-5	Styrene	ND	4.5	1.8	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	4.5	1.8	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	4.5	1.8	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	4.5	1.8	ug/kg	
127-18-4	Tetrachloroethylene	ND	4.5	1.8	ug/kg	
108-88-3	Toluene	ND	4.5	1.8	ug/kg	
79-01-6	Trichloroethylene	ND	4.5	1.8	ug/kg	

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	B43DW10	Date Sampled:	09/12/06
Lab Sample ID:	F43603-2	Date Received:	09/13/06
Matrix:	SO - Soil	Percent Solids:	82.0
Method:	SW846 8260B		
Project:	Radford AFB-Bldg 4343		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl chloride	ND	4.5	1.8	ug/kg	
1330-20-7	Xylene (total)	ND	14	4.5	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		78-123 %
2037-26-5	Toluene-D8	116%		71-137 %
460-00-4	4-Bromofluorobenzene	96%		61-157 %
17060-07-0	1,2-Dichloroethane-D4	96%		74-125 %

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

MEMORANDUM

TO: Tim Leahy, Shaw E&I RFAAP Project Manager

FROM: Eric Malarek, Shaw E&I RFAAP Project Chemist

SUBJECT: Radford Army Ammunition Plant (RFAAP) Data Validation – Cadmium in Soil
Accutest Laboratories, Inc., SDG F43766

DATE: October 3, 2006

The purpose of this memorandum is to present the data validation report for the samples collected at Building 4343 at the RFAAP on September 18, 2006. Samples were analyzed for cadmium in soil using USEPA Method 3050B/6010B. A total of ten soil samples were validated. The sample IDs are:

Field Sample ID	Lab Sample ID	Field Sample ID	Lab Sample ID
B43SC30	F43766-1	B43SC34	F43766-6
B43SC30A	F43766-2	B43SC35	F43766-7
B43SC31	F43766-3	B43SC36	F43766-8
B43SC32	F43766-4	B43SC37	F43766-9
B43SC33	F43766-5	B43SC38	F43766-10

Data were reviewed by Eric Malarek and validated using a combination of project QAPP, *DoD Quality Systems Manual for Environmental Laboratories, Final Version 3, January, 2006* (DoD, 2006) (DoD QSM), method-specific criteria, and laboratory SOP criteria. The data qualifier scheme was consistent with the *Region III Modifications to the National Functional Guidelines for Inorganic Data Review* (April, 1993). Parameters evaluated are presented in **Table 1**. Data associated with parameters in compliance with quality control specifications have not been qualified. Data associated with parameters that did not comply with quality control specifications and directly impacted project data have been qualified in accordance with USEPA Region III specifications.

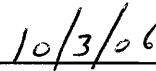
Table 1 Laboratory Performance Criteria

Qualified		Parameter
Yes	No	
	X	Holding Times and Preservation
	X	Initial and Continuing Calibration
	X	Blank Analysis
	X	ICP Interference Check Sample (ICS)
	X	Laboratory Control Sample (LCS)
	X	Laboratory Duplicate
	X	Matrix Spike (MS) and Spike Duplicate (MSD)
	X	Field Duplicate
	X	ICP Serial Dilution
	X	Quantitation Verification

The quality of data collected in support of this sampling activity is considered acceptable.



Eric Malarek, Chemist



Date

**RFAAP VALIDATION REPORT
CADMIUM IN SOIL REVIEW
SDG F43766**

I-Holding Times and Preservation

The primary objective is to ascertain the validity of results based on the holding time of the sample from time of collection to time of sample analysis. For metals analysis, soil samples are received at ambient temperature and stored cool @4°C±2°C with a maximum holding time of 180 days for cadmium from collection (USEPA criteria).

- Temperature Review: The soil samples were collected for ICP metal cadmium only, therefore, ambient temperature was sufficient for shipment and recorded by the lab upon receipt. For samples collected on 09/18/06, cooler was received by the laboratory at ambient temperature. All criteria were met. No qualifiers were applied.
- Holding Time Review: Samples were collected on 09/18/06. They were digested on 09/19/06 and analyzed for ICP cadmium on 09/19/06. All holding time criteria were met. No qualifiers were applied.

II-Initial and Continuing Calibration

Requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable quantitative data. Initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analysis run, and continuing calibration verification documents that the initial calibration is still valid.

ICP-Cd: 1- blank (DoD QSM <1/2MRL)
3 – standards ($r \geq 0.995$)
ICV/CCV (90-110%) (DoD QSM 90-110%)
MRL (70-130%) (DoD QSM 80-120%)
High Std. (95-105%)

- The samples were analyzed for ICP cadmium on 09/19/06. All ICV/CCV standards were within criteria. **Table 2** summarizes the MRL standard analysis for metals. Samples with concentrations detected less than two times the MRL with out of criteria MRL recovery were qualified. All criteria were met. No qualifiers were applied.

Table 2 MRL Analysis Summary

Analysis Date	Analysis	MRL (µg/L)	MRL (mg/kg)	MRL %Recovery	Qualified samples @ <2xMRL	Validation Qualifiers
09/19/06	ICP-Cd	5	0.5	All within criteria	None	None

III-Blanks

Blanks (preparation and calibration blanks) are assessed to determine the existence and magnitude of contamination problems. No contaminants should be detected (i.e. <MDL) in any of the associated blanks. DoD QSM limits are <1/2MRL for the method blank and <2MDL for the calibration blanks. Samples are qualified "B" when they are less than 5X the absolute value of the maximum blank concentration. **Table 3** summarizes the blank contamination analysis. Action levels are based upon dilution factor of one and were converted to soil values (soil conversion factor = 10 for ICP).

Table 3 Blank Contamination Analysis Summary

Analysis Date	Analysis	QC Blank ID	Max Conc. mg/kg	Action Level mg/kg	B qualified samples
09/19/06	ICP-Cd	ICB/CCBs	<2MDL	NA	None
09/19/06	ICP-Cd	MP10335-MB1	<MRL	NA	None

MDL = Method Detection Limit.

MRL = Method Reporting Limit.

NA = Not Applicable.

IV-ICP Interference Check Sample (ICS)

The ICP interference check sample (ICS) verifies interelement and background correction factors. ICP Interference Check is performed at the beginning and end of each sample analysis run. Control limits are 80-120% (DoD QSM limits 80-120%).

- All criteria were met. No qualifiers were applied.

V-Laboratory Control Samples (LCS)

The laboratory control sample (LCS) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. All soil LCS results must fall within the control limits of 80-120% for ICP metals. DoD QSM limits for metals are 80-120%.

- Sample MP10335-SB1 was used as LCS for ICP cadmium analysis dated 09/19/06. All criteria were met. No qualifiers were applied.

VI-Laboratory Duplicate

Duplicate sample determinations are used to demonstrate acceptable method precision by the laboratory at the time of analysis. Duplicate analysis is also performed to generate data in order to determine the long-term precision of the analytical method on various matrices. RPDs must be within established control limits. DoD QSM limits for metals are 20% RPD for ICP metals.

- Sample B43SC30 (F43766-1) was used for the duplicate analysis for the 09/19/06 ICP cadmium analysis. All criteria were met. No qualifiers were applied.

VII-Matrix Spike (MS) and Spike Duplicate (MSD)

MS and MSD are generated to determine long-term accuracy and precision of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. Specific criteria include the analyses of matrix spike samples at a frequency of one MS/MSD per 20 samples of similar matrix. MS/MSD recoveries and relative percent differences between MS recoveries should be within the specified limits. DoD QSM limits for metals are 80-120%; RPD≤20% for ICP metals. Post digestion spikes limits are 75-125% for ICP metals.

- Sample B43SC30 (F43766-1) was used for the MS analysis for the 09/19/06 ICP cadmium analysis. Cadmium (-371%) was outside criteria. The spiked sample concentration was greater than 4 times the amount spiked; therefore, no qualifiers were applied based upon this outlier.

VIII-Field Duplicate Sample Analysis

Field duplicates were collected to identify the cumulative precision of the sampling and analytical process and sent to the laboratory blind. The RPD was calculated only for those analytes which were detected at levels exceeding the method reporting limits in both samples of the duplicate pair. Analytes that were qualified rejected (R-qualified) in either sample of the duplicate pair were excluded from the duplicate assessment. Precision control criterion was established at 35% RPD for cadmium for the soil samples. Analytical results were qualified as estimated (J) for any RPDs exceeding criteria.

- Field groundwater sample duplicate pair B43SC30 (F43766-1) and B43SC30A (F43766-2) was collected for total cadmium. Cadmium was found in the sample at 224 mg/kg and in its duplicate pair at 191 mg/kg resulting in a RPD of 17.3%. All criteria were met. No qualifiers were applied.

IX-ICP Serial Dilution

An ICP serial dilution is performed to determine whether significant physical or chemical interferences exist due to sample matrix at high concentrations. An analysis of a 5-fold dilution should agree within 10% difference of the original result when the concentration in sample is a factor of 50 above MDL.

- The serial dilution for the 09/19/06 ICP cadmium analysis was analyzed on sample B43SC30 (F43766-1). All criteria were met. No qualifiers were applied.

X-Quantitation Verification

The accuracy of analytical results is verified through the calculation of several parameters. The percent difference (%D) between the calculated and the reported values should be within 10%. Any sample value >MDL and <MRL or <3*MDL (whichever was greater) was qualified as estimated, "J." The following calculations were performed for verification.

ICP Sample: B43SC30 (F43766-1), Total Cadmium

$$\text{Conc. (mg/kg)} = \{(\text{conc. } \mu\text{g/L}) * (\text{Final Volume L}) * (\text{DF})\} / \{(\text{Weight Sample g}) * (\text{Fraction Solids})\}$$

$$\text{Conc. (mg/kg)} = \{(1958 \mu\text{g/L}) * (0.050 \text{ L}) * (1)\} / \{(0.50 \text{ g}) * (0.8750)\} = 224 \mu\text{g/g} = 224 \text{ mg/kg}$$

$$\text{Reported concentration} = 224 \text{ mg/kg}$$

$$\%D = 0.0\%$$

Values were within 10% difference.

USEPA Region III Validation Qualifiers

(No Code) = Confirmed identification.

B = The analyte has been detected in the sample and the associated laboratory or field blank.

J = Indicates an estimated value for (1) estimated value due to QC non-conformance. Reported value may not be accurate or precise, (2) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, or (3) estimating a concentration \geq MDL and $<$ MRL or $<3*$ MDL, whichever is greater.

K = Analyte present. Reported value may be biased high (estimated) due to QC non-conformance.

L = Analyte present. Reported value may be biased low (estimated) due to QC non-conformance.

R = Unreliable result. Analyte may or may not be present in the sample due to QC non-conformance.

UL = Value is estimated bias low and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise. Quantitation limit is probably higher.

UJ = Value is estimated and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise.

Laboratory Qualifiers

(No Code) = Confirmed identification.

A (Dioxins) = MDL is based upon the signal-to-noise measurement.

B (Metals) = The reported value was obtained from a reading $<$ MRL and \geq MDL and is considered estimated.

B (Organics and Dioxins) = The analyte or compound has been detected in the sample and laboratory method blank. It indicates probable blank contamination.

D (Organics) = Indicates sample was analyzed at a dilution.

E (Metals) = Reported value is estimated because of the presence of interferences.

E (Organics) = Identifies compounds whose concentrations exceed the upper level of the calibration range.

E (Dioxins) = Reported value is estimated because of the presence of ether interferences.

EMPC (Dioxins) = The ion-abundance ratio between the two characteristic PCDD/F ions is outside accepted ranges. The detected PCDD/F is reported as an estimated maximum possible concentration (EMPC).

I (Dioxins) = Reported value is estimated because of the incorrect isotope ratios were obtained.

J (All) = Indicates an estimated value for (1) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, (2) estimating a concentration $<$ MRL and \geq MDL, or estimating a concentration below the calibration range.

N (Organics) = Indicates presumptive evidence of a compound for tentatively identified compounds using a library search.

N (Metals) = Laboratory spike sample recovery not within control limits.

P (Organics) = Target analyte confirmation $>40\%$ difference for detected compound between the primary and secondary columns. The lower of the two values was reported.

U (All) = ND = BQL = Not detected. The associated number indicates the compound reporting limit for the sample.

* (Metals) = Duplicate analysis not within control limits.

* (Organics) = Surrogate outside of QC limits on both original and re-analysis.

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	B43SC30	Date Sampled:	09/18/06
Lab Sample ID:	F43766-1	Date Received:	09/19/06
Matrix:	SO - Soil	Percent Solids:	87.5
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	224	0.46	0.023	mg/kg	1	09/19/06	09/19/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5239

(2) Prep QC Batch: MP10335

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID: B43SC30A
Lab Sample ID: F43766-2
Matrix: SO - Soil
Project: Radford AFB-Bldg 4343

Date Sampled: 09/18/06
Date Received: 09/19/06
Percent Solids: 87.8

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	191	0.46	0.023	mg/kg	1	09/19/06	09/19/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5239

(2) Prep QC Batch: MP10335

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	B43SC31	Date Sampled:	09/18/06
Lab Sample ID:	F43766-3	Date Received:	09/19/06
Matrix:	SO - Soil	Percent Solids:	86.4
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium ^a	0.92 U	1.8	0.92	mg/kg	1	09/19/06	09/19/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5239

(2) Prep QC Batch: MP10335

(a) Elevated reporting limit(s) due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	B43SC32	Date Sampled:	09/18/06
Lab Sample ID:	F43766-4	Date Received:	09/19/06
Matrix:	SO - Soil	Percent Solids:	83.7
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	1.6	0.47	0.023	mg/kg	1	09/19/06	09/19/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5239

(2) Prep QC Batch: MP10335

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	B43SC33	Date Sampled:	09/18/06
Lab Sample ID:	F43766-5	Date Received:	09/19/06
Matrix:	SO - Soil	Percent Solids:	85.0
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	30.1	0.47	0.024	mg/kg	1	09/19/06	09/19/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5239

(2) Prep QC Batch: MP10335

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID: B43SC34	Date Sampled: 09/18/06
Lab Sample ID: F43766-6	Date Received: 09/19/06
Matrix: SO - Soil	Percent Solids: 86.6
Project: Radford AFB-Bldg 4343	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	102	0.44	0.022	mg/kg	1	09/19/06	09/19/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5239

(2) Prep QC Batch: MP10335

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	B43SC35	Date Sampled:	09/18/06
Lab Sample ID:	F43766-7	Date Received:	09/19/06
Matrix:	SO - Soil	Percent Solids:	91.1
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	16.3	0.42	0.021	mg/kg	1	09/19/06	09/19/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5239

(2) Prep QC Batch: MP10335

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID: B43SC36

Lab Sample ID: F43766-8

Matrix: SO - Soil

Date Sampled: 09/18/06

Date Received: 09/19/06

Percent Solids: 90.7

Project: Radford AFB-Bldg 4343

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	173	0.44	0.022	mg/kg	1	09/19/06	09/19/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5239

(2) Prep QC Batch: MP10335

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	B43SC37	Date Sampled:	09/18/06
Lab Sample ID:	F43766-9	Date Received:	09/19/06
Matrix:	SO - Soil	Percent Solids:	90.1
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	181	0.41	0.021	mg/kg	1	09/19/06	09/19/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5239

(2) Prep QC Batch: MP10335

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID: B43SC38
Lab Sample ID: F43766-10
Matrix: SO - Soil
Project: Radford AFB-Bldg 4343

Date Sampled: 09/18/06
Date Received: 09/19/06
Percent Solids: 90.2

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	42.0	0.43	0.022	mg/kg	1	09/19/06	09/19/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5239

(2) Prep QC Batch: MP10335

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL



MEMORANDUM

TO: Tim Leahy, Shaw E&I RFAAP Project Manager

FROM: Eric Malarek, Shaw E&I RFAAP Project Chemist

SUBJECT: Radford Army Ammunition Plant (RFAAP) Data Validation – Cadmium in Soil
Accutest Laboratories, Inc., SDG F43979

DATE: October 5, 2006

The purpose of this memorandum is to present the data validation report for the samples collected at Building 4343 at the RFAAP on September 26, 2006. Samples were analyzed for cadmium in soil using USEPA Method 3050B/6010B. A total of fourteen soil samples were validated. The sample IDs are:


Field Sample ID	Lab Sample ID	Field Sample ID	Lab Sample ID
B43SC39	F43979-1	B43SC45	F43979-8
B43SC40	F43979-2	B43SC46	F43979-9
B43SC40A	F43979-3	B43SC47	F43979-10
B43SC41	F43979-4	B43SC48	F43979-11
B43SC42	F43979-5	B43SC49	F43979-12
B43SC43	F43979-6	B43SC50	F43979-13
B43SC44	F43979-7	B43SC50A	F43979-14

Data were reviewed by Eric Malarek and validated using a combination of project QAPP, DoD Quality Systems Manual for Environmental Laboratories, Final Version 3, January, 2006 (DoD, 2006) (DoD QSM), method-specific criteria, and laboratory SOP criteria. The data qualifier scheme was consistent with the *Region III Modifications to the National Functional Guidelines for Inorganic Data Review* (April, 1993). Parameters evaluated are presented in **Table 1**. Data associated with parameters in compliance with quality control specifications have not been qualified. Data associated with parameters that did not comply with quality control specifications and directly impacted project data have been qualified in accordance with USEPA Region III specifications.

Table 1 Laboratory Performance Criteria

Qualified		Parameter
Yes	No	
	X	Holding Times and Preservation
	X	Initial and Continuing Calibration
	X	Blank Analysis
	X	ICP Interference Check Sample (ICS)
	X	Laboratory Control Sample (LCS)
	X	Laboratory Duplicate
	X	Matrix Spike (MS) and Spike Duplicate (MSD)
X		Field Duplicate
X		ICP Serial Dilution
	X	Quantitation Verification

The quality of data collected in support of this sampling activity is considered acceptable with noted qualifications.


Eric Malarek, Chemist

10/5/06
Date

**RFAAP VALIDATION REPORT
CADMIUM IN SOIL REVIEW
SDG F43979**

I-Holding Times and Preservation

The primary objective is to ascertain the validity of results based on the holding time of the sample from time of collection to time of sample analysis. For metals analysis, soil samples are received at ambient temperature and stored cool @4°C±2°C with a maximum holding time of 180 days for cadmium from collection (USEPA criteria).

- **Temperature Review:** The soil samples were collected for ICP metal cadmium only, therefore, ambient temperature was sufficient for shipment and recorded by the lab upon receipt. For samples collected on 09/26/06, cooler was received by the laboratory at ambient temperature. All criteria were met. No qualifiers were applied.
- **Holding Time Review:** Samples were collected on 09/26/06. They were digested on 09/28/06 and analyzed for ICP cadmium on 09/28/06. All holding time criteria were met. No qualifiers were applied.

II-Initial and Continuing Calibration

Requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable quantitative data. Initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analysis run, and continuing calibration verification documents that the initial calibration is still valid.

ICP-Cd: 1- blank (DoD QSM <1/2MRL)
3 – standards ($r \geq 0.995$)
ICV/CCV (90-110%) (DoD QSM 90-110%)
MRL (70-130%) (DoD QSM 80-120%)
High Std. (95-105%)

- The samples were analyzed for ICP cadmium on 09/28/06. All ICV/CCV standards were within criteria. **Table 2** summarizes the MRL standard analysis for metals. Samples with concentrations detected less than two times the MRL with out of criteria MRL recovery were qualified. All criteria were met. No qualifiers were applied.

Table 2 MRL Analysis Summary

Analysis Date	Analysis	MRL (µg/L)	MRL (mg/kg)	MRL %Recovery	Qualified samples @ <2xMRL	Validation Qualifiers
09/28/06	ICP-Cd	5	0.5	All within criteria	None	None

III-Blanks

Blanks (preparation and calibration blanks) are assessed to determine the existence and magnitude of contamination problems. No contaminants should be detected (i.e. <MDL) in any of the associated blanks. DoD QSM limits are <½MRL for the method blank and <2MDL for the calibration blanks. Samples are qualified "B" when they are less than 5X the absolute value of the maximum blank concentration. **Table 3** summarizes the blank contamination analysis. Action levels are based upon dilution factor of one and were converted to soil values (soil conversion factor = 10 for ICP).

Table 3 Blank Contamination Analysis Summary

Analysis Date	Analysis	QC Blank ID	Max Conc. mg/kg	Action Level mg/kg	B qualified samples
09/28/06	ICP-Cd	ICB/CCBs	<2MDL	NA	None
09/28/06	ICP-Cd	MP10391-MB1	<MRL	NA	None

MDL = Method Detection Limit.

MRL = Method Reporting Limit.

NA = Not Applicable.

IV-ICP Interference Check Sample (ICS)

The ICP interference check sample (ICS) verifies interelement and background correction factors. ICP Interference Check is performed at the beginning and end of each sample analysis run. Control limits are 80-120% (DoD QSM limits 80-120%).

- All criteria were met. No qualifiers were applied.

V-Laboratory Control Samples (LCS)

The laboratory control sample (LCS) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. All soil LCS results must fall within the control limits of 80-120% for ICP metals. DoD QSM limits for metals are 80-120%.

- Sample MP10391-SB1 was used as LCS for ICP cadmium analysis dated 09/28/06. All criteria were met. No qualifiers were applied.

VI-Laboratory Duplicate

Duplicate sample determinations are used to demonstrate acceptable method precision by the laboratory at the time of analysis. Duplicate analysis is also performed to generate data in order to determine the long-term precision of the analytical method on various matrices. RPDs must be within established control limits. DoD QSM limits for metals are 20% RPD for ICP metals.

- Sample B43SC39 (F43979-1) was used for the duplicate analysis for the 09/28/06 ICP cadmium analysis. All criteria were met. No qualifiers were applied.

VII-Matrix Spike (MS) and Spike Duplicate (MSD)

MS and MSD are generated to determine long-term accuracy and precision of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. Specific criteria include the analyses of matrix spike samples at a frequency of one MS/MSD per 20 samples of similar matrix. MS/MSD recoveries and relative percent differences between MS recoveries should be within the specified limits. DoD QSM limits for metals are 80-120%; RPD≤20% for ICP metals. Post digestion spikes limits are 75-125% for ICP metals.

- Sample B43SC39 (F43979-1) was used for the MS analysis for the 09/28/06 ICP cadmium analysis. Cadmium (-123%) was outside criteria. The spiked sample concentration was greater than 4 times the amount spiked; therefore, no qualifiers were applied based upon this outlier.

VIII-Field Duplicate Sample Analysis

Field duplicates were collected to identify the cumulative precision of the sampling and analytical process and sent to the laboratory blind. The RPD was calculated only for those analytes which were detected at levels exceeding the method reporting limits in both samples of the duplicate pair. Analytes that were qualified rejected (R-qualified) in either sample of the duplicate pair were excluded from the duplicate assessment. Precision control criterion was established at 35% RPD for cadmium for the soil samples. Analytical results were qualified as estimated (J) for any RPDs exceeding criteria.

- Field groundwater sample duplicate pair B43SC40 (F43979-2) and B43SC40A (F43979-3) was collected for total cadmium. Cadmium was found in the sample at 209 mg/kg and in its duplicate pair at 153 mg/kg resulting in a RPD of 30.9%. All criteria were met. No qualifiers were applied.
- Field groundwater sample duplicate pair B43SC50 (F43979-13) and B43SC50A (F43979-14) was collected for total cadmium. Cadmium was found in the sample at 19.5 mg/kg and in its duplicate pair at 32.1 mg/kg resulting in a RPD of 48.8%. The high RPD is probably due to sample inhomogeneity. Cadmium was qualified estimated "J" for the sample and its duplicate pair based upon the high RPD.

IX-ICP Serial Dilution

An ICP serial dilution is performed to determine whether significant physical or chemical interferences exist due to sample matrix at high concentrations. An analysis of a 5-fold dilution should agree within 10% difference of the original result when the concentration in sample is a factor of 50 above MDL.

- The serial dilution for the 09/28/06 ICP cadmium analysis was analyzed on sample B43SC39 (F43979-1). Cadmium (11.7%) was outside criteria. All detects were qualified estimated "J" and non-detects no qualifier based upon this outlier.

X-Quantitation Verification

The accuracy of analytical results is verified through the calculation of several parameters. The percent difference (%D) between the calculated and the reported values should be within 10%. Any sample value >MDL and <MRL or <3*MDL (whichever was greater) was qualified as estimated, "J." The following calculations were performed for verification.

ICP Sample: B43SC39 (F43979-1), Total Cadmium

$$\text{Conc. (mg/kg)} = \{(\text{conc. } \mu\text{g/L}) * (\text{Final Volume L}) * (\text{DF})\} / \{(\text{Weight Sample g}) * (\text{Fraction Solids})\}$$

$$\text{Conc. (mg/kg)} = \{(624.0 \mu\text{g/L}) * (0.050 \text{ L}) * (1)\} / \{(0.50 \text{ g}) * (0.7180)\} = 86.9 \mu\text{g/g} = 86.9 \text{ mg/kg}$$

Reported concentration = 86.9 mg/kg

%D = 0.0%

Values were within 10% difference.

USEPA Region III Validation Qualifiers

(No Code) = Confirmed identification.

B = The analyte has been detected in the sample and the associated laboratory or field blank.

J = Indicates an estimated value for (1) estimated value due to QC non-conformance. Reported value may not be accurate or precise, (2) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, or (3) estimating a concentration \geq MDL and $<$ MRL or $<3*$ MDL, whichever is greater.

K = Analyte present. Reported value may be biased high (estimated) due to QC non-conformance.

L = Analyte present. Reported value may be biased low (estimated) due to QC non-conformance.

R = Unreliable result. Analyte may or may not be present in the sample due to QC non-conformance.

UL = Value is estimated bias low and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise. Quantitation limit is probably higher.

UJ = Value is estimated and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise.

Laboratory Qualifiers

(No Code) = Confirmed identification.

A (Dioxins) = MDL is based upon the signal-to-noise measurement.

B (Metals) = The reported value was obtained from a reading $<$ MRL and \geq MDL and is considered estimated.

B (Organics and Dioxins) = The analyte or compound has been detected in the sample and laboratory method blank. It indicates probable blank contamination.

D (Organics) = Indicates sample was analyzed at a dilution.

E (Metals) = Reported value is estimated because of the presence of interferences.

E (Organics) = Identifies compounds whose concentrations exceed the upper level of the calibration range.

E (Dioxins) = Reported value is estimated because of the presence of ether interferences.

EMPC (Dioxins) = The ion-abundance ratio between the two characteristic PCDD/F ions is outside accepted ranges. The detected PCDD/F is reported as an estimated maximum possible concentration (EMPC).

I (Dioxins) = Reported value is estimated because of the incorrect isotope ratios were obtained.

J (All) = Indicates an estimated value for (1) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, (2) estimating a concentration $<$ MRL and \geq MDL, or estimating a concentration below the calibration range.

N (Organics) = Indicates presumptive evidence of a compound for tentatively identified compounds using a library search.

N (Metals) = Laboratory spike sample recovery not within control limits.

P (Organics) = Target analyte confirmation $>40\%$ difference for detected compound between the primary and secondary columns. The lower of the two values was reported.

U (All) = ND = BQL = Not detected. The associated number indicates the compound reporting limit for the sample.

* (Metals) = Duplicate analysis not within control limits.

* (Organics) = Surrogate outside of QC limits on both original and re-analysis.

Report of Analysis

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2.1

2

Client Sample ID: B43SC39
Lab Sample ID: F43979-1
Matrix: SO - Soil
Project: Radford AFB-Bldg 4343

Date Sampled: 09/26/06
Date Received: 09/27/06
Percent Solids: 71.8

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	86.9 J	0.56	0.028	mg/kg	1	09/28/06	09/28/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5258

(2) Prep QC Batch: MP10391

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

Report of Analysis

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2.2

2

Client Sample ID: B43SC40
Lab Sample ID: F43979-2
Matrix: SO - Soil
Project: Radford AFB-Bldg 4343

Date Sampled: 09/26/06
Date Received: 09/27/06
Percent Solids: 84.4

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	209 J	0.47	0.024	mg/kg	1	09/28/06	09/28/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5258

(2) Prep QC Batch: MP10391

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

Report of Analysis

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2.3

2

Client Sample ID:	B43SC40A	Date Sampled:	09/26/06
Lab Sample ID:	F43979-3	Date Received:	09/27/06
Matrix:	SO - Soil	Percent Solids:	84.7
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	153 J	0.46	0.023	mg/kg	1	09/28/06	09/28/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5258

(2) Prep QC Batch: MP10391

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

Report of Analysis

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Client Sample ID:	B43SC41	Date Sampled:	09/26/06
Lab Sample ID:	F43979-4	Date Received:	09/27/06
Matrix:	SO - Soil	Percent Solids:	85.8
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	21.6 J	0.45	0.022	mg/kg	1	09/28/06	09/28/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5258

(2) Prep QC Batch: MP10391

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

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2.5

2

Client Sample ID:	B43SC42	Date Sampled:	09/26/06
Lab Sample ID:	F43979-5	Date Received:	09/27/06
Matrix:	SO - Soil	Percent Solids:	87.7
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	32.2 J	0.44	0.022	mg/kg	1	09/28/06	09/28/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5258

(2) Prep QC Batch: MP10391

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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2.6

2

Client Sample ID: B43SC43
Lab Sample ID: F43979-6
Matrix: SO - Soil
Project: Radford AFB-Bldg 4343

Date Sampled: 09/26/06
Date Received: 09/27/06
Percent Solids: 84.7

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	36.8 J	0.44	0.022	mg/kg	1	09/28/06	09/28/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5258

(2) Prep QC Batch: MP10391

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID:	B43SC44	Date Sampled:	09/26/06
Lab Sample ID:	F43979-7	Date Received:	09/27/06
Matrix:	SO - Soil	Percent Solids:	88.8
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium ^a	0.92 U	1.8	0.92	mg/kg	1	09/28/06	09/28/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5258

(2) Prep QC Batch: MP10391

(a) Elevated reporting limit(s) due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

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Report of Analysis

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Client Sample ID: B43SC45	Date Sampled: 09/26/06
Lab Sample ID: F43979-8	Date Received: 09/27/06
Matrix: SO - Soil	Percent Solids: 78.0
Project: Radford AFB-Bldg 4343	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	8.1 J	0.51	0.026	mg/kg	1	09/28/06	09/28/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5258

(2) Prep QC Batch: MP10391

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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2.9

2

Client Sample ID: B43SC46

Lab Sample ID: F43979-9

Matrix: SO - Soil

Date Sampled: 09/26/06

Date Received: 09/27/06

Percent Solids: 81.0

Project: Radford AFB-Bldg 4343

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	5.3 J	0.47	0.024	mg/kg	1	09/28/06	09/28/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5258

(2) Prep QC Batch: MP10391

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	B43SC47	Date Sampled:	09/26/06
Lab Sample ID:	F43979-10	Date Received:	09/27/06
Matrix:	SO - Soil	Percent Solids:	81.8
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	90.4 J	0.48	0.024	mg/kg	1	09/28/06	09/28/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5258

(2) Prep QC Batch: MP10391

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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2.11

2

Client Sample ID:	B43SC48	Date Sampled:	09/26/06
Lab Sample ID:	F43979-11	Date Received:	09/27/06
Matrix:	SO - Soil	Percent Solids:	79.9
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	113 J	0.50	0.025	mg/kg	1	09/28/06	09/28/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5258

(2) Prep QC Batch: MP10391

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Client Sample ID:	B43SC49	Date Sampled:	09/26/06
Lab Sample ID:	F43979-12	Date Received:	09/27/06
Matrix:	SO - Soil	Percent Solids:	78.3
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	15.9 J	0.51	0.026	mg/kg	1	09/28/06	09/28/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5258

(2) Prep QC Batch: MP10391

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Client Sample ID: B43SC50
Lab Sample ID: F43979-13
Matrix: SO - Soil
Project: Radford AFB-Bldg 4343

Date Sampled: 09/26/06
Date Received: 09/27/06
Percent Solids: 75.3

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	19.5 J	0.51	0.026	mg/kg	1	09/28/06	09/28/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5258

(2) Prep QC Batch: MP10391

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

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Report of Analysis

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2.14
2

Client Sample ID: B43SC50A
Lab Sample ID: F43979-14
Matrix: SO - Soil
Project: Radford AFB-Bldg 4343

Date Sampled: 09/26/06
Date Received: 09/27/06
Percent Solids: 76.6

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	32.1 J	0.50	0.025	mg/kg	1	09/28/06	09/28/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5258

(2) Prep QC Batch: MP10391

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

MEMORANDUM

TO: Tim Leahy, Shaw E&I RFAAP Project Manager

FROM: Eric Malarek, Shaw E&I RFAAP Project Chemist

SUBJECT: Radford Army Ammunition Plant (RFAAP) Data Validation – Cadmium in Soil
Accutest Laboratories, Inc., SDG F44162

DATE: November 7, 2006

The purpose of this memorandum is to present the data validation report for the samples collected at Building 4343 at the RFAAP on October 2, 2006. Samples were analyzed for cadmium in soil using USEPA Method 3050B/6010B. A total of four soil samples were validated. The sample IDs are:

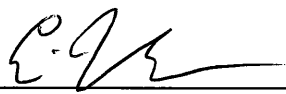
Field Sample ID	Lab Sample ID	Field Sample ID	Lab Sample ID
B43SC52	F44162-1	B43SC54	F44162-3
B43SC53	F44162-2	B43SC55	F44162-4

Data were reviewed by Eric Malarek and validated using a combination of project QAPP, *DoD Quality Systems Manual for Environmental Laboratories, Final Version 3, January, 2006* (DoD, 2006) (DoD QSM), method-specific criteria, and laboratory SOP criteria. The data qualifier scheme was consistent with the *Region III Modifications to the National Functional Guidelines for Inorganic Data Review* (April, 1993). Parameters evaluated are presented in **Table 1**. Data associated with parameters in compliance with quality control specifications have not been qualified. Data associated with parameters that did not comply with quality control specifications and directly impacted project data have been qualified in accordance with USEPA Region III specifications.

Table 1 Laboratory Performance Criteria

Qualified		Parameter
Yes	No	
	X	Holding Times and Preservation
	X	Initial and Continuing Calibration
	X	Blank Analysis
	X	ICP Interference Check Sample (ICS)
	X	Laboratory Control Sample (LCS)
	X	Laboratory Duplicate
	X	Matrix Spike (MS) and Spike Duplicate (MSD)
	X	Field Duplicate
	X	ICP Serial Dilution
	X	Quantitation Verification

The quality of data collected in support of this sampling activity is considered acceptable.


Eric Malarek, Chemist

11/7/06
Date

**RFAAP VALIDATION REPORT
CADMIUM IN SOIL REVIEW
SDG F44162**

I-Holding Times and Preservation

The primary objective is to ascertain the validity of results based on the holding time of the sample from time of collection to time of sample analysis. For metals analysis, soil samples are received at ambient temperature and stored cool @4°C±2°C with a maximum holding time of 180 days for cadmium from collection (USEPA criteria).

- Temperature Review: The soil samples were collected for ICP metal cadmium only, therefore, ambient temperature was sufficient for shipment and recorded by the lab upon receipt. For samples collected on 10/02/06, cooler was received by the laboratory at ambient temperature. All criteria were met. No qualifiers were applied.
- Holding Time Review: Samples were collected on 10/02/06. They were digested on 10/04/06 and analyzed for ICP cadmium on 10/04/06. All holding time criteria were met. No qualifiers were applied.

II-Initial and Continuing Calibration

Requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable quantitative data. Initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analysis run, and continuing calibration verification documents that the initial calibration is still valid.

ICP-Cd: 1- blank (DoD QSM <1/2MRL)
3 – standards ($r \geq 0.995$)
ICV/CCV (90-110%) (DoD QSM 90-110%)
MRL (70-130%) (DoD QSM 80-120%)
High Std. (95-105%)

- The samples were analyzed for ICP cadmium on 10/04/06. All ICV/CCV standards were within criteria. **Table 2** summarizes the MRL standard analysis for metals. Samples with concentrations detected less than two times the MRL with out of criteria MRL recovery were qualified. All criteria were met. No qualifiers were applied.

Table 2 MRL Analysis Summary

Analysis Date	Analysis	MRL (µg/L)	MRL (mg/kg)	MRL %Recovery	Qualified samples @ <2xMRL	Validation Qualifiers
10/04/06	ICP-Cd	5.0	0.5	All within criteria	None	None

III-Blanks

Blanks (preparation and calibration blanks) are assessed to determine the existence and magnitude of contamination problems. No contaminants should be detected (i.e. <MDL) in any of the associated blanks. DoD QSM limits are <½MRL for the method blank and <2MDL for the calibration blanks. Samples are qualified "B" when they are less than 5X the absolute value of the maximum blank concentration. **Table 3** summarizes the blank contamination analysis. Action levels are based upon dilution factor of one and were converted to soil values (soil conversion factor = 10 for ICP).

Table 3 Blank Contamination Analysis Summary

Analysis Date	Analysis	QC Blank ID	Max Conc. mg/kg	Action Level mg/kg	B qualified samples
10/04/06	ICP-Cd	ICB/CCBs	<2MDL	NA	None
10/04/06	ICP-Cd	MP10429-MB1	<MRL	NA	None

MDL = Method Detection Limit.

MRL = Method Reporting Limit.

NA = Not Applicable.

IV-ICP Interference Check Sample (ICS)

The ICP interference check sample (ICS) verifies interelement and background correction factors. ICP Interference Check is performed at the beginning and end of each sample analysis run. Control limits are 80-120% (DoD QSM limits 80-120%).

- All criteria were met. No qualifiers were applied.

V-Laboratory Control Samples (LCS)

The laboratory control sample (LCS) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. All soil LCS results must fall within the control limits of 80-120% for ICP metals. DoD QSM limits for metals are 80-120%.

- Sample MP10429-SB1 was used as LCS for ICP cadmium analysis dated 10/04/06. All criteria were met. No qualifiers were applied.

VI-Laboratory Duplicate

Duplicate sample determinations are used to demonstrate acceptable method precision by the laboratory at the time of analysis. Duplicate analysis is also performed to generate data in order to determine the long-term precision of the analytical method on various matrices. RPDs must be within established control limits. DoD QSM limits for metals are 20% RPD for ICP metals.

- Sample B43SC52 (F44162-1) was used for the duplicate analysis for the 10/04/06 ICP cadmium analysis. All criteria were met. No qualifiers were applied.

VII-Matrix Spike (MS) and Spike Duplicate (MSD)

MS and MSD are generated to determine long-term accuracy and precision of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. Specific criteria include the analyses of matrix spike samples at a frequency of one MS/MSD per 20 samples of similar matrix. MS/MSD recoveries and relative percent differences between MS recoveries should be within the specified limits. DoD QSM limits for metals are 80-120%; RPD≤20% for ICP metals. Post digestion spikes limits are 75-125% for ICP metals.

- Sample B43SC52 (F44162-1) was used for the MS analysis for the 10/04/06 ICP cadmium analysis. All criteria were met. No qualifiers were applied.

VIII-Field Duplicate Sample Analysis

Field duplicates were collected to identify the cumulative precision of the sampling and analytical process and sent to the laboratory blind. The RPD was calculated only for those analytes which were detected at levels exceeding the method reporting limits in both samples of the duplicate pair. Analytes that were qualified rejected (R-qualified) in either sample of the duplicate pair were excluded from the duplicate assessment. Precision control criterion was established at 35% RPD for cadmium for the soil samples. Analytical results were qualified as estimated (J) for any RPDs exceeding criteria.

- No field groundwater samples were analyzed with this SDG.

IX-ICP Serial Dilution

An ICP serial dilution is performed to determine whether significant physical or chemical interferences exist due to sample matrix at high concentrations. An analysis of a 5-fold dilution should agree within 10% difference of the original result when the concentration in sample is a factor of 50 above MDL.

- The serial dilution for the 10/04/06 ICP cadmium analysis was analyzed on sample B43SC52 (F44162-1). All criteria were met. No qualifiers were applied.

X-Quantitation Verification

The accuracy of analytical results is verified through the calculation of several parameters. The percent difference (%D) between the calculated and the reported values should be within 10%. Any sample value >MDL and <MRL or <3*MDL (whichever was greater) was qualified as estimated, "J." The following calculations were performed for verification.

ICP Sample: B43SC52 (F44162-1), Total Cadmium

Conc. (mg/kg) = $\{(\text{conc. } \mu\text{g/L}) * (\text{Final Volume L}) * (\text{DF})\} / \{(\text{Weight Sample g}) * (\text{Fraction Solids})\}$

Conc. (mg/kg) = $\{(22.5 \mu\text{g/L}) * (0.050 \text{ L}) * (1)\} / \{(0.50 \text{ g}) * (0.8030)\} = 2.8 \mu\text{g/g} = 2.8 \text{ mg/kg}$

Reported concentration = 2.8 mg/kg

%D = 0.0%

Values were within 10% difference.

USEPA Region III Validation Qualifiers

(No Code) = Confirmed identification.

B = The analyte has been detected in the sample and the associated laboratory or field blank.

J = Indicates an estimated value for (1) estimated value due to QC non-conformance. Reported value may not be accurate or precise, (2) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, or (3) estimating a concentration \geq MDL and $<$ MRL or $<3*$ MDL, whichever is greater.

K = Analyte present. Reported value may be biased high (estimated) due to QC non-conformance.

L = Analyte present. Reported value may be biased low (estimated) due to QC non-conformance.

R = Unreliable result. Analyte may or may not be present in the sample due to QC non-conformance.

UL = Value is estimated bias low and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise. Quantitation limit is probably higher.

UJ = Value is estimated and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise.

Laboratory Qualifiers

(No Code) = Confirmed identification.

A (Dioxins) = MDL is based upon the signal-to-noise measurement.

B (Metals) = The reported value was obtained from a reading $<$ MRL and \geq MDL and is considered estimated.

B (Organics and Dioxins) = The analyte or compound has been detected in the sample and laboratory method blank. It indicates probable blank contamination.

D (Organics) = Indicates sample was analyzed at a dilution.

E (Metals) = Reported value is estimated because of the presence of interferences.

E (Organics) = Identifies compounds whose concentrations exceed the upper level of the calibration range.

E (Dioxins) = Reported value is estimated because of the presence of ether interferences.

EMPC (Dioxins) = The ion-abundance ratio between the two characteristic PCDD/F ions is outside accepted ranges. The detected PCDD/F is reported as an estimated maximum possible concentration (EMPC).

I (Dioxins) = Reported value is estimated because of the incorrect isotope ratios were obtained.

J (All) = Indicates an estimated value for (1) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, (2) estimating a concentration $<$ MRL and \geq MDL, or estimating a concentration below the calibration range.

N (Organics) = Indicates presumptive evidence of a compound for tentatively identified compounds using a library search.

N (Metals) = Laboratory spike sample recovery not within control limits.

P (Organics) = Target analyte confirmation $>40\%$ difference for detected compound between the primary and secondary columns. The lower of the two values was reported.

U (All) = ND = BQL = Not detected. The associated number indicates the compound reporting limit for the sample.

* (Metals) = Duplicate analysis not within control limits.

* (Organics) = Surrogate outside of QC limits on both original and re-analysis.

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Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	B43SC52	Date Sampled:	10/02/06
Lab Sample ID:	F44162-1	Date Received:	10/03/06
Matrix:	SO - Soil	Percent Solids:	80.3
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	2.8	0.50	0.025	mg/kg	1	10/04/06	10/04/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5266

(2) Prep QC Batch: MP10429

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

Form I copy

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID: B43SC53

Lab Sample ID: F44162-2

Matrix: SO - Soil

Project: Radford AFB-Bldg 4343

Date Sampled: 10/02/06

Date Received: 10/03/06

Percent Solids: 77.0

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	0.68	0.52	0.026	mg/kg	1	10/04/06	10/04/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5266

(2) Prep QC Batch: MP10429

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	B43SC54	Date Sampled:	10/02/06
Lab Sample ID:	F44162-3	Date Received:	10/03/06
Matrix:	SO - Soil	Percent Solids:	78.5
Project:	Radford AFB-Bldg 4343		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	9.0	0.51	0.025	mg/kg	1	10/04/06	10/04/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5266

(2) Prep QC Batch: MP10429

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

Form I Copy

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID: B43SC55

Lab Sample ID: F44162-4

Matrix: SO - Soil

Project: Radford AFB-Bldg 4343

Date Sampled: 10/02/06

Date Received: 10/03/06

Percent Solids: 83.5

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	78.0	0.47	0.023	mg/kg	1	10/04/06	10/04/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5266

(2) Prep QC Batch: MP10429

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

MEMORANDUM

TO: Tim Leahy, Shaw E&I RFAAP Project Manager

FROM: Eric Malarek, Shaw E&I RFAAP Project Chemist

SUBJECT: Radford Army Ammunition Plant (RFAAP) Data Validation – Cadmium in Soil
Accutest Laboratories, Inc., SDG F44323

DATE: November 7, 2006

The purpose of this memorandum is to present the data validation report for the samples collected at Building 4343 at the RFAAP on October 9, 2006. Samples were analyzed for cadmium in soil using USEPA Method 3050B/6010B. A total of two soil samples were validated. The sample ids are:

Field Sample ID	Lab Sample ID	Field Sample ID	Lab Sample ID
B43SC56	F44323-1	B43SC57	F44323-2

Samples B43SC58 (F44323-3) and B43SC59 (F44323-4) were analyzed in SDG F44323 for TCLP Cadmium by SW1311/3010A/SW6010B and for SPLP Cadmium by SW1312/3010A/SW6010B, respectively and did not require to be validated. Data were reviewed by Eric Malarek and validated using a combination of project QAPP, *DoD Quality Systems Manual for Environmental Laboratories, Final Version 3, January, 2006* (DoD, 2006) (DoD QSM), method-specific criteria, and laboratory SOP criteria. The data qualifier scheme was consistent with the *Region III Modifications to the National Functional Guidelines for Inorganic Data Review* (April, 1993). Parameters evaluated are presented in **Table 1**. Data associated with parameters in compliance with quality control specifications have not been qualified. Data associated with parameters that did not comply with quality control specifications and directly impacted project data have been qualified in accordance with USEPA Region III specifications.

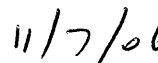
Table 1 Laboratory Performance Criteria

Qualified		Parameter
Yes	No	
	X	Holding Times and Preservation
	X	Initial and Continuing Calibration
	X	Blank Analysis
	X	ICP Interference Check Sample (ICS)
	X	Laboratory Control Sample (LCS)
	X	Laboratory Duplicate
	X	Matrix Spike (MS) and Spike Duplicate (MSD)
	X	Field Duplicate
	X	ICP Serial Dilution
	X	Quantitation Verification

The quality of data collected in support of this sampling activity is considered acceptable.



Eric Malarek, Chemist



Date

**RFAAP VALIDATION REPORT
CADMIUM IN SOIL REVIEW
SDG F44323**

I-Holding Times and Preservation

The primary objective is to ascertain the validity of results based on the holding time of the sample from time of collection to time of sample analysis. For metals analysis, soil samples are received at ambient temperature and stored cool @4°C±2°C with a maximum holding time of 180 days for cadmium from collection (USEPA criteria).

- Temperature Review: The soil samples were collected for ICP metal cadmium only, therefore, ambient temperature was sufficient for shipment and recorded by the lab upon receipt. For samples collected on 10/09/06, cooler was received by the laboratory at 5.8°C. All criteria were met. No qualifiers were applied.
- Holding Time Review: Samples were collected on 10/09/06. They were digested on 10/10/06 and analyzed for ICP cadmium on 10/10/06. All holding time criteria were met. No qualifiers were applied.

II-Initial and Continuing Calibration

Requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable quantitative data. Initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analysis run, and continuing calibration verification documents that the initial calibration is still valid.

ICP-Cd: 1- blank (DoD QSM <1/2MRL)
3 – standards (r≥0.995)
ICV/CCV (90-110%) (DoD QSM 90-110%)
MRL (70-130%) (DoD QSM 80-120%)
High Std. (95-105%)

- The samples were analyzed for ICP cadmium on 10/10/06. All ICV/CCV standards were within criteria. **Table 2** summarizes the MRL standard analysis for metals. Samples with concentrations detected less than two times the MRL with out of criteria MRL recovery were qualified. All criteria were met. No qualifiers were applied.

Table 2 MRL Analysis Summary

Analysis Date	Analysis	MRL (µg/L)	MRL (mg/kg)	MRL %Recovery	Qualified samples @ <2xMRL	Validation Qualifiers
10/10/06	ICP-Cd	5.0	0.5	All within criteria	None	None

III-Blanks

Blanks (preparation and calibration blanks) are assessed to determine the existence and magnitude of contamination problems. No contaminants should be detected (i.e. <MDL) in any of the associated blanks. DoD QSM limits are <½MRL for the method blank and <2MDL for the calibration blanks. Samples are qualified "B" when they are less than 5X the absolute value of the maximum blank concentration. **Table 3** summarizes the blank contamination analysis. Action levels are based upon dilution factor of one and were converted to soil values (soil conversion factor = 10 for ICP).

Table 3 Blank Contamination Analysis Summary

Analysis Date	Analysis	QC Blank ID	Max Conc. mg/kg	Action Level mg/kg	B qualified samples
10/10/06	ICP-Cd	ICB/CCBs	<2MDL	NA	None
10/10/06	ICP-Cd	MP10471-MB1	<MRL	NA	None

MDL = Method Detection Limit.

MRL = Method Reporting Limit.

NA = Not Applicable.

IV-ICP Interference Check Sample (ICS)

The ICP interference check sample (ICS) verifies interelement and background correction factors. ICP Interference Check is performed at the beginning and end of each sample analysis run. Control limits are 80-120% (DoD QSM limits 80-120%).

- All criteria were met. No qualifiers were applied.

V-Laboratory Control Samples (LCS)

The laboratory control sample (LCS) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. All soil LCS results must fall within the control limits of 80-120% for ICP metals. DoD QSM limits for metals are 80-120%.

- Sample MP10471-SB1 was used as LCS for ICP cadmium analysis dated 10/10/06. All criteria were met. No qualifiers were applied.

VI-Laboratory Duplicate

Duplicate sample determinations are used to demonstrate acceptable method precision by the laboratory at the time of analysis. Duplicate analysis is also performed to generate data in order to determine the long-term precision of the analytical method on various matrices. RPDs must be within established control limits. DoD QSM limits for metals are 20% RPD for ICP metals.

- Sample F44207-34 was used for the duplicate analysis for the 10/10/06 ICP cadmium analysis. This sample is not a RFAAP site specific sample; therefore, it was not evaluated.

VII-Matrix Spike (MS) and Spike Duplicate (MSD)

MS and MSD are generated to determine long-term accuracy and precision of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. Specific criteria include the analyses of matrix spike samples at a frequency of one MS/MSD per 20 samples of similar matrix. MS/MSD recoveries and relative percent differences between MS recoveries should be within the specified limits. DoD QSM limits for metals are 80-120%; RPD≤20% for ICP metals. Post digestion spikes limits are 75-125% for ICP metals.

- Sample F44207-34 was used for the MS analysis for the 10/10/06 ICP cadmium analysis. This sample is not a RFAAP site specific sample; therefore, it was not evaluated.

VIII-Field Duplicate Sample Analysis

Field duplicates were collected to identify the cumulative precision of the sampling and analytical process and sent to the laboratory blind. The RPD was calculated only for those analytes which were detected at levels exceeding the method reporting limits in both samples of the duplicate pair. Analytes that were qualified rejected (R-qualified) in either sample of the duplicate pair were excluded from the duplicate assessment. Precision control criterion was established at 35% RPD for cadmium for the soil samples. Analytical results were qualified as estimated (J) for any RPDs exceeding criteria.

- No field groundwater samples were analyzed with this SDG.

IX-ICP Serial Dilution

An ICP serial dilution is performed to determine whether significant physical or chemical interferences exist due to sample matrix at high concentrations. An analysis of a 5-fold dilution should agree within 10% difference of the original result when the concentration in sample is a factor of 50 above MDL.

- The serial dilution for the 10/10/06 ICP cadmium analysis was analyzed on sample F44207-34. This sample is not a RFAAP site specific sample; therefore, it was not evaluated.

X-Quantitation Verification

The accuracy of analytical results is verified through the calculation of several parameters. The percent difference (%D) between the calculated and the reported values should be within 10%. Any sample value >MDL and <MRL or <3*MDL (whichever was greater) was qualified as estimated, "J." The following calculations were performed for verification.

ICP Sample: B43SC56 (F44323-1), Total Cadmium

Conc. (mg/kg) = $\{(\text{conc. } \mu\text{g/L}) * (\text{Final Volume L}) * (\text{DF})\} / \{(\text{Weight Sample g}) * (\text{Fraction Solids})\}$

Conc. (mg/kg) = $\{(204.6 \mu\text{g/L}) * (0.050 \text{ L}) * (1)\} / \{(0.50 \text{ g}) * (0.8050)\} = 25.4 \mu\text{g/g} = 25.4 \text{ mg/kg}$

Reported concentration = 25.4 mg/kg

%D = 0.0%

Values were within 10% difference.

USEPA Region III Validation Qualifiers

(No Code) = Confirmed identification.

B = The analyte has been detected in the sample and the associated laboratory or field blank.

J = Indicates an estimated value for (1) estimated value due to QC non-conformance. Reported value may not be accurate or precise, (2) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, or (3) estimating a concentration \geq MDL and $<$ MRL or $<3*$ MDL, whichever is greater.

K = Analyte present. Reported value may be biased high (estimated) due to QC non-conformance.

L = Analyte present. Reported value may be biased low (estimated) due to QC non-conformance.

R = Unreliable result. Analyte may or may not be present in the sample due to QC non-conformance.

UL = Value is estimated bias low and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise. Quantitation limit is probably higher.

UJ = Value is estimated and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise.

Laboratory Qualifiers

(No Code) = Confirmed identification.

A (Dioxins) = MDL is based upon the signal-to-noise measurement.

B (Metals) = The reported value was obtained from a reading $<$ MRL and \geq MDL and is considered estimated.

B (Organics and Dioxins) = The analyte or compound has been detected in the sample and laboratory method blank. It indicates probable blank contamination.

D (Organics) = Indicates sample was analyzed at a dilution.

E (Metals) = Reported value is estimated because of the presence of interferences.

E (Organics) = Identifies compounds whose concentrations exceed the upper level of the calibration range.

E (Dioxins) = Reported value is estimated because of the presence of ether interferences.

EMPC (Dioxins) = The ion-abundance ratio between the two characteristic PCDD/F ions is outside accepted ranges. The detected PCDD/F is reported as an estimated maximum possible concentration (EMPC).

I (Dioxins) = Reported value is estimated because of the incorrect isotope ratios were obtained.

J (All) = Indicates an estimated value for (1) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, (2) estimating a concentration $<$ MRL and \geq MDL, or estimating a concentration below the calibration range.

N (Organics) = Indicates presumptive evidence of a compound for tentatively identified compounds using a library search.

N (Metals) = Laboratory spike sample recovery not within control limits.

P (Organics) = Target analyte confirmation $>40\%$ difference for detected compound between the primary and secondary columns. The lower of the two values was reported.

U (All) = ND = BQL = Not detected. The associated number indicates the compound reporting limit for the sample.

* (Metals) = Duplicate analysis not within control limits.

* (Organics) = Surrogate outside of QC limits on both original and re-analysis.

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID: B43SC56

Lab Sample ID: F44323-1

Matrix: SO - Soil

Project: Radford AFB-Bldg 4343

Date Sampled: 10/09/06

Date Received: 10/10/06

Percent Solids: 80.5

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	25.4	0.50	0.025	mg/kg	1	10/10/06	10/10/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5277

(2) Prep QC Batch: MP10471

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

Form 7 Copy

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID: B43SC57
Lab Sample ID: F44323-2
Matrix: SO - Soil
Project: Radford AFB-Bldg 4343

Date Sampled: 10/09/06
Date Received: 10/10/06
Percent Solids: 82.4

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	30.0	0.49	0.024	mg/kg	1	10/10/06	10/10/06 RS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5277

(2) Prep QC Batch: MP10471

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Appendix C

Disposal Documentation

Appendix C-1

Non-Hazardous Waste

Non-Hazardous Waste Disposal Manifests

**First Piedmont Corporation**P.O. BOX 1069
Chatham, VA 24531

Ticket No: 102829

Date: 09/14/2006

Account No: 1261730

Service Order No: 313363

CAPITOL ENVIRONMENTAL

15-C TROLLEY SQUARE

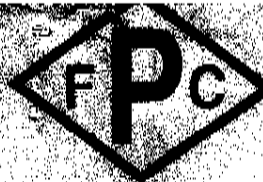
WILLIMGTON DE 19806

PO/Release No: 0

Vehicle No: 91

Name : william

Gross	81,080	lb	Inbound	3:23 pm
Tare	40,160	lb	Outbound	3:24 pm
Net	40,920	lb	20.460 tn	



First Piedmont

CORP

Chatham, Virginia 24531
434-432-0211

INDUSTRIAL/SHIPPING MANIFEST

MANIFEST NO. **008672**

GENERATOR IDENTIFICATION:

Business Name: **Alliant Techsystems Inc. (Radford Army Ammunition Plant)**
 Mailing Address: **P.O. Box 1, Radford, VA 24141**
 Shipment Origin: **Rt. 114, Peppers Ferry Rd., City/State: Radford, VA**
 Authorized Agent: **Jeremy Funt**, Title: **Lead Compliance Engineer**
 Emergency Tel#: **540-639-7663**

Type of Process Generating Waste: **Concrete, cinder blocks, wood debris from demo of building no. 4143**

WASTE CHARACTERIZATION:

Analysis Attached: **On File FPC Code #: FPC-3589**

PHYSICAL STATE: **Solid** pH: _____

BULK VOLUME: Gallons _____ Tons _____ Cubic Yards **15** Other _____

CONTAINERS: DRUMS: No. _____ Size: _____ BAGS: No. _____ Size: _____

Special Handling Instructions: **Non-hazardous**
 Fire or Spill Instructions: **Non-flammable**
 Hauler Identification: **First Piedmont Corporation**
 Disposal Site Destination: **First Piedmont Landfill**

The wastes described above were consigned to the carrier designated below.
 I certify the foregoing is true to the best of my knowledge.

[Signature]
 Signature of Generator or Authorized Agent

09-14-2006
 Date of Shipment Release

WASTE HAULER IDENTIFICATION:

Name & Address: **First Piedmont Corporation P.O. Box 1069 Chatham, VA 24531**
 Telephone No: **434-432-0211** Waste Hauler Registration No: _____ State: _____
 Tractor No: **91** Trailer No: **ROT-7** Tank No: _____ Box No: **OT-3108** Other: **VM**

I certify that the wastes in quantity described above were received by me for shipment and delivered to the destination indicated below:

Date Received: **09-16-06** Time: **12:00** AM PM
 Date Delivered: **09-14-06** Time: **3:33** AM **(PM)**

[Signature]
 Signature of Hauler

DISPOSAL SITE IDENTIFICATION:

Name & Address: **First Piedmont Landfill 1224 Clark Mill Road Ringgold, VA 24586**
 Telephone No: **434-432-0211** Site Permit No: **65** Waste Approval No: **FPC 3581**
 Quantity Measured at Site: **20,46 tons**

HANDLING PROCEDURE

Describe in Detail:

FINAL ON-SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received a permit and approval for such disposal.

Signature of Authorized Agent and Title: *[Signature]*

Received: **9-14-06**

**First Piedmont Corporation**P.O. BOX 1069
Chatham, VA 24531

Ticket No: 102963

Date: 09/15/2006

Account No: 1261730

Service Order No: 313529

PO/Release No: 0

Billing Status: ACTIVE

Vehicle No: 260

CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLINGTON DE 19806

Name	: WILLIAM	Gross	73,780 lb	Inbound	2:35 pm
		Tare	40,560 lb	Outbound	12:38 pm
		Net	33,220 lb	16.61 tn	



First Piedmont

Chatham, Virginia 24531
434-432-0211

INDUSTRIAL/SHIPPING MANIFEST

Unit 315529

MANIFEST NO. 008671

GENERATOR IDENTIFICATION:

Business Name: Alliant Techsystems Inc (Radford Army Ammunition Plant)
Mailing Address: P.O. Box 1, Radford State: VA 24141
Shipment Origin: Rt. 114, Peppers Ferry Rd City/State: Radford, VA
Authorized Agent: Jeremy Flann Title: Lead Compliance Engineer
Emergency Tel #: 540-639-7668

Type of Process: Generating Waste: Concrete, cinder blocks, wood debris from demo of building no. 4343

WASTE CHARACTERIZATION:

Analysis Attached: On File FPC Code #: FPC-3589

PHYSICAL STATE: Solid _____ pH _____

BULK VOLUME: Gallons _____ Tons _____ Cubic Yards 15 Other _____

CONTAINERS, DRUMS: No. _____ Size: _____ BAGS: No. _____ Size: _____

Special Handling Instructions: Non-hazardous

Fire or Spill Instructions: Non-flammable

Hauler Identification: First Piedmont Corporation

Disposal Site Destination: First Piedmont Landfill

The wastes described above were consigned to the carrier designated below.
I certify the foregoing is true to the best of my knowledge.

[Signature]
Signature of Generator or Authorized Agent

9/15/06
Date of Shipment Release

WASTE-HAULER IDENTIFICATION:

Name & Address: First Piedmont Corporation P.O. Box 1069 Chatham, VA 24531

Telephone No: 434-432-0211

Waste Hauler Registration No:

State:

Tractor No: 260 Trailer No: R0+9 Tank No:

Box No: 07-24 Other: VA

I certify that the wastes in quantity described above were received by me for shipment and delivered to the destination indicated below.

Date Received 09-15-06 Time: 11:30

AM PM

[Signature]
Signature of Hauler

Date Delivered 09-15-06 Time: 2:35

AM PM

DISPOSAL SITE IDENTIFICATION:

Name & Address: First Piedmont Landfill 1234 Clark Mill Road Ringgold, VA 24586

Telephone No: 434-432-0211

Site Permit No: 63

Waste Approval No: 3589

Quantity Measured at Site: 15 cu. Yds.

HANDLING PROCEDURE

Describe in Detail:

FINAL ON-SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received a permit and approval for such disposal.

Signature of Authorized Agent and Title: *[Signature]*

Received: 9-15-06

**First Piedmont Corporation**P.O. BOX 1069
Chatham, VA 24531

Ticket No: 103186

Date: 09/18/2006

Account No: 1261730

Service Order No: 313761

PO/Release No: 0

Billing Status: ACTIVE

Vehicle No: 260

CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLIMGTON DE 19806

Name	: WILLIAM	Gross	74,980 lb	Inbound	4:27 pm
		Tare	40,560 lb	Outbound	4:29 pm
		Net	34,420 lb	17.21 tn	



First Piedmont

INDUSTRIAL/SHIPPING MANIFEST

Chatham, Virginia 24531
434-432-0211

MANIFEST NO. **008674**

GENERATOR IDENTIFICATION:

Business Name: Alliant Technologies Inc. (Radford Army Ammunition Plant)
Mailing Address: P.O. Box 1, Radford State: VA 24141
Shipment Origin: Rt. 114, Peppers Ferry Rd. City/State: Radford, VA
Authorized Agent: Jeremy Flinn Title: Lead Compliance Engineer
Emergency Tel #: 540-639-7668
Type of Process Generating Waste: Concrete, cinder blocks, wood debris from demo of building no. 4343

WASTE CHARACTERIZATION:

Analysis Attached: On File FPC Code #: FPC-3589

PHYSICAL STATE: Solid _____ pH _____

BULK VOLUME: Gallons _____ Tons _____ Cubic Yards _____ Other _____

CONTAINERS: DRUMS: No. _____ Size: _____ BAGS: No. _____ Size: _____

Special Handling Instructions: Non-hazardous
Fire or Spill Instructions: Non-flammable
Hauler Identification: First Piedmont Corporation
Disposal Site Destination: First Piedmont Landfill

The wastes described above were consigned to the carrier designated below.
I certify the foregoing is true to the best of my knowledge.

Signature of Generator or Authorized Agent

Date of Shipment Release **09-18-06**

WASTE HAULER IDENTIFICATION:

Name & Address: First Piedmont Corporation P.O. Box 1069 Chatham, VA 24531
Telephone No: 434-432-0211 Waste Hauler Registration No: _____ State: _____
Tractor No: **260** Trailer No: **POT-9** Tank No: _____ Box No: **07-2041** Other: _____

I certify that the wastes in quantity described above were received by me for shipment and delivered to the destination indicated below:

Date Received **09-18-06** Time **11:45**
Date Delivered **09-18-06** Time **4:27**

AM PM
AM PM

Signature of Hauler **William D. Cidona**

DISPOSAL SITE IDENTIFICATION:

Name & Address: First Piedmont Landfill 1224 Clark's Mill Road Ringgold, VA 24586
Telephone No: 434-432-0211 Site Permit No: 65 Waste Approval No: **3589**
Quantity Measured at Site: **17.21 TONS**

HANDLING PROCEDURE

Describe in Detail:

FINAL ON-SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received a permit and approval for such disposal.

Signature of Authorized Agent and Title: **Robert J. Tugler**

Received: **09-18-06**



First Piedmont Corporation
P.O. BOX 1069
Chatham, VA 24531

Ticket No: 103311

Date: 09/19/2006

Account No: 1261730

Service Order No: 313842

CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLIMGTION DE 19806

PO/Release No: 0

Vehicle No: 239

Name : KEN

Gross	72,960	lb	Inbound	2:26 pm
Tare	39,380	lb	Outbound	12:37 pm
Net	33,580	lb	16,790	tn



First Piedmont

Chatham, Virginia 24531
434-432-0211

MANIFEST NO. **008673**

GENERATOR IDENTIFICATION:

Business Name: **Silent Techsystems Inc. (Radford Army Ammunition Plant)**
 Mailing Address: **P.O. Box 1, Radford** State: **VA 24141**
 Shipment Origin: **Rt. 114, Peppers Ferry Rd** City/State: **Radford, VA**
 Authorized Agent: **Jeremy Flint** Title: **Lead Compliance Engineer**
 Emergency Tel: **540-639-7668**

Type of Process Generating Waste: **Concrete, cinder blocks, wood debris from demo of building no. 434**

WASTE CHARACTERIZATION:

Analysis Attached: **On File FPC Code #: FPC-3589**

PHYSICAL STATE: Solid pH

BULK VOLUME: Gallons Tons Cubic Yards **15** Other

CONTAINERS: DRUMS: No. Size: BAGS: No. Size:

Special Handling Instructions: **Non-hazardous**

Fire or Spill Instructions: **Non-flammable**

Hauler Identification: **First Piedmont Corporation**

Disposal Site Destination: **First Piedmont Landfill**

The wastes described above were consigned to the carrier designated below.
 I certify the foregoing is true to the best of my knowledge.

HR Hamblin
 Signature of Generator or Authorized Agent

09/19/06
 Date of Shipment Release

WASTE HAULER IDENTIFICATION:

Name & Address: **First Piedmont Corporation P.O. Box 1069 Chatham, VA 24531**

Telephone No: **434-432-0211** Waste Hauler Registration No: State:

Tractor No: **239** Trailer No: **Rnt. 5** Tank No: Box No: **27, 276** Other:

I certify that the wastes in quantity described above were received by me for shipment and delivered to the destination indicated below.

Date Received: **9-19-06** Time: **11:30**

AM **PM**

Date Delivered: **9-19-06** Time: **2:26**

AM **PM**

J. Kenneth Talley
 Signature of Hauler

DISPOSAL SITE IDENTIFICATION:

Name & Address: **First Piedmont Landfill 1274 Clarks Mill Road Ringgold, VA 24586**

Telephone No: **434-432-0211** Site Permit No. **65** Waste Approval No. **FPC 3589**

Quantity Measured at Site: **16.79 tons**

HANDLING PROCEDURE

Describe in Detail:

FINAL ON SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received a permit and approval for such disposal.

Signature of Authorized Agent and Title: *Ensign Tagley*

Received: **9-19-06**

**First Piedmont Corporation**P.O. BOX 1069
Chatham, VA 24531Ticket No: 103475
Date: 09/20/2006
Account No: 1261730
Service Order No: 314188

PO/Release No: 0

Billing Status: ACTIVE

Vehicle No: 239

CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLINGTON DE 19806

Name	: LEE	Gross	78,580 lb	Inbound	3:16 pm
		Tare	39,380 lb	Outbound	12:35 pm
		Net	39,200 lb	19.60 tn	



First Piedmont

INDUSTRIAL/SHIPPING MANIFEST

Chatham, Virginia 24531
434-432-0211

MANIFEST NO. **008676**

GENERATOR IDENTIFICATION:

Business Name: Alliant Technologies Inc. (Radford Army Ammunition Plant)
Mailing Address: P.O. Box 1, Radford State: VA 24141
Shipment Origin: Rt. 114, Peppers Ferry Rd. City/State: Radford, VA
Authorized Agent: Jeremy Flinn Title: Lead Compliance Engineer
Emergency Tel #: 540-659-7668

Type of Process Generating Waste: Concrete, cinder blocks, wood debris from demo of Building no. 4145

WASTE CHARACTERIZATION:

Analysis Attached: On File FPC Code #: FPC-3589

PHYSICAL STATE: Solid ☒ pH: _____

DULIE VOLUME: Gallons _____ Tons _____ Cubic Yards 2.0 Other _____

CONTAINERS: DRUMS: No. _____ Size: _____ BAGS: No. _____ Size: _____

Special Handling Instructions: Non-hazardous
Fire or Spill Instructions: Non-flammable
Hauler Identification: First Piedmont Corporation
Disposal Site Destination: First Piedmont Landfill

The wastes described above were consigned to the carrier designated below.
I certify the foregoing is true to the best of my knowledge.

J. R. Flinn
Signature of Generator or Authorized Agent

09/20/06
Date of Shipment Release

WASTE HAULER IDENTIFICATION:

Name & Address: First Piedmont Corporation P.O. Box 1069 Chatham, VA 24531
Telephone No: 434-432-0211 Waste Hauler Registration No: _____ State: _____
Tractor No: 239 Trailer No: RT5 Tank No: _____ Box No: 17276 Other: _____

I certify that the wastes in quantity described above were received by me for shipment and delivered to the destination indicated below.

Date Received 9/20/06 Time: 12:00 AM ☒ PM
Date Delivered 9/20/06 Time: 3:16 AM ☒ PM

[Signature]
Signature of Hauler

DISPOSAL SITE IDENTIFICATION:

Name & Address: First Piedmont Landfill 1224 Clarke Mill Road Ringgold, VA 24586
Telephone No: 434-432-0211 Site Permit No: 65 Waste Approval No: 3589
Quantity Measured at Site: 20 cu yds

HANDLING PROCEDURE

Describe in Detail: 19.60 TONS

FINAL ON-SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received a permit and approval for such disposal.

Signature of Authorized Agent and Title: *[Signature]*

Received: 9-20-06

**First Piedmont Corporation**P.O. BOX 1069
Chatham, VA 24531CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLINGTON DE 19806

Ticket No: 103474

Date: 09/20/2006

Account No: 1261730

Service Order No: 314187

PO/Release No: 0

Vehicle No: 211

Name : JAN

Gross	78,820	lb	Inbound	3:14 pm
Tare	38,480	lb	Outbound	12:33 pm
Net	40,340	lb	20.170 tn	



First Piedmont

Chatham, Virginia 24531
434-432-0211

MANIFEST NO. **008675**

GENERATOR IDENTIFICATION

Business Name: Alliant Techsystems Inc. (Radford Army Ammunition Plant)
Mailing Address: P.O. Box 1, Radford State: VA 24141
Shipment Origin: Rt. 114, Peppers Ferry Rd. City: State: Radford, VA
Authorized Agent: Jeremy Flint Title: Lead Compliance Engineer
Emergency Tel #: 540-639-7668

Type of Process Generating Waste: Concrete, cinder blocks, wood debris from demo of building no. 4343

WASTE CHARACTERIZATION

Analysis Attached: On File EPC Code #: EPC-3389

PHYSICAL STATE: Solid ☒ pH _____

BULK VOLUME: Gallons _____ Tons _____ Cubic Yards 20 Other _____

CONTAINERS: DRUMS: No. _____ Size: _____ BAGS: No. _____ Size: _____

Special Handling Instructions: Non-hazardous

Fire or Spill Instructions: Non-flammable

Hauler Identification: First Piedmont Corporation

Disposal Site Destination: First Piedmont Landfill

The wastes described above were consigned to the carrier designated below.
I certify the foregoing is true to the best of my knowledge.

Signature of Generator or Authorized Agent

Date of Shipment Release 9/20/06

WASTE HAULER IDENTIFICATION

Name & Address: First Piedmont Corporation P.O. Box 1069 Chatham, VA 24531

Telephone No: 434-432-0211

Waste Hauler Registration No:

State:

Tractor No: 211 Trailer No: ROT 7 Tank No: _____ Box No: 07201 Other: _____

I certify that the wastes in quantity described above were received by me for shipment and delivered to the destination indicated below.

Date Received 9-20-06 Time 11:30

AM PM

Signature of Hauler

Date Delivered 9-20-06 Time 3:14

AM PM

DISPOSAL SITE IDENTIFICATION

Name & Address: First Piedmont Landfill 1224 Clarke Mill Road Ringgold, VA 24586

Telephone No: 434-432-0211

Site Permit No: 63

Waste Approval No: 3589

Quantity Measured at Site: 20 cu yds

HANDLING PROCEDURE

Describe in Detail: 20.17 TONS

FINAL ON-SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received a permit and approval for such disposal.

Signature of Authorized Agent and Title: Salvador Tejano

Received: 9-20-06

**First Piedmont Corporation**P.O. BOX 1069
Chatham, VA 24531

Ticket No: 103630

Date: 09/21/2006

Account No: 1261730

Service Order No: 0

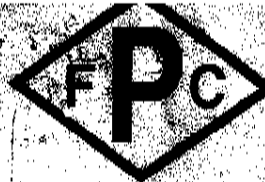
PO/Release No: 0

Billing Status: ACTIVE

Vehicle No: 3085

CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLIMGTON DE 19806

Name	: Thompson trucking	Gross	71,560 lb	Inbound	3:50 pm
		Tare	33,860 lb	Outbound	4:14 pm
		Net	37,700 lb	18.85 tn	



First Piedmont

G
O
R
P

Chatham, Virginia 24531
434-432-0211

INDUSTRIAL/SHIPPING MANIFEST

MANIFEST NO. **008684**

GENERATOR IDENTIFICATION:

Business Name: **Alliant Technologies Inc. (Radford Army Ammunition Plant)**
 Mailing Address: **P.O. Box 1, Radford** State: **VA 24141**
 Shipment Origin: **El. 114, Peppers Ferry Rd.** City/State: **Radford, VA**
 Authorized Agent: **Jeremy Flint** Title: **Lead Compliance Engineer**
 Emergency Tel: **540-639-7668**

Type of Process Generating Waste: **Concrete, cinder blocks, wood debris from demo of building no. 4343**

WASTE CHARACTERIZATION:

Analysis Attached: **On File FPC Code #: FPC-3589**

PHYSICAL STATE: Solid ☒ pH _____

BULK VOLUME: Gallons _____ Tons _____ Cubic Yards **17** Other _____

CONTAINERS: DRUMS: No. _____ Size: _____ BAGS: No. _____ Size: _____

Special Handling Instructions: **Non-hazardous**
 Fire or Spill Instructions: **Non-flammable**
 Hauler Identification: **First Piedmont Corporation**
 Disposal Site Destination: **First Piedmont Landfill**

The wastes described above were consigned to the carrier designated below.
 I certify the foregoing is true to the best of my knowledge.

[Signature]

09/21/06

Signature of Generator or Authorized Agent

Date of Shipment Release

WASTE HAULER IDENTIFICATION:

Name & Address: **Thompson Trucking P.O. Box 969 Concord VA. 24538**
 Telephone No: **434-432-0211 993-2195** Waste Hauler Registration No. _____ State: _____
 Tractor No: **3085** Trailer No: **140** Tank No: _____ Box No: _____ Other: _____

I certify that the wastes in quantity described above were received by me for shipment and delivered to the destination indicated below.

Date Received **9/21/06** Time **12:30** AM ☒ PM _____
 Date Delivered **9/21/06** Time **3:54** AM ☒ PM _____

[Signature]
 Signature of Hauler

DISPOSAL SITE IDENTIFICATION:

Name & Address: **First Piedmont Landfill 1224 Clarks Mill Road Ringgold VA 24586**
 Telephone No: **434-432-0211** Site Permit No: **63** Waste Approval No: **FPC 3589**
 Quantity Measured at Site: **18.85 tons**

HANDLING PROCEDURE

Describe in Detail _____

FINAL ON-SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received a permit and approval for such disposal.

Signature of Authorized Agent and Title: *[Signature]*

Received: **9-21-06**

**First Piedmont Corporation**P.O. BOX 1069
Chatham, VA 24531Ticket No: 103617
Date: 09/21/2006
Account No: 1261730
Service Order No: 314246

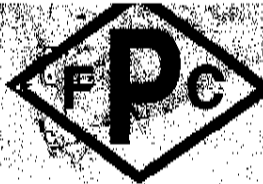
PO/Release No: 0

Billing Status: **ACTIVE**

Vehicle No: 239

CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLIMGTON DE 19806

Name	: ken t	Gross	81,580 lb	Inbound	3:10 pm
		Tare	39,380 lb	Outbound	12:25 pm
		Net	42,200 lb	21.10 tn	



First Piedmont

CORP.

Chatham, Virginia 24531
434-432-0211

MANIFEST NO. **008679**

GENERATOR IDENTIFICATION

Business Name: Alliant Techsystems Inc. (Radford Army Ammunition Plant)
Mailing Address: P.O. Box 1, Radford State: VA 24141
Shipment Origin: Rt. 114, Peppers Ferry Rd. City/State: Radford, VA
Authorized Agent: Jeremy Flint Title: Lead Compliance Engineer
Emergency Tel #: 1-800-639-7668

Type of Process Generating Waste: Concrete, cinder blocks, wood debris from demo of building no. 4341

WASTE CHARACTERIZATION

Analysis Attached: On File FPC Code #: FPC-3589

PHYSICAL STATE: Solid ☒ pH _____

PILE VOLUME: Gallons _____ Tons _____ Cubic Yards 15 Other _____

CONTAINERS: DEUMS: No. _____ Size: _____ RACS: No. _____ Size: _____

Special Handling Instructions: Non-hazardous
Fire or Spill Instructions: Non-flammable
Hauler Identification: First Piedmont Corporation
Disposal Site Destination: First Piedmont Landfill

The wastes described above were consigned to the carrier designated below.
I certify the foregoing is true to the best of my knowledge.

JP. Shank
Signature of Generator or Authorized Agent

09/21/06
Date of Shipment Release

WASTE HAULER IDENTIFICATION

Name & Address: First Piedmont Corporation P.O. Box 1069 Chatham, VA 24531
Telephone No: 434-432-0211 Waste Hauler Registration No: _____ State: _____
Tractor No: 239 Trailer No: Rat 5 Tank No: _____ Box No: OT 282 Other: _____

I certify that the wastes in quantity described above were received by me for shipment and delivered to the destination indicated below.

Date Received 9-21-06 Time: 11:30
Date Delivered 9/21/06 Time: 3:10

AM PM
AM PM

J. Kenneth Tally
Signature of Hauler

DISPOSAL SITE IDENTIFICATION

Name & Address: First Piedmont Landfill 1224 Clarks Mill Road Ringgold, VA 24586
Telephone No: 434-432-0211 Site Permit No: 65 Waste Approval No: FPC 3589
Quantity Measured at Site: 21.10 tons

HANDLING PROCEDURE

Describe in Detail:

FINAL ON-SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received a permit and approval for such disposal.

Signature of Authorized Agent and Title: Bradley Trejacy

Received: 9-21-06



First Piedmont Corporation
P.O. BOX 1069
Chatham, VA 24531

Ticket No: 103619
Date: 09/21/2006
Account No: 1261730

Service Order No: 314248

CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLIMGTON DE 19806

PO/Release No: 0

Vehicle No: 260

Name : william

Gross	79,480	lb	Inbound	3:13 pm
Tare	40,560	lb	Outbound	12:31 pm
Net	38,920	lb	19.460 tn	



First Piedmont

CORP

Chatham, Virginia 24531
434-432-0211

INDUSTRIAL/SHIPPING MANIFEST

WOTI 314245

MANIFEST NO. 008678

GENERATOR IDENTIFICATION

Business Name: Alliant Techsystems Inc. (Radford Army Ammunition Plant)
Mailing Address: P.O. Box 1, Radford State: VA 24141
Shipment Origin: Rt. 114, Peppers Ferry Rd. City/State: Radford, VA
Authorized Agent: Jeremy Flint Title: Lead Compliance Engineer
Emergency Tel #: 540-639-7668
Type of Process Generating Waste: Concrete, cinder blocks, wood debris from demo of building no. 4343

WASTE CHARACTERIZATION

Analysis Attached. On File FPC Code #: FPC-3589

PHYSICAL STATE: Solid pH

DULK VOLUME: Gallons Tons Cubic Yards 1.0 Other

CONTAINERS: DRUMS: No. Size: BAGS: No. Size:

Special Handling Instructions: Non-hazardous
Fire or Spill Instructions: Non-flammable
Hauler Identification: First Piedmont Corporation
Disposal Site Destination: First Piedmont Landfill

The wastes described above were consigned to the carrier designated below.
I certify the foregoing is true to the best of my knowledge.

09-21-00

Signature of Generator or Authorized Agent

Date of Shipment Release

WASTE HAULER IDENTIFICATION

Name & Address: First Piedmont Corporation P.O. Box 1069 Chatham, VA 24531
Telephone No: 434-432-0211 Waste Hauler Registration No: State:
Tractor No: 260 Trailer No: Rot-9 Tank No: Box No: 226 Other: VA

I certify that the wastes in quantity described above were received by me for shipment and delivered to the destination indicated below.

Date Received: 09-21-00 Time: 11:00
Date Delivered: 09-21-00 Time: 3:13

AM PM
AM PM

Signature of Hauler

DISPOSAL SITE IDENTIFICATION

Name & Address: First Piedmont Landfill 1224 Clarks Mill Road Ringgold, VA 24386
Telephone No: 434-432-0211 Site Permit No: 63 Waste Approval No: 3589
Quantity Measured at Site: 30 cu yds
19.46 TONS

LANDING PROCEDURE

Describe in Detail

FINAL ON-SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received a permit and approval for such disposal.

Signature of Authorized Agent and Title:

Received:

09-21-00

**First Piedmont Corporation**P.O. BOX 1069
Chatham, VA 24531

Ticket No: 103624

Date: 09/21/2006

Account No: 1261730

Service Order No: 314249

PO/Release No: 0

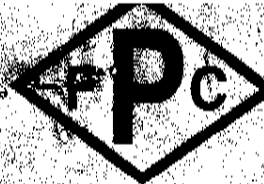
Billing Status: **ACTIVE**

Vehicle No: 91

CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLIMGTON DE 19806

Name	: lee	Gross	81,200 lb	Inbound	3:28 pm
		Tare	39,660 lb	Outbound	12:30 pm
		Net	41,540 lb	20.77 tn	

Material



First Piedmont

Chatham, Virginia 24531
434-432-0211

MANIFEST NO. **008680**

GENERATOR IDENTIFICATION:

Business Name: Alliant Techsystems Inc. (Radford Army Ammunition Plant)
Mailing Address: P.O. Box 1, Radford, VA 24141
Shipment Origin: Rt. 114, Peppers Ferry Rd. City, State: Radford, VA
Authorized Agent: Jeremy Finn Title: Lead Compliance Engineer
Emergency Tel #: 840-639-7668

Type of Process Generating Waste: Concrete, cinder blocks, wood debris from demo of building no. 4343

WASTE CHARACTERIZATION:

Analysis Attached: On File FPC Code #: FPC-3589

PHYSICAL STATE: Solid ☒ pH _____

BULK VOLUME: Gallons _____ Tons _____ Cubic Yards **20** Other ☒

CONTAINERS: DRUMS: No. _____ Size: _____ BAGS: No. _____ Size: _____

Special Handling Instructions: Non-hazardous

Fire or Spill Instructions: Non-flammable

Hauler Identification: First Piedmont Corporation

Disposal Site Destination: First Piedmont Landfill

The wastes described above were consigned to the carrier designated below.
I certify the foregoing is true to the best of my knowledge.

[Signature]
Signature of Generator or Authorized Agent

09/21/06
Date of Shipment Release

WASTE HAULER IDENTIFICATION:

Name & Address: First Piedmont Corporation P.O. Box 1069 Chatham, VA 24531
Telephone No: 434-432-0211 Waste Hauler Registration No. _____ State: _____
Tractor No: **81** Trailer No: **R076** Tank No: _____ Box No: **07276** Other: _____

I certify that the wastes in quantity described above were received by me for shipment and delivered to the destination indicated below.

Date Received **9/21/06** Time **12:00** AM ☒ PM ☒
Date Delivered **9-21-06** Time **3:28** AM ☒ PM ☒

[Signature]
Signature of Hauler

DISPOSAL SITE IDENTIFICATION:

Name & Address: First Piedmont Landfill 1374 Clarks Mill Road Ringgold, VA 24586
Telephone No: 434-432-0211 Site Permit No: 65 Waste Approval No: **3589**
Quantity Measured at Site: **20.77 TONS**
20 cu yds

HANDLING PROCEDURE

Describe in Detail _____

FINAL ON SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received a permit and approval for such disposal.

Signature of Authorized Agent and Title: *[Signature]*

Received: **9-21-06**

**First Piedmont Corporation**P.O. BOX 1069
Chatham, VA 24531

Ticket No: 103645

Date: 09/22/2006

Account No: 1261730

Service Order No: 0

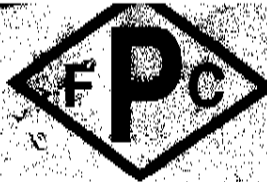
PO/Release No: 0

Billing Status: ACTIVE

Vehicle No: 456

CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLINGTON DE 19806

Name	: thompson	Gross	64,240 lb	Inbound	7:11 am
		Tare	34,060 lb	Outbound	7:58 am
		Net	30,180 lb	15.09 tn	



First Piedmont

CORP

Chatham, Virginia 24531
434-432-0211

INDUSTRIAL/SHIPPING MANIFEST

MANIFEST NO. **008681**

GENERATOR IDENTIFICATION:

Business Name: Alliant Techsystems Inc. (Radford Army Ammunition Plant)
Mailing Address: P.O. Box 1, Radford State: VA 24141
Shipment Origin: Rt. 114, Peppers Ferry Rd. City/State: Radford, VA
Authorized Agent: Jeremy Flint Title: Lead Compliance Engineer
Emergency Tel #: 540-639-7658

Type of Process Generating Waste: Concrete, cinder blocks, wood debris from demo of building no. 4343

WASTE CHARACTERIZATION

Analysis Attached: On File FPC Code #: FPC-3589

PHYSICAL STATE: Solid ☒ pH _____

BULK VOLUME: Gallons _____ Tons _____ Cubic Yards 16 Other _____

CONTAINERS: DRUMS: No. _____ Size: _____ BAGS: No. _____ Size: _____

Special Handling Instructions: Non-hazardous
Fire or Spill Instructions: Non flammable
Hauler Identification: First Piedmont Corporation
Disposal Site Destination: First Piedmont Landfill

The wastes described above were consigned to the carrier designated below.
I certify the foregoing is true to the best of my knowledge.

H.P. Blankenship

9/21/06

Signature of Generator or Authorized Agent

Date of Shipment Release

WASTE HAULER IDENTIFICATION:

Thompson Trucking PO Box 969 Concord, Va. 24538

Name & Address: First Piedmont Corporation, P.O. Box 106, Chatham, VA 24531

Telephone No. 434-432-0211/434-9932/95 Waste Hauler Registration No. _____ State: _____

Tractor No. 65-54409 Trailer No. 677432 Tank No. _____ Box No. _____ Other: _____

I certify that the wastes in quantity described above were received by me for shipment and delivered to the destination indicated below.

Date Received 9/21/06 Time 2:21 AM ☒ PM
Date Delivered 9/25/06 Time 2:11 AM ☒ PM

W. H. Howell
Signature of Hauler

DISPOSAL SITE IDENTIFICATION:

Name & Address: First Piedmont Landfill 1224 Clarks Mill Road Ringgold, VA 24586

Telephone No. 434-432-0211 Site Permit No. 65 Waste Approval No. ARC 3589

Quantity Measured at Site: 5.09 tons

HANDLING PROCEDURE

Describe in Detail.

FINAL ON-SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received a permit and approval for such disposal.

Signature of Authorized Agent and Title: *W. H. Howell* TW

Received: 9-25-06

**First Piedmont Corporation**P.O. BOX 1069
Chatham, VA 24531

Ticket No: 103663

Date: 09/22/2006

Account No: 1261730

Service Order No: 0

PO/Release No: 0

Billing Status: ACTIVE

Vehicle No: 159

CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLINGTON DE 19806

Name : THOMPSON

Gross	69,900	lb	Inbound	8:06 am
Tare	33,340	lb	Outbound	8:18 am
Net	36,560	lb	18.28	tn



First Piedmont

INDUSTRIAL/SHIPPING MANIFEST

Chatham, Virginia 24531
434-432-0211

MANIFEST NO. **008677**

GENERATOR IDENTIFICATION

Business Name: Alliant Techsystems Inc. (Radford Army Ammunition Plant)
Mailing Address: P.O. Box 1, Radford, VA 24141
Shipment Origin: Rt. 114, Peppers Ferry Rd., City/State: Radford, VA
Authorized Agent: Jeremy Flint Title: Lead Compliance Engineer
Emergency Tel #: 540-639-7668

Type of Process Generating Waste: Concrete, cinder blocks, wood debris from demo of building no. 4343

WASTE CHARACTERIZATION

Analysis Attached: On File FPC Code #: FPC-3589

PHYSICAL STATE: Solid ☒ pH _____

SUM VOLUME: Gallons _____ Tons _____ Cubic Yards **16** Other _____

CONTAINERS: DRUMS: No. _____ Size: _____ BAGS: No. _____ Size: _____

Special Handling Instructions: Non-hazardous
Fire or Spill Instructions: Non-flammable
Hauler Identification: First Piedmont Corporation
Disposal Site Destination: First Piedmont Landfill

The wastes described above were consigned to the carrier designated below.
I certify the foregoing is true to the best of my knowledge.

Jeremy Flint 09/21/06
Signature of Generator or Authorized Agent Date of Shipment Release

WASTE HAULER IDENTIFICATION

Name & Address: **Thompson Trucking PO Box 969 Concord, VA. 24538**
~~First Piedmont Corporation P.O. Box 1369 Chatham, VA 24531~~
Telephone No: ~~434-432-0211~~ **434-993-2195** Waste Hauler Registration No. _____ State: _____
Tractor No: **159** Trailer No: **117** Tank No: _____ Box No: _____ Other: _____

I certify that the wastes in quantity described above were received by me for shipment and delivered to the destination indicated below:

Date Received 9/21/06 Time 1:55 AM ☒ PM ☐
Date Delivered 9/21/06 Time 8:00 AM ☒ PM ☐
Ronald J. Ross
Signature of Hauler

DISPOSAL SITE IDENTIFICATION

Name & Address: First Piedmont Landfill 1224 Clarks Mill Road Ringgold, VA 24186
Telephone No: 434-432-0211 Site Permit No: 65 Waste Approval No: **FR 3589**
Quantity Measured at Site: **18.28 tons**

HANDLING PROCEDURE

Describe in Detail:

FINAL ON-SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received a permit and approval for such disposal.

Ronald J. Ross
Signature of Authorized Agent and Title
Received: 9/22/06

**First Piedmont Corporation**P.O. BOX 1069
Chatham, VA 24531

Ticket No: 103816

Date: 09/22/2006

Account No: 1261730

Service Order No: 0

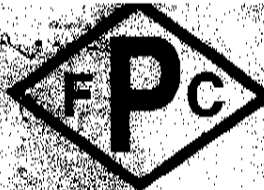
PO/Release No: 0

Billing Status: ACTIVE

Vehicle No: 157

CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLINGTON DE 19806

Name	: same	Gross	63,400 lb	Inbound	4:06 pm
		Tare	34,020 lb	Outbound	4:19 pm
		Net	29,380 lb	14.69 tn	



First Piedmont

Chatham, Virginia 24531
434-432-0211

MANIFEST NO. **008696**

GENERATOR IDENTIFICATION:

Business Name: Alliant Techsystems Inc. (Radford Army Ammunition Plant)
Mailing Address: P.O. Box 1, Radford, VA 24141
Shipment Origin: Rt. 114, Peppers Ferry Rd. City/State: Radford, VA
Authorized Agent: Jeremy Flint Title: Lead Compliance Engineer
Emergency Tel #: 540-639-7668

Type of Process Generating Waste: Concrete, cinder blocks, wood debris from demo of building on 4343

WASTE CHARACTERIZATION

Analysis Attached: On File FPC Code # FPC-3589

PHYSICAL STATE: Solid ☒ pH: _____

BULK VOLUME: Gallons _____ Tons _____ Cubic Yards **15** Other _____

CONTAINERS: DRUMS: No. _____ Size: _____ BAGS: No. _____ Size: _____

Special Handling Instructions: Non-hazardous

Fire or Spill Instructions: Non-flammable

Hauler Identification:

Disposal Site Destination: First Piedmont Landfill

The wastes described above were consigned to the carrier designated below.
I certify the foregoing is true to the best of my knowledge.

Signature of Generator or Authorized Agent: *[Signature]*

Date of Shipment Release: **09-22-2006**

WASTE HAULER IDENTIFICATION:

Name & Address: Thompson Trucking Inc. PO Box 969 Concord, VA 24538
Telephone No: **434 998 2195** Waste Hauler Registration No. _____ State: _____
Tractor No: **167** Trailer No: **117** Tank No: _____ Box No: _____ Other: _____

I certify that the wastes in quantity described above were received by me for shipment and delivered to the destination indicated below.

Date Received: **9/22/06** Time: **1300** AM ☒ PM
Date Delivered: **9/22/06** Time: **4:00** AM ☒ PM

Signature of Hauler: *[Signature]*

DISPOSAL SITE IDENTIFICATION:

Name & Address: First Piedmont Landfill 1224 Clarke Mill Road Ringgold, VA 24586
Telephone No: 434-432-0211 Site Permit No: 65 Waste Approval No: **FPC 3589**
Quantity Measured at Site: **14.69 tons**

HANDLING PROCEDURE

Describe in Detail:

FINAL ON-SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received a permit and approval for such disposal.

Signature of Authorized Agent and Title: *[Signature]*

Received: **9-20-06**

**First Piedmont Corporation**P.O. BOX 1069
Chatham, VA 24531

Ticket No: 103640

Date: 09/22/2006

Account No: 1261730

Service Order No: 0

PO/Release No: 0

Billing Status: ACTIVE

Vehicle No: 167

CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLINGTON DE 19806

Name	: thompson	Gross	61,400 lb	Inbound	7:02 am
		Tare	32,860 lb	Outbound	7:19 am
		Net	28,540 lb	14.27 tn	

09/21/2006 14:43

4348228005

FIRST PIEDMONT CORP.

PAGE 02/02

**First Piedmont**

CORP

Chatham, Virginia 24531
434-432-0211MANIFEST NO. **008704****GENERATOR IDENTIFICATION:**

Business Name: Alliant Techsystems Inc. (Radford Army Ammunition Plant)
Mailing Address: P.O. Box 1, Radford State: VA 24141
Shipment Origin: Rt. 114, Peppers Ferry Rd. City/State: Radford, VA
Authorized Agent: Jeremy Flint Title: Lead Compliance Engineer
Emergency Tel #: 540-639-7668

Type of Process Generating Waste: Concrete, cinder blocks, wood debris from demo of building no. 4343.

WASTE CHARACTERIZATION:

Analysis Attached: On File FPC Code #: FPC-3589

PHYSICAL STATE: Solid ☒ pH _____BULK VOLUME: Gallons _____ Tons _____ Cubic Yards 16 Other _____

CONTAINERS: DRUMS: No. _____ Size: _____ BAGS: No. _____ Size: _____

Special Handling Instructions: Non-hazardous
Fire or Spill Instructions: Non-flammable
Hauler Identification: Thompson Trucking, Inc.
Disposal Site Destination: First Piedmont Landfill

The wastes described above were consigned to the carrier designated below.
I certify the foregoing is true to the best of my knowledge.

Signature of Generator or Authorized Agent

09-21-2006

Date of Shipment Release

WASTE HAULER IDENTIFICATION:

Name & Address: Thompson Trucking, Inc. P.O. Box 969 Concord, VA 24538

Telephone No: 434-993-2193

Waste Hauler Registration No:

State:

Tractor No: 167 Trailer No: 145 Tank No: _____ Box No: _____ Other: _____

I certify that the wastes in quantity described above were received by me for shipment and delivered to the destination indicated below.

Date Received 9/21/06 Time: 3:00Date Delivered 9-21-06 Time: 7:02AM ☒ PM
AM ☐ PM
Signature of Hauler**DISPOSAL SITE IDENTIFICATION:**

Name & Address: First Piedmont Landfill 1224 Clarke Mill Road Ringgold, VA 24586

Telephone No: 434-432-0211

Site Permit No: 65

Waste Approval No:

FPC 3589Quantity Measured at Site: 14.27 tons**HANDLING PROCEDURE**

Describe in Detail:

FINAL ON-SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received a permit and approval for such disposal.

Signature of Authorized Agent and Title:

Received: 9-22-06

TW

**First Piedmont Corporation**P.O. BOX 1069
Chatham, VA 24531

Ticket No: 103644

Date: 09/22/2006

Account No: 1261730

Service Order No: 0

PO/Release No: 0

Billing Status: ACTIVE

Vehicle No: 118

CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLINGTON DE 19806

Name	: thompson	Gross	72,600	lb	Inbound	7:08 am
		Tare	36,580	lb	Outbound	7:47 am
		Net	36,020	lb	18.01	tn



First Piedmont

Chatham, Virginia 24531

434-432-0211

MANIFEST NO. **008682****GENERATOR IDENTIFICATION:**

Business Name: Alliant Techsystems Inc. (Radford Army Ammunition Plant)

Mailing Address: P.O. Box 1, Radford

State: VA 24141

Shipment Origin: Rt. 114, Peppers Ferry Rd.

City/State: Radford, VA

Authorized Agent: Jeremy Ellis

Title: Lead Compliance Engineer

Emergency Tel #: 540-639-7668

Type of Process Generating Waste: Concrete, timber blocks, wood debris from demo of building no. 4143

WASTE CHARACTERIZATION:

Analysis Attached: On File FPC Code #: FPC-3389

PHYSICAL STATE: Solid ☒ pH _____

BULK VOLUME: Gallons _____

Tons _____

Cubic Yards **16**

Other _____

CONTAINERS: DRUMS: No. _____

Size: _____

BAGS: No. _____

Size: _____

Special Handling Instructions: Non-hazardous

Fire or Spill Instructions: Non-flammable

Hauler Identification: First Piedmont Corporation

Disposal Site Destination: First Piedmont Landfill

The wastes described above were consigned to the carrier designated below.

I certify the foregoing is true to the best of my knowledge.

Signature of Generator or Authorized Agent

09/21/06

Date of Shipment Release

WASTE HAULER IDENTIFICATION:Name & Address: **Thompson Trucking P.O. Box 969 Concord VA 24538**Telephone No: **434-432-0211 993-2195** Waste Hauler Registration No. _____

State: _____

Tractor No: **118**Trailer No: **100**

Tank No. _____

Box No. _____

Other: _____

I certify that the wastes as primarily described above were received by me for shipment and delivered to the destination indicated below.

Date Received: **09/21/06** Time: **1:37**AM ☒ PM

Date Delivered: **9-22-06** Time: **7:08**AM ☒ PM

Signature of Hauler

DISPOSAL SITE IDENTIFICATION:

Name & Address: First Piedmont Landfill 1224 Clarks Mill Road Ringgold, VA 24586

Telephone No: 434-432-0211

Site Permit No: 65

Waste Approval No: **APC 3589**Quantity Measured at Site: **18.21****HANDLING PROCEDURE**

Describe in Detail:

FINAL ON-SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received a permit and approval for such disposal.

Signature of Authorized Agent and Title: **TU**Received: **9-22-06**

**First Piedmont Corporation**P.O. BOX 1069
Chatham, VA 24531

Ticket No: 103643

Date: 09/22/2006

Account No: 1261730

Service Order No: 0

PO/Release No: 0

Billing Status: ACTIVE

Vehicle No: 413

CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLINGTON DE 19806

Name	: thompson	Gross	70,660 lb	Inbound	7:05 am
		Tare	35,160 lb	Outbound	7:34 am
		Net	35,500 lb	17.75 tn	



First Piedmont

Chatham, Virginia 24531
434-432-0211

MANIFEST NO. **008686**

GENERATOR IDENTIFICATION:

Business Name: **Alliant Techsystems Inc. (Radford Army Ammunition Plant)**
Mailing Address: **P.O. Box 1, Radford** State: **VA 24141**
Shipment Origin: **RL 114, Peppers Ferry Rd.** City/State: **Radford, VA**
Authorized Agent: **Jeremy Flint** Title: **Lead Compliance Engineer**
Emergency Tel #: **540-539-7668**

Type of Process Generating Waste: **Concrete, cinder blocks, wood debris from demo of building no. 4143**

WASTE CHARACTERIZATION:

PHYSICAL STATE: Solid ☒ pH: _____

Analysis Attached: On File **FPC Code #: FPC-3589**

BULK VOLUME: Gallons: _____ Tons: _____ Cubic Yards: **16** Other: _____

CONTAINERS: DRUMS: No. _____ Size: _____ BAGS: No. _____ Size: _____

Special Handling Instructions: **Non-hazardous**
Fire or Spill Instructions: **Non-flammable**
Hauler Identification: **First Piedmont Corporation**
Disposal Site Destination: **First Piedmont Landfill**

The wastes described above were consigned to the carrier designated below.
I certify the foregoing is true to the best of my knowledge.

[Signature]
Signature of Generator or Authorized Agent

09/21/06
Date of Shipment Release

WASTE HAULER IDENTIFICATION:

Name & Address: **Thompson Trucking P.O. Box 969, Concord VA 24538**
Telephone No: **434-432-0211 993-2195** Waste Hauler Registration No: _____ State: _____
Tractor No: **413** Trailer No: **06** Tank No: _____ Box No: _____ Other: _____

I certify that the wastes in quantity described above were received by me for shipment and delivered to the destination indicated below.

Date Received: **9/21/06** Time: **1:17**
Date Delivered: **9-22-06** Time: **7:05**

[Signature]
Signature of Hauler

DISPOSAL SITE IDENTIFICATION:

Name & Address: **First Piedmont Landfill 1224 Clark's Mill Road Ringgold, VA 24586**
Telephone No: **434-432-0211** Site Permit No: **65** Waste Approval No: **7FC 3589**
Quantity Measured at Site: **17.75 tons**

HANDLING PROCEDURE

Describe in Detail:

Time In - **10:10 AM**
Time Out - **1:30 PM**

FINAL ON-SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received a permit and approval for such disposal.

Signature of Authorized Agent and Title: *[Signature]* **TN**
Received: **9-22-06**

**First Piedmont Corporation**P.O. BOX 1069
Chatham, VA 24531

Ticket No: 103642

Date: 09/22/2006

Account No: 1261730

Service Order No: 0

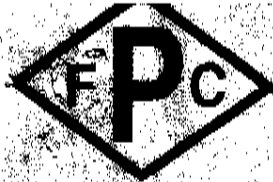
PO/Release No: 0

Billing Status: ACTIVE

Vehicle No: 3357

CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLIMGTON DE 19806

Name	: thompson	Gross	70,680 lb	Inbound	7:04 am
		Tare	34,440 lb	Outbound	7:24 am
		Net	36,240 lb	18.12 tn	



First Piedmont

Chatham, Virginia 24531
434-432-0211

INDUSTRIAL/SHIPPING MANIFEST

MANIFEST NO. **008683**

GENERATOR IDENTIFICATION:

Business Name: Alliant Techsystems Inc. (Radford Army Ammunition Plant)
Mailing Address: P.O. Box 1, Radford State: VA 24141
Shipmen Origin: Rt. 114, Peppers Ferry Rd. City, State: Radford, VA
Authorized Agent: Jeremy Flinn Title: Lead Compliance Engineer
Emergency Tel: 540-638-7668

ARRIVED 10:30AM
LOADED 1:10PM

Type of Process Generating Waste: Concrete, cinder blocks, wood debris from demo of building no. 1343

WASTE CHARACTERIZATION:

Analy as Attached: On File EPC Code #: EPC-3589

PHYSICAL STATE: Solid ☒ pH _____

GROSS VOLUME: Gallons _____ Tons _____ Cubic Yards **18** Other _____

CONTAINERS: DRUMS: No. _____ Size: _____ BAGS: No. _____ Size: _____

Special Handling Instructions: Non-hazardous

Fire or Spill Instructions: Non-flammable

Hauler Identification: First Piedmont Corporation

Disposal Site Destination: First Piedmont Landfill

The wastes described above were consigned to the carrier designated below.

I certify the foregoing is true to the best of my knowledge.

JP Flinn
Signature of Generator or Authorized Agent

09/21/06
Date of Shipment Release

WASTE HAULER IDENTIFICATION:

Name & Address: **Thompson Trucking P.O. Box 969 Concord VA, 24538**

Telephone No: **434-432-0211 993-2195** Waste Hauler Registration No: _____ State: _____

Tractor No: **335** Trailer No: **136** Tank No: _____ Box No: _____ Other: _____

I certify that the wastes in quantity described above were received by me for shipment and delivered to the destination indicated below.

Date Received **9/21/06** Time **12:50** AM ☒ PM ☐
Date Delivered **9-22-06** Time **7:04** AM ☒ PM ☐

Ray Smith
Signature of Hauler

DISPOSAL SITE IDENTIFICATION:

Name & Address: First Piedmont Landfill 1273 Clarke Mill Road Ringgold, VA 24586

Telephone No: 434-432-0211 Site Permit No: 65 Waste Approval No: **TRC 3589**

Quantity Measured at Site: **78.12 tons**

HANDLING PROCEDURE

Describe in Detail:

FINAL ON-SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received in permit and approval for such disposal.

Signature of Authorized Agent and Title: *Ray Smith* TW

Received: **9-22-06**

**First Piedmont Corporation**P.O. BOX 1069
Chatham, VA 24531

Ticket No: 103735

Date: 09/22/2006

Account No: 1261730

Service Order No: 314513

PO/Release No: 0

Billing Status: **ACTIVE**

Vehicle No: 239

CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLIMGTON DE 19806

Name	: WILLIAM	Gross	77,900 lb	Inbound	11:48 am
		Tare	39,380 lb	Outbound	12:29 pm
		Net	38,520 lb	19.26 tn	



First Piedmont

INDUSTRIAL/SHIPPING MANIFEST

Wt # 314573

Chatham, Virginia 24531
434-432-0211

MANIFEST NO. **008700**

GENERATOR IDENTIFICATION:

Business Name: Alliant Technologies Inc. (Radford Army Ammunition Plant)
Mailing Address: P.O. Box 1, Radford, VA 24141
Shipment Origin: Rt. 114, Peppers Ferry Rd., City/State: Radford, VA
Authorized Agent: Jeremy Flint Title: Lead Compliance Engineer
Emergency Tel #: 540-639-7668

Type of Process Generating Waste: Concrete, cinder blocks, wood debris from demo of building no. 4343

WASTE CHARACTERIZATION:

Analysis Attached: On File FPC Code #: FPC-3589

PHYSICAL STATE: Solid _____ pH _____

BULK VOLUME: Gallons _____ Tons _____ Cubic Yards 20 Other _____

CONTAINERS: DRUMS: No. _____ Size: _____ BAGS: No. _____ Size: _____

Special Handling Instructions: Non-hazardous

Fire or Spill Instructions: Non-flammable

Handler Identification:

Disposal Site Destination: First Piedmont Landfill

The wastes described above were consigned to the carrier designated below.

I certify the foregoing is true to the best of my knowledge.

Signature of Generator or Authorized Agent

Date of Shipment Release

WASTE HAULER IDENTIFICATION:

Name & Address: First Piedmont Corp. PO Box 1069 Chatham Va. 24531

Telephone No: 434 432 0211 Waste Hauler Registration No _____ State: VA

Tractor No: 239 Trailer No: R015 Tank No: _____ Box No: 07-282 Other: _____

I certify that the wastes in quantity described above were received by me for shipment and delivered to the destination indicated below.

Date Received 09-22-06 Time: 8:30 AM/PM

Date Delivered 09-22-06 Time: 11:48 AM/PM

Signature of Hauler

DISPOSAL SITE IDENTIFICATION:

Name & Address: First Piedmont Landfill 1224 Clark Mill Road Ringgold, VA 24586

Telephone No: 434-432-0211 Site Permit No: 65 Waste Approval No: FPC 3589

Quantity Measured at Site:

19.26 tons

HANDLING PROCEDURE

Describe in Detail:

FINAL ON-SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received a permit and approval for such disposal.

Signature of Authorized Agent and Title:

Received:

Spencer T. Rigby
09-22-06

**First Piedmont Corporation**P.O. BOX 1069
Chatham, VA 24531

Ticket No: 103815

Date: 09/22/2006

Account No: 1261730

Service Order No: 314517

PO/Release No: 0

Billing Status: **ACTIVE**

Vehicle No: 91

CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLIMGTON DE 19806

Name	: lee	Gross	72,360 lb	Inbound	4:00 pm
		Tare	39,660 lb	Outbound	12:28 pm
		Net	32,700 lb	16.35 tn	



First Piedmont

CORP

Chatham, Virginia 24531
434-432-0211

INDUSTRIAL/SHIPPING MANIFEST 1

MANIFEST NO. **008698**

GENERATOR IDENTIFICATION:

Business Name: Alliant Technologies Inc. (Radford Army Ammunition Plant)
Mailing Address: P.O. Box 1, Radford State: VA 24141
Shipment Origin: Rt. 114, Peppers Ferry Rd. City/State: Radford, VA
Authorized Agent: Jeremy Flinn Title: Lead Compliance Engineer
Emergency Tel #: 830-439-7668
Type of Process Generating Waste: Concrete, cinder blocks, wood debris from demo of building no. 4341

WASTE CHARACTERIZATION:

Analysis Attached: On File FPC Code #: FPC-3589

PHYSICAL STATE: Solid ☒ pH: ☒

BULK VOLUME: Gallons: _____ Ton: _____ Cubic Yards: **15** Other: _____

CONTAINERS: DRUMS: No. _____ Size: _____ IACS: No. _____ Size: _____

Special Handling Instructions: Non-hazardous
Fire or Spill Instructions: Non-flammable
Hauler Identification: _____
Disposal Site Destination: First Piedmont Landfill

The wastes described above were consigned to the carrier designated below.
I certify the foregoing is true to the best of my knowledge.

[Signature]
Signature of Generator or Authorized Agent

09-22-2006
Date of Shipment Release

WASTE HAULER IDENTIFICATION:

Name & Address: **First Piedmont Corp. P.O. Box 1069 Chatham, VA, 24531**
Telephone No: **434 432 0211** Waste Hauler Registration No. _____ State: _____
Tractor No: **97** Trailer No: **ROT 6** Tank No: _____ Box No: **07 276** Other: _____

I certify that the wastes in quantity described above were received by me for shipment and delivered to the destination indicated below.

Date Received: **9/22/06** Time: **12:45** AM ☒ PM ☐
Date Delivered: **9/22/06** Time: **4:00** AM ☒ PM ☐

[Signature]
Signature of Hauler

DISPOSAL SITE IDENTIFICATION:

Name & Address: **First Piedmont Landfill 1234 Clarke Mill Road Ringgold, VA 24586**
Telephone No: **434-432-0211** Site Permit No: **65** Waste Approval No: **FPC 3589**
Quantity Measured at Site: **16.35 tons**

HANDLING PROCEDURE

Describe in Detail: _____

FINAL ON-SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received a permit and approval for such disposal.

Signature of Authorized Agent and Title: *[Signature]*

Received: **9-22-06**

**First Piedmont Corporation**P.O. BOX 1069
Chatham, VA 24531

Ticket No: 103788

Date: 09/22/2006

Account No: 1261730

Service Order No: 0

PO/Release No: 0

Billing Status: ACTIVE

Vehicle No: 159

CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLIMGTION DE 19806

Name	: same	Gross	58,820 lb	Inbound	2:36 pm
		Tare	33,880 lb	Outbound	2:56 pm
		Net	24,940 lb	12.47 tn	



First Piedmont

Chatham, Virginia 24531
434-432-0211

MANIFEST NO. **008693**

GENERATOR IDENTIFICATION:

Business Name: Alliant Techsystems Inc. (Radford Army Ammunition Plant)
Mailing Address: P.O. Box 1, Radford State: VA 24141
Shipment Origin: Rt. 114, Peppers Ferry Rd. City/State: Radford, VA
Authorized Agent: Jeremy Flot Title: Lead Compliance Engineer
Emergency Tel #: 540-639-7658

Type of Process Generating Waste: Concrete, cinder blocks, wood debris from demo of building no. 1343

WASTE CHARACTERIZATION:

Analysis Attached: On File EPC Code #: EPC-3589

PHYSICAL STATE: Solid ☒ pH _____

BULK VOLUME: Gallons _____ Tons _____ Cubic Yards 15 Other _____

CONTAINERS: DRUMS: No. _____ Size: _____ BAGS: No. _____ Size: _____

Special Handling Instructions: Non-hazardous

Fire or Spill Instructions: Non-flammable

Hauler Identification:

Disposal Site Destination: First Piedmont Landfill

The wastes described above were consigned to the carrier designated below.
I certify the foregoing is true to the best of my knowledge.

JP Flot
Signature of Generator or Authorized Agent

09/22/2006
Date of Shipment Release

WASTE HAULER IDENTIFICATION:

Name & Address: Thompson Trucking, Inc. PO Box 969 Concord, Va. 24538
Telephone No: 434 993 2195 Waste Hauler Registration No: _____ State: _____
Tractor No: 214 Trailer No: 125 Tank No: _____ Box No: _____ Other: _____

I certify that the wastes in quantity described above were received by me for shipment and delivered to the destination indicated below.

Date Received: 9/22/06 Time: 11:00 AM/PM AM
Date Delivered: 9/20/06 Time: 8:36 AM/PM AM

Donald J. Ross
Signature of Hauler

DISPOSAL SITE IDENTIFICATION:

Name & Address: First Piedmont Landfill 1224 Clarks Mill Road Ringgold, VA 24586
Telephone No: 434-432-0211 Site Permit No: 65 Waste Approval No: FPC 3589
Quantity Measured at Site: 12.47 tons

HANDLING PROCEDURE

Describe in Detail:

FINAL ON SITE LOCATION

I certify that the wastes described above were received by me for disposal. I further certify that this facility has received a permit and approval for such disposal.

Signature of Authorized Agent and Title: Mike E. Valente
Received: 9-20-06

09/27/2006 12:18 FAX 5403425024

VINTON SCRAP & METAL

001/002

VINTON SCRAP & METALS CO., INC.

MAILING ADDRESS:

P. O. BOX 14225
ROANOKE, VIRGINIA 24038-4225
FAX (540) 342-8024

282 WAYLAND STREET
VINTON, VIRGINIA 24179
PHONE (540) 342-9772

DATE: 9-22-06
TO: Tedxi Fort
FROM: Tedxi Harris
RECEIVING FAX NUMBER: 904-4788
MESSAGES: Below
NUMBER OF PAGES (TOTAL): 2

VINTON SCRAP & METALS

282 WAYLAND ST.
VINTON, VA 24179
(540) 342-9772 FAX (540) 342-5024

135079

DATE 9-25-06CUSTOMER'S NAME Capital Equipment

ADDRESS _____

COMMODITY Mixed scrap steelCARRIER First Pickant

DATE TIME

09-25-06 02:45 PM 54140 lb

09-25-06 03:13 PM 40620 lb

lb GROSS

lb TARE—DRIVER ON

OFF

lb NET @

PER lb PRICE

13520

SHIPPER _____

WEIGHER DMMREMARKS 13520/lb

09/27/2008 12:16 FAX 5403425024

VINTON SCRAP & METAL

002/002

Straight Bill of Lading
Original – Non Negotiable

This is to certify that the below named materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

CARRIER: First Piedmont, Inc.**TRACTOR NUMBER:****TRAILER NUMBER:**

Date		From (Shipper) Alliant Ammunition & Powder Co.		To (Consignee) Vinton Scrap & Metals Co., Inc.		
Address Rt. 114 Peppers Ferry Road		Address 282 Wayland Street				
City Radford State VA Zip 24141		City Vinton State VA Zip 24179				
Bill to 3 rd Party Capital Environmental Services, Inc. PO Box 79588 Baltimore, MD 21279-0588		HAZMAT Phone Number		Total Amount \$		
Address		COD		Certified Check _____ Company Check _____		
City, State, Zip		COD FEE Prepaid _____ On a collect Delivery shipment(s), the letters 'COD' TO BE Collect _____ must appear before consignees name or as otherwise provided in item 430, Sec 1				
Shippers No.		Remit COD To				
Purchase Order No. RYTF-0041		Address				
Quote No.		City State Zip				
FOR THE ACCT OF BATTERY SOLUTIONS, INC. BRIGHTON, MICHIGAN		Freight Charges are <u>PREPAID</u> Check Unless marked collect If Collect				
No Ship Units	Package Type	HM	Kind of Packaging, Description of Articles, Special Marks, and Exceptions	NMFC Item	Class	Weight
1	Rolloff		Scrap Metal			20,000
						Estimate

Note 1 - When the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____

Notes 2 - Liability limitations for loss or damage on this shipment may be applicable.
See 49 U.S.C. 14705(c)(1)(A) and (B)

Note 3 - Commodities requiring special additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation with ordinary care. See Sec 2(c) of NMFC form 350

Special Instructions

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse to the consignee, the consignee shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other charges.

(Signature of Consignor)

RECEIVED, subject to individually determined rates of warehouse that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rules, conditions and rates that have been established by the carrier and are available to the shipper on request, the property described above in Apparent good order, except as noted (contents and condition of contents of packages unknown), marked, counted, and certified as indicated above which said carrier (the word carrier being understood throughout this contract as including any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery or at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions (including governing classifications on the case or shipment).

Shipper hereby certifies that he is familiar with all of the terms and conditions in the bill of lading and in the governing classifications and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER

CARRIER

✕

x

*Mark with an "X" to designate Hazardous Material as defined in the Title 49 of the Code of Federal Regulations, and United Shipper's Haz-Mat Emergency Phone No.

**First Piedmont Corporation**P.O. BOX 1069
Chatham, VA 24531

Ticket No: 103264

Date: 10/05/2006

Account No: 1261730

Service Order No: 316356

PO/Release No: 0

Billing Status: ACTIVE

Vehicle No: 239

CAPITOL ENVIRONMENTAL
15-C TROLLEY SQUARE
WILLIMGTON DE 19806

Name	: JAN	Gross	49,220 lb	Inbound	2:45 pm
		Tare	39,380 lb	Outbound	2:46 pm
		Net	9,840 lb	4.92 tn	

10/24/2006 10:11 FAX 434 432 0278

FIRST PIEDMONT

003/003



First Piedmont

Manifest No. 008835

WASTE GENERATOR INFORMATION

Company Name: First Piedmont Inc. (Hazardous Waste Management Firm)
 Address: 1704 Clark Mill Road, Virginia, VA 24304
 Phone: 540-432-0278 Fax: 540-432-0278
 E-mail: firstpiedmont@firstpiedmont.com
 Contact Person: John A. Smith
 Title: Owner/President

Is this a new or existing waste management contract? Existing (If new, provide date of contract)
 Is this a new or existing waste management contract? Existing (If new, provide date of contract)

WASTE CHARACTERISTICS

Waste Description: Asphalt Shingles

Material Number: On File EPC Code # EPC-3589

Waste Quantity: 1000 (in units of tons)

Waste Date: 10/24/06 (in units of month/year)

Special Handling Instructions: None
 Is this a new or existing waste management contract? Existing
 Is this a new or existing waste management contract? Existing

Signature of Generator: John A. Smith

I, the undersigned, hereby certify that the information provided in this manifest is true and correct to the best of my knowledge.

John A. Smith
 Signature of Generator

10/24/06
 Date of Manifest Release

WASTE SLIPPER INFORMATION

Waste A Number: First Piedmont (Waste Management Firm) 24304

Waste B Number: 1000 (Waste Quantity) tons

Waste C Number: 1000 (Waste Quantity) tons

Waste D Number: 1000 (Waste Quantity) tons

Waste E Number: 1000 (Waste Quantity) tons

Waste F Number: 1000 (Waste Quantity) tons

Waste G Number: 1000 (Waste Quantity) tons

Waste H Number: 1000 (Waste Quantity) tons

Waste I Number: 1000 (Waste Quantity) tons

Waste J Number: 1000 (Waste Quantity) tons

Waste K Number: 1000 (Waste Quantity) tons

Waste L Number: 1000 (Waste Quantity) tons

Waste M Number: 1000 (Waste Quantity) tons

Waste N Number: 1000 (Waste Quantity) tons

Waste O Number: 1000 (Waste Quantity) tons

Waste P Number: 1000 (Waste Quantity) tons

Waste Q Number: 1000 (Waste Quantity) tons

Waste R Number: 1000 (Waste Quantity) tons

Waste S Number: 1000 (Waste Quantity) tons

Waste T Number: 1000 (Waste Quantity) tons

Waste U Number: 1000 (Waste Quantity) tons

Waste V Number: 1000 (Waste Quantity) tons

Waste W Number: 1000 (Waste Quantity) tons

Waste X Number: 1000 (Waste Quantity) tons

Waste Y Number: 1000 (Waste Quantity) tons

Waste Z Number: 1000 (Waste Quantity) tons

Non-Hazardous Waste Profile for Soil Shipped Offsite

Waste Characterization Form

Generator Identification:

FPC Approval #: _____

Name: Alliant Techsystems Inc. (Radford Army Ammunition Plant)

Address: PO Box 1, Radford, VA 24141

Plant location: Rt. 114, Peppers Ferry Rd. Phone #: 540-639-7668

Broker or Consultant name and address: Capitol Environmental Services, Inc.
15C Trolley Square, Wilmington, DE 19806

Description of waste product: Concrete, cinder blocks, wood debris

Indicate the process that generated this waste (be specific): demo of an old building (Bldg No. 4343)

Waste Characterization:

Estimated volume/tonnage 200 tons Frequency(check one): monthly yearly X one time

Packing: X Bulk Drums if drums, give size and type:

Physical State: X solid liquid semi solid Is there layering? _____

Flashpoint (degrees F) >210°F, cyanides <0.4 ppm, sulfides <8.0 ppm

Metallics: Arsenic <0.006ppm Chromium <0.0026 ppm Selenium <0.021 ppm

Barium <0.51 ppm Silver <0.0007 ppm Cadmium 0.39 ppm

Mercury <0.002ppm Lead <0.057 ppm

Other Metallics/Toxics _____ ppm, _____ ppm, _____ ppm

Is this waste corrosive? no _____ PH of waste: <12.4

Is this a listed hazardous waste per USEPA Regulations? no

Total Constituents (must equal 100%) _____ % _____ %

concrete 50 % wood debris 10 % _____ % _____ %

cinder blocks 40 % _____ % _____ % _____ %

Additional information: _____

Hauler's Information (if other than First Piedmont Corporation vehicles):

Name: _____ Address: _____

Telephone Number: _____

Generator's Certification:

This is a complete and accurate description of this waste material and I hereby certify this waste is not hazardous as defined by U.S. Department of Transportation (DOT), U.S. Environmental Protection Agency (EPA), state or local regulations.

Generator's Signature: Jeremy Flint Printed Name: Jeremy Flint

Title: Lead Compliance Engineer Date: 9/8/06

If you have any questions, please call our Main Office in Chatham, VA at (434) 432-0211 or toll free at (800) 476-6780.
Please sign and return this form to Ricky Harris at the above address or fax to (434) 822-6005. Thank You!

Report of Analysis

Page 1 of 1

Client Sample ID: B43DW03

Lab Sample ID: F43275-1

Matrix: SO - Solid

Date Sampled: 08/26/06

Date Received: 08/30/06

Percent Solids: n/a

Project: Radford AFB-Bldg 4343

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	MDL	Units	DF	Prep	Analyzed By	Method
Arsenic ^a	0.0010 U	D004	5.0	0.50	0.0010	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹
Barium ^a	0.53 J	D005	100	1.0	0.00060	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹
Cadmium ^a	0.00040 U	D006	1.0	0.0050	0.00040	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹
Chromium ^a	0.0026 J	D007	5.0	0.010	0.0010	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹
Lead ^a	0.023 J	D008	5.0	0.50	0.0020	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹
Mercury ^a	0.0020	D009	0.20	0.0020	0.0013	mg/l	1	09/06/06	09/06/06	ATX SW846 7470A ²
Selenium ^a	0.019 J	D010	1.0	0.50	0.0010	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹
Silver ^a	0.00070 U	D011	5.0	0.010	0.00070	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹

(1) Instrument QC Batch: T:MA2553

(2) Instrument QC Batch: T:MA2555

(3) Prep QC Batch: T:MP5184

(4) Prep QC Batch: T:MP5188

(a) Analysis performed at Accutest Laboratories, Houston, TX.

RL = Reporting Limit

MDL = Method Detection Limit

U = Indicates a result < MDL

MCL = Maximum Contamination Level (40 CFR 261 6/96)

J = Indicates a result > = MDL but < RL

Report of Analysis

Page 1 of 1

Client Sample ID: B43DW03

Lab Sample ID: F43275-1

Matrix: SO - Solid

Date Sampled: 08/26/06

Date Received: 08/30/06

Percent Solids: n/a

Project: Radford AFB-Bldg 4343

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH ^a	12.4			1	09/01/06 09:00	ATX	SW846 CHAP7
Cyanide Reactivity ^a	< 0.40	0.40	mg/kg	40	09/05/06 12:16	ATX	SW846 CHAP7
Ignitability (Flashpoint) ^a	> 210		Deg. F	1	09/01/06 10:00	ATX	SW846 1010
Sulfide Reactivity ^a	< 8.0	8.0	mg/kg	40	09/05/06 13:10	ATX	SW846 CHAP7

(a) Analysis performed at Accutest Laboratories, Houston, TX.

RL = Reporting Limit

Report of Analysis

Page 1 of 1

Client Sample ID:	B43DW04	Date Sampled:	08/26/06
Lab Sample ID:	F43275-2	Date Received:	08/30/06
Matrix:	SO - Solid	Percent Solids:	n/a
Method:	SW846 8330A SW846 8330A		
Project:	Radford AFB-Bldg 4343		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GG017698.D	1	09/06/06	MRE	08/31/06	OP17729	GGG799
Run #2							

	Initial Weight	Final Volume
Run #1	2.21 g	20.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
2691-41-0	HMX	ND	230	90	ug/kg	
121-82-4	RDX	ND	230	90	ug/kg	
99-65-0	1,3-Dinitrobenzene	ND	230	90	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	230	110	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	230	90	ug/kg	
35572-78-2	2-amino-4,6-Dinitrotoluene	ND	230	90	ug/kg	
19406-51-0	4-amino-2,6-Dinitrotoluene	ND	230	90	ug/kg	
98-95-3	Nitrobenzene	ND	230	90	ug/kg	
88-72-2	o-Nitrotoluene	ND	230	90	ug/kg	
99-08-1	m-Nitrotoluene	ND	230	90	ug/kg	
99-99-0	p-Nitrotoluene	ND	230	90	ug/kg	
479-45-8	Tetryl	ND	230	90	ug/kg	
99-35-4	1,3,5-Trinitrobenzene	ND	230	90	ug/kg	
118-96-7	2,4,6-Trinitrotoluene	ND	230	90	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	112%		71-130%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

Client Sample ID: B43DW04

Lab Sample ID: F43275-2

Matrix: SO - Solid

Date Sampled: 08/26/06

Date Received: 08/30/06

Percent Solids: n/a

Project: Radford AFB-Bldg 4343

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	MDL	Units	DF	Prep	Analyzed By	Method
Arsenic ^a	0.0043 J	D004	5.0	0.50	0.0010	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹
Barium ^a	0.51 J	D005	100	1.0	0.00060	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹
Cadmium ^a	0.012	D006	1.0	0.0050	0.00040	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹
Chromium ^a	0.024	D007	5.0	0.010	0.0010	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹
Lead ^a	0.057 J	D008	5.0	0.50	0.0020	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹
Mercury ^a	0.0013 U	D009	0.20	0.0020	0.0013	mg/l	1	09/06/06	09/06/06	ATX SW846 7470A ²
Selenium ^a	0.015 J	D010	1.0	0.50	0.0010	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹
Silver ^a	0.00070 U	D011	5.0	0.010	0.00070	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹

(1) Instrument QC Batch: T:MA2553

(2) Instrument QC Batch: T:MA2555

(3) Prep QC Batch: T:MP5184

(4) Prep QC Batch: T:MP5188

(a) Analysis performed at Accutest Laboratories, Houston, TX.

RL = Reporting Limit

MDL = Method Detection Limit

U = Indicates a result < MDL

MCL = Maximum Contamination Level (40 CFR 261 6/96)

J = Indicates a result > = MDL but < RL

Report of Analysis

Page 1 of 1

Client Sample ID: B43DW04

Lab Sample ID: F43275-2

Matrix: SO - Solid

Date Sampled: 08/26/06

Date Received: 08/30/06

Percent Solids: n/a

Project: Radford AFB-Bldg 4343

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH ^a	12.2			1	09/01/06 09:00	ATX	SW846 CHAP7
Cyanide Reactivity ^a	< 0.40	0.40	mg/kg	40	09/05/06 12:16	ATX	SW846 CHAP7
Ignitability (Flashpoint) ^a	> 210		Deg. F	1	09/01/06 10:00	ATX	SW846 1010
Sulfide Reactivity ^a	< 8.0	8.0	mg/kg	40	09/05/06 13:10	ATX	SW846 CHAP7

(a) Analysis performed at Accutest Laboratories, Houston, TX.

RL = Reporting Limit

Report of Analysis

Page 1 of 1

Client Sample ID: B43DW05

Lab Sample ID: F43275-3

Date Sampled: 08/26/06

Matrix: SO - Solid

Date Received: 08/30/06

Method: SW846 8330A SW846 8330A

Percent Solids: n/a

Project: Radford AFB-Bldg 4343

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GG017699.D	1	09/06/06	MRE	08/31/06	OP17729	GGG799
Run #2							

	Initial Weight	Final Volume
Run #1	2.08 g	20.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
2691-41-0	HMX	ND	240	96	ug/kg	
121-82-4	RDX	ND	240	96	ug/kg	
99-65-0	1,3-Dinitrobenzene	ND	240	96	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	240	120	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	240	96	ug/kg	
35572-78-2	2-amino-4,6-Dinitrotoluene	ND	240	96	ug/kg	
19406-51-0	4-amino-2,6-Dinitrotoluene	ND	240	96	ug/kg	
98-95-3	Nitrobenzene	ND	240	96	ug/kg	
88-72-2	o-Nitrotoluene	ND	240	96	ug/kg	
99-08-1	m-Nitrotoluene	ND	240	96	ug/kg	
99-99-0	p-Nitrotoluene	ND	240	96	ug/kg	
479-45-8	Tetryl	ND	240	96	ug/kg	
99-35-4	1,3,5-Trinitrobenzene	ND	240	96	ug/kg	
118-96-7	2,4,6-Trinitrotoluene	ND	240	96	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	108%		71-130%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

Client Sample ID: B43DW05

Lab Sample ID: F43275-3

Matrix: SO - Solid

Date Sampled: 08/26/06

Date Received: 08/30/06

Percent Solids: n/a

Project: Radford AFB-Bldg 4343

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	MDL	Units	DF	Prep	Analyzed By	Method
Arsenic ^a	0.0060 J	D004	5.0	0.50	0.0010	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹
Barium ^a	0.56 J	D005	100	1.0	0.00060	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹
Cadmium ^a	0.39	D006	1.0	0.0050	0.00040	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹
Chromium ^a	0.020	D007	5.0	0.010	0.0010	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹
Lead ^a	0.020 J	D008	5.0	0.50	0.0020	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹
Mercury ^a	0.0013 U	D009	0.20	0.0020	0.0013	mg/l	1	09/06/06	09/06/06	ATX SW846 7470A ²
Selenium ^a	0.021 J	D010	1.0	0.50	0.0010	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹
Silver ^a	0.00070 U	D011	5.0	0.010	0.00070	mg/l	1	09/01/06	09/02/06	ATX SW846 6010B ¹

(1) Instrument QC Batch: T:MA2553

(2) Instrument QC Batch: T:MA2555

(3) Prep QC Batch: T:MP5184

(4) Prep QC Batch: T:MP5188

(a) Analysis performed at Accutest Laboratories, Houston, TX.

RL = Reporting Limit

MDL = Method Detection Limit

U = Indicates a result < MDL

MCL = Maximum Contamination Level (40 CFR 261.6/96)

J = Indicates a result > = MDL but < RL

Report of Analysis

Page 1 of 1

Client Sample ID: B43DW05

Lab Sample ID: F43275-3

Matrix: SO - Solid

Date Sampled: 08/26/06

Date Received: 08/30/06

Percent Solids: n/a

Project: Radford AFB-Bldg 4343

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH ^a	12.0			1	09/01/06 09:00	ATX	SW846 CHAP7
Cyanide Reactivity ^a	< 0.40	0.40	mg/kg	40	09/05/06 12:16	ATX	SW846 CHAP7
Ignitability (Flashpoint) ^a	> 210		Deg. F	1	09/01/06 10:00	ATX	SW846 1010
Sulfide Reactivity ^a	< 8.0	8.0	mg/kg	40	09/05/06 13:10	ATX	SW846 CHAP7

(a) Analysis performed at Accutest Laboratories, Houston, TX.

RL = Reporting Limit

Appendix C-2

Hazardous Waste

Hazardous Waste Disposal Manifests and Certificates of Destruction

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405467
EQ Account #: 5247
Manifest / BOL: MI9570243
Transporter: USBULK
Date: 08/31/2006
Time In: 7:48 PM
Time Out: 9:43 PM

Line	Description Generator	Qty.	Unit
1 - A	H061097MDI - D006 Soil, Building 4343	24.940	TONS
	VA1210020730 ALLIANT AMMUNITION AND POWDER CO		
	Gross: 81,100 Tare: 31,140 Net: 49,960		

NO SALVAGING ON PREMISES



WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF
ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE

ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Form Approved OMB No. 2050-0086

Required under authority of Part 111
and Part 121 of the Act, 105A, as
amended.

Failure to file may subject you to criminal
and/or civil penalties under Section
224.11101 or 224.12110 MCL.

Please print or type.

UNIFORM HAZARDOUS
WASTE MANIFEST

1. Generator's US EPA ID No.
VA1 210 020 780

Manifest
Document No.
01016

2. Page 1
of 1

Information in the shaded areas
is not required by Federal
law.

3. Generator's Name and Mailing Address
Alliant Ammunition & Powder Co.
PO Box 1, Radford, VA 24141

4. Generator's Phone 540 650-8743

ATTN: H.R. Shankenship

5. Transporter 1 Company Name

6. US EPA ID Number

US Bulk Transport Inc.

PAD 987 347 515

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address

Michigan Disposal Waste Treatment Plant
49350 N. I-96 Service Drive
Beverly, MI 48111

10. US EPA ID Number

MIQ 000 724 891

11. US DOT Description (including Proper Shipping Name, Hazard Class, and
ID NUMBER)

12. Containers

No. Type

13. Total
Quantity

Unit

W/Vol

a. X RQ Hazardous waste solid, N.O.S. (cadmium) 2,
NA3077, PGII (D008)

0 0 1

OT

3000

EST

P

15. Special Handling Instructions and Additional Information

Emergency Contact: Capitol Environmental Services, Inc. 800-800-2374
CESI Job# ROAN-TFORT-0352-12052

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are
classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined
to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the
present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste
generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name ALLIANT TECHNOLOGIES INC

Signature

H.R. Shankenship

Date

Month Day Year

10 10 06

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Michael P. R...

Signature

Michael P. R...

Date

Month Day Year

10 10 06

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Date

Month Day Year

10 10 06

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in
Item 19.

Printed/Typed Name

Michael P. R...

Signature

Michael P. R...

Date

Month Day Year

10 10 06

EPA Form 8700-22 (rev. 9/00)

TRANSPORTER COPY

EPA 5410

Rev. 11/03

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM, IN MICHIGAN AT 1-800-242-2862 OR OUT OF STATE AT 1-800-242-2862 OR OUT OF STATE AT 1-800-242-2862. CENTER AT 1-800-242-2862 24 HOURS PER DAY.

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405466
EQ Account #: 5247
Manifest / BOL: MI9570244
Transporter: USBULK
Date: 08/31/2006
Time In: 7:41 PM
Time Out: 9:21 PM

Line	Description Generator	Qty. Unit
1 - A	H061097MDI - D006 Soil, Building 4343	24.010 TONS
	VA1210020730 ALLIANT AMMUNITION AND POWDER CO	
	Gross: 78,540 Tare: 30,520 Net: 48,020	

NO SALVAGING ON PREMISES



DO NOT WRITE IN THIS SPACE
 ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111
 and Part 121 of Act 451, 1994, as
 amended.

Failure to file may subject you to criminal and/or civil penalties under Section
 324.11121 or 324.12118 MCL.

Form Approved OMA No. 2060-0039

Please print or type.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. VAT 210 020 780	Manifest Document No. 0101	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Redford, VA 24141					
4. Generator's Phone 840 830-8743		ATTN: H.R. Blankenship			
5. Transporter 1 Company Name US Bulk Transport Inc.		6. US EPA ID Number PA0 987 347 515			
7. Transporter 2 Company Name		8. US EPA ID Number			
9. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 49850 N. I-94 Service Drive Belleville, MI 48111		10. US EPA ID Number MID 000 726 831			
11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID NUMBER)		12. Containers No.	Type	13. Total Quantity	14. Unit
a. X RQ Hazardous waste solid, N.O.S. (cadmium) 9, NA3077, PGIII (D006)		0 0 1	DT	44,000 (55.5)	P
b.					
c.					
d.					
15. Special Handling Instructions and Additional Information: Emergency Contact: Capitol Environmental Services, Inc. 800-560-2374 CESI JEFFERSON-TORRONT-2553-13652					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and I can afford.					
Printed/Typed Name ALLIANT AMMUNITION INC.		Signature <i>H.R. Blankenship</i>		Date 10/13/06	
17. Transporter 1 Acknowledgment of Receipt of Materials Printed/Typed Name <i>W. H. H. H.</i>		Signature <i>W. H. H. H.</i>		Date 10/13/06	
18. Transporter 2 Acknowledgment of Receipt of Materials Printed/Typed Name		Signature		Date	
19. Discrepancy Indication Space					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 9. Printed/Typed Name <i>THOMAS CHURCH</i>					
Signature <i>THOMAS CHURCH</i>		Signature <i>THOMAS CHURCH</i>		Date 10/13/06	

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM, IN MICHIGAN AT 1-800-560-2374 OR OUT OF STATE AT 313-775-7860 AND THE NATIONAL RESPONSE CENTER AT 1-800-424-6343 BY HOURS PER DAY.

EPA Form 8700-22 (Rev. 9/88)

TRANSPORTER COPY

Rev. 11/03

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405464
EQ Account #: 5247
Manifest / BOL: MI9570243
Transporter: USBULK
Date: 08/31/2006
Time In: 6:55 PM
Time Out: 8:24 PM

Line	Description Generator	Qty	Unit
1 - A	H061097MDI - D006 Soil, Building 4343	21.850	TONS
	VA1210020730 ALLIANT AMMUNITION AND POWDER CO		
	Gross: 76,840 Tare: 33,140 Net: 43,700		

NO SALVAGING ON PREMISES

Page 1 of 1

DEC 14

WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF
ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE

ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111
and Part 121 of Act 451, 1994, as
amended.

Failure to file may subject you to criminal
and/or civil penalties under Section
324.11151 or 324.12116 MCL.

Form Approved. CMB No. 2090-0039

Please print or type.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. VA1 210 020 780	Manifest Document No. 02018	2. Page 1 of 1	Information in the shaded areas is not required by Federal law
3. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141					
4. Generator's Phone 540 830-8748		ATTN: H.R. Blankenship			
5. Transporter 1 Company Name US Bulk Transport Inc.		6. US EPA ID Number PAD 067 847 616			
7. Transporter 2 Company Name		8. US EPA ID Number			
9. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 49360 N. I-04 Service Drive Eastland, MI 48111		10. US EPA ID Number MID 000 724 831			
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID NUMBER)		12. Containers No.	Type	13. Total Quantity	14. Unit Mn/Vol
a.	X RQ Hazardous waste solid, N.O.S. (cesium) 8, NA3077, PGIII (D006)	001	DR	46,000 EST.	P
b.					
c.					
d.					
15. Special Handling Instructions and Additional Information Emergency Contact: Capital Environmental Services, Inc. 800-663-2374 CESI Job # RQMI-TFORT-2003-13002					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name ALLIANT TECHSYSTEMS INC		Signature H.R. Blankenship		Date 6/6/06	
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name Mark S. Parnell		Signature M. S. Parnell		Date 6/6/06	
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature		Date	
19. Discrepancy Indication Space					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. Printed/Typed Name THOMAS POWELL					

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM, IN MICHIGAN AT 1-800-252-7860 AND THE NATIONAL RESPONSE CENTER AT 1-800-424-6662 24 HOURS PER DAY.

EPA Form 8700-22 (Rev. 9/85)

TRANSPORTER COPY

EPA 8700-22
Rev. 11/05

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405488
EQ Account #: 5247
Manifest / BOL: MI9670246
Transporter: USBULK
Date: 08/31/2006
Time In: 7:59 PM
Time Out: 9:55 PM

Line	Description Generator	Qty.	Unit
1 - A	H061097MDI - D006 Soil, Building 4343	22.190	TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO			
Gross: 76,900 Tare: 32,620 Net: 44,380			

NO SALVAGING ON PREMISES



WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF
ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE

ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 131
and Part 121 of Act 451, 1994, as
amended.
#102
Failure to file may subject you to criminal and/or civil penalties under Section
324.11151 or 324.12116 MCL.

Form Approved OMB No. 2050-0089

Please print or type.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. WA1 210 023 730	Manifest Document No. 01319	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141					
4. Generator's Phone 840 636-8743 ATTN: M.R. Blankenship					
5. Transporter 1 Company Name US Bulk Transport Inc.		8. US EPA ID Number RAD 087 347 515			
7. Transporter 2 Company Name		9. US EPA ID Number			
9. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 49360 N. I-04 Service Drive Bellefonte, MI 48111		10. US EPA ID Number MID 000 724 831			
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID NUMBER) HM		12. Containers No. Type		13. Total Quantity	14. Unit M/L
a. X HQ Hazardous waste solid, N.O.S. (cadmium) 9, NA3077, PGIII (D000)		0 0 1 DT		45,000 EST.	P
b.					
c.					
d.					
15. Special Handling Instructions and Additional Information Emergency Contact: Capital Environmental Services, Inc. 800-500-2374 CESI JAM#RONA-TPORT-2003-13602					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are truly and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR: If I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name ALLIANT TECHNOLOGIES INC.		Signature M.R. Blankenship		Date 08/08/06	
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name Michael R. Kasper		Signature M.R. Kasper		Date 08/08/06	
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature		Date	
19. Discrepancy Indication Space					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 18. Printed/Typed Name TAMARA COLEMAN					
Signature TAMARA COLEMAN		Signature M.R. Kasper		Date 08/08/06	

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM, IN MICHIGAN AT 1-800-252-4706 OR OUT OF STATE AT 87-372340 AND THE NATIONAL RESPONSE CENTER AT 1-800-424-6002 24 HOURS PER DAY

EPA Form 8700-22 (Rev. 9/88)

TRANSPORTER COPY

Rev. 11/03

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405469
EQ Account #: 5247
Manifest / BOL: MI9570247
Transporter: USBULK
Date: 08/31/2006
Time In: 8:13 PM
Time Out: 10:04 PM

Line	Description Generator	Qty.	Unit
1 - A	H061097MDI - D006 Soil, Building 4343	21.660	TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO			
Gross: 75.040 Tara: 31.660 Net: 43.380			

NO SALVAGING ON PREMISES

Page 1 of 1



WASTE AND HAZARDOUS MATERIALS DIVISION
MICHIGAN DEPARTMENT OF
ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE

ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Required under authority of Part 111
and Part 121 of Act 461, 1994, as
amended.

Failure to file may subject you to criminal
and/or civil penalties under Section
224, 11151 or 224, 12118 MCL.

Form Approved OMB No. 2050-0030

Please print or type.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. VA1 210 020 730	Manifest Document No. 01020	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141					
4. Generator's Phone (840) 630-8743		ATTN: H.R. Blankenship			
5. Transporter 1 Company Name US Bulk Transport Inc.		6. US EPA ID Number PA0 087 347 515			
7. Transporter 2 Company Name		8. US EPA ID Number			
9. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 49350 N. I-94 Service Drive Livonia, MI 48151		10. US EPA ID Number MI0 000 724 831			
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID NUMBER)		12. Containers No. Type		13. Total Quantity	14. Unit Wt/Vol
a. X RQ Hazardous waste solid, N.O.S. (cadmium) 9. NA8077. PGIII (D008)		0 0 1 DT		45,000 EST	P
b.					
c.					
d.					
15. Special Handling Instructions and Additional Information Emergency Contact: Capital Environmental Services, Inc. 800-860-2374 CESI Job# ROAN-TFORT-2053-13652					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR: If I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name ALLIANT TECHSYSTEMS INC.		Signature <i>H.R. Blankenship</i>		Date Month Day Year 08 16 06	
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name <i>Steven Hunter</i>		Signature <i>SH</i>		Date Month Day Year 08 16 06	
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature		Date Month Day Year	
19. Discrepancy Indication Space					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. Printed/Typed Name <i>TAMARA TOWMAN</i>					
Signature <i>TAMARA TOWMAN</i>		Signature <i>AC</i>		Date Month Day Year 08 16 06	

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM IN MICHIGAN AT 1-800-252-7004 OR OUT OF STATE AT 800-333-7860 AND THE NATIONAL RESPONSE CENTER AT 1-800-424-6342 24 HOURS PER DAY.

EPA Form 8700-22 (Rev. 9/88)

TRANSPORTER COPY

EOP 6110
Rev. 11/00

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405798
EQ Account #: 6247
Manifest / BOL: 001178151JJK
Transporter: USBULK
Date: 09/07/2006
Time In: 3:59 PM
Time Out: 7:20 PM

Line	Description Generator	Qty. Unit
1 - A	H061097MDI - D006 Soli, Building 4343	23 700 TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO		
Gross: 77,600 Tare: 30,200 Net: 47,400		

NO SALVAGING ON PREMISES

Page 1 of 1

192-Z

Please print or type. (Form designed for use on ellipse (12-pitch) typewriter.)

Form Approved: OMB No. 2050-0089

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number VA1 210 020 790	2. Page 1 of 1	3. Emergency Response Phone 800-800-2374	4. Manifest Number 000178151 JJK		
5. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Redford, VA 24141		Generator's Site Address (if different than mailing address) Alliant Ammunition & Powder Co. Rt. 114 Peppers Ferry Road Redford, VA 24141					
Generator's Phone: 530 820-8743 ATTN: H.R. Blankenship		U.S. EPA ID Number PAD 987 347 515					
6. Transporter 1 Company Name US Bulk Transport Inc.		U.S. EPA ID Number					
7. Transporter 2 Company Name		U.S. EPA ID Number					
8. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 40360 N. I-94 Service Drive Bellefonte, MI 48811		U.S. EPA ID Number MID 000 724 831					
Facility's Phone: 800-692-5488							
GENERATOR	9a. HM	9b. U.S. DOT description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) RG Hazardous Waste Solid, N.O.S. (cadmium) R, NA3077, PGIII (0000)	10. Container No.	10. Container Type DT	11. Total Quantity 44,000 EST.	12. Unit Wt./Vol. P	13. Waste Codes D008
14. Special Handling Instructions and Additional Information A. H081097MDI-OTS soil/Building 4342 ERG# 171 CESI JCK# ROAD-TFORT-2853-13652							
16. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Officer's Printed/Typed Name B. R. BLANKENSHIP		Signature <i>[Signature]</i>		Month Day Year 07 06 06			
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit Date leaving U.S.:					
17. Transporter Acknowledgment of Receipt of Materials							
Transporter 1 Printed/Typed Name William J. Schaffner		Signature <i>[Signature]</i>		Month Day Year 07 06 06			
Transporter 2 Printed/Typed Name		Signature		Month Day Year			
18. Discrepancy							
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection							
18b. Alternate Facility (or Generator) Manifest Reference Number: U.S. EPA ID Number:							
Facility's Phone:							
18c. Signature of Alternate Facility (or Generator) Month Day Year							
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
20. Designated Facility Officer or Operator. Certification of receipt of hazardous materials covered by this manifest except as noted in item 18a.							
Printed Name James Bowgar		Signature <i>[Signature]</i>		Month Day Year 07 06 06			

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405751
EQ Account #: 5247
Manifest / BOL: 001178152JJJ
Transporter: USBULK
Date: 09/07/2006
Time In: 10:36 AM
Time Out: 7:08 PM

Line	Description Generator	Qty	Unit
1 - A	H081097MDI - D006 Soil, Building 4343	22,880	TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO			
Gross: 79,060 Tare: 33,300 Net: 45,760			

NO SALVAGING ON PREMISES

Page 1 of 1

TK 1925

Please print or type. (Form designed for use on 8 1/2 (12-inch) typewriter.)

Form Approved OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number VA1 210 020 730	2. Page 1 of 1	3. Emergency Response Phone 800-880-2374	4. Manifest Tracking Number 001178152 JJK
5. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141			Generator's Site Address (if different than mailing address) Alliant Ammunition & Powder Co. Rt. 114 Peppers Ferry Road Radford, VA 24141		
Generator's Phone: 848 838-8743 ATTN: H.R. Blankenship					
6. Transporter 1 Company Name US Bulk Transport Inc.			U.S. EPA ID Number PAD 887 847 815		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 46350 N. I-94 Service Drive Betherville, MI 48111			U.S. EPA ID Number MID-000 724 891		
Facility's Phone: 800-892-5489					
9a. HAZ	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	Type	11. Total Quantity	12. Unit Weight
1	RG Hazardous Waste Solid, N.O.S. (radium) 9, NA3077, PGIII (D006)	1	DR	44,000 EST.	EX008
2					
3					
4					
13. Special Handling Instructions and Additional Information: A. H081097MCHOTS 4843 ERG# 171 CESI Job# R04N-TFORT-2003-13052					
16. GENERATOR/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are disposed, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.					
Generator/Offeror's Printed/Typed Name H. R. BLANKENSHIP			Signature H.R. Blankenship		Month Day Year 07 06 06
18. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.			Port of entry/exit: Date leaving U.S.:		
17. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name John C. Elam			Signature John C. Elam		Month Day Year 07 06 06
Transporter 2 Printed/Typed Name			Signature		Month Day Year
18. Discrepancy					
10a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Package <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
Manifest Reference Number: U.S. EPA ID Number:					
19a. Alternate Facility (or Generator)					
Facility's Phone:					
19b. Signature of Alternate Facility (or Generator)					
19. Hazardous Waste Report Management Method Codes (i.e., codes for Resource waste treatment, disposal, and recycling systems)					
1.	2.	3.	4.		
1	1				
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in item 18b.					
Printed/Typed Name Tara Cooper			Signature Tara Cooper		Month Day Year 07 06 06

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405800
EQ Account #: 6247
Manifest / BOL: 001178154JJK
Transporter: USBULK
Date: 09/07/2006
Time In: 4:08 PM
Time Out: 7:27 PM

Line	Description Generator	Qty.	Unit
1 - A	H061097MDI - D006 Soil, Building 4343	22.130	TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO			
Gross: 77,700 Tare: 33,440 Net: 44,260			

NO SALVAGING ON PREMISES

Page 1 of 1

192-91

Please print or type. (Form designed for use on 6 1/2" (12 pitch) typewriter.)

Form Approved, OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number VA1 240 028 730	2. Page 1 of 1	3. Emergency Response Phone 800-860-2374	4. Manifest Tracking Number 001178154 JJK
5. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141 Generator's Phone: 540 830-8743 ATTN: H.R. Blankenship			6. Generator's Site Address (if different from mailing address) Alliant Ammunition & Powder Co. Rt. 114 Peppers Ferry Road Radford, VA 24141		
7. Transporter 1 Company Name US Bulk Transport Inc.			U.S. EPA ID Number PAD 887 847 515		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 40350 N. I-94 Service Drive Belleville, MI 48111 Facility's Phone: 800-582-5489			U.S. EPA ID Number MID 090 724 831		
9. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Generator's No.		11. Total Quantity	12. JJK WT. Vol.	13. Waste Codes
	Type				
	1		44,000 EST.	P	0000
14. Special Handling Instructions and Additional Information A. H961097MDI-OTS ext Building 4343 ERG# 171 CESI JJK# ROAN-TFORT-2053-13852					
15. GENERATOR/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in fit respects in proper condition for transport according to applicable international and national governmental regulations. I export shipment and I am the Primary Exporter. I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.					
Generator's Officer's Printed/Typed Name H. R. BLANKENSHIP			Signature H. R. Blankenship		Month Day Year 10/06/06
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.			Port of entry/exit: Date leaving U.S.:		
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name Signature Transporter 2 Printed/Typed Name Signature			Month Day Year 10/06/06 Month Day Year		
18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number:					
18b. Alternate Facility (or Generator) U.S. EPA ID Number					
Facility's Phone:					
18c. Signature of Alternate Facility (or Generator)					
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)					
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a. Printed/Typed Name Signature Month Day Year 10/06/06					

EPA Form 3700-22 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405791
EQ Account #: 5247
Manifest / BOL: 001178155JJK
Transporter: USBULK
Date: 09/07/2006
Time In: 2:55 PM
Time Out: 6:46 PM

Line	Description Generator	Qty.	Unit
1 - A	H061097MDI - D006 Soil, Building 4343	23.350	TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO			
Gross: 79,940 Tare: 33,240 Net: 46,700			

NO SALVAGING ON PREMISES

Page 1 of 1

Please print or type. (Form designed for use of 4112-0100 typewriter.)

Form Approved OMB No. 2050-0089

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number VA1 210 020 780	2. Page 1 of 1	3. Emergency Response Phone 800 880 2874	4. Manifest Tracking Number 001178155 JJK
5. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141			Generator's Site Address (if different than mailing address) Alliant Ammunition & Powder Co. Rt. 114 Peppers Ferry Road Radford, VA 24141		
Generator's Phone: 540 880-8743 ATTN: H.R. Blankenship					
6. Transporter 1 Company Name US Bulk Transport Inc.			U.S. EPA ID Number PA0 887 347 515		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 49350 N. I-94 Service Drive Belleville, MI 48111			U.S. EPA ID Number MID 000 724 881		
Facility's Phone: 800-892-9489					
9a. HW	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		10. Containers	11. Total Quantity	12. Unit
	RQ Hazardous Waste Solid, N.O.S. (cadmium) R. NA8077, PGH (D000)		No. Type	45,000	P
13. Waste Codes D000					
14. Special Handling Instructions and Additional Information A. H081087MDI-OTS soil Building 4343 EROW 171 CESI JOHNS ROAD-PORT-2503-13052					
15. GENERATOR/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/cleaned, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (6) (i) is a large quantity generator or (ii) (7) (i) am a small quantity generator is true.					
Generator's/Officer's Printed/Typed Name H. R. BLANKENSHIP			Signature H. R. Blankenship		Month Day Year 09/06/06
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of export: Date leaving U.S.:					
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name James J. Jorgensen Transporter 2 Printed/Typed Name Signature Month Day Year 09/06/06					
18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number: 18b. Alternate Facility (or Generator) U.S. EPA ID Number: Facility's Phone: 18c. Signature of Alternate Facility (or Generator) Month Day Year					
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) 1. H-109 2. 3. 4.					
20. Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18b Signature Month Day Year 09/06/06					

EPA Form 0700-22 (Rev. 3-05). Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 406379
EQ Account #: 5247
Manifest / BOL: 001178126JJK
Transporter: USBULK
Date: 09/19/2006
Time In: 10:25 AM
Time Out: 11:06 AM

Line	Description Generator	Qty.	Unit
1 - A	H081097MDI - D006 Soil, Building 4343	22.020	TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO			
Gross: 77,200 Tare: 33,160 Net: 44,040			

NO SALVAGING ON PREMISES

Page 1 of 1

Please print or type. (Form designed for use on white (12-inch) typewriter.)

Form Approved: OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number VA1 210 020 730	2. Page 1 of 1	3. Emergency Response Phone 800 850 2372	4. Manifest Tracking Number 001078126 JJK
5. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141			Generator's Site Address (if different from mailing address) Alliant Ammunition & Powder Co. Rt. 114 Peppers Ferry Road Radford, VA 24141		
6. Generator's Phone: 540 630 6743 ATTN: H.R. Blankenship					
7. Transporter 1 Company Name US Bulk Transport Inc.			U.S. EPA ID Number PA0 687 347 018		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 40350 N. I-94 Service Drive Bellefonte, MI 48111			U.S. EPA ID Number MI0 008 724 821		
Facility's Phone: 800 592 5489					
9a. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No. Type	11. Yards Quantity	12. Unit Vol./Wt.	13. Waste Codes	
1. RQ Hazardous Waste Solid, N.O.S. (cadmium) B, NA3077, PGIII (D006)	0 0 1	16,000 EST.		D006	
2.					
3.					
4.					
14. Special Handling Instructions and Additional Information A. H061097MDI-OTS soil Building 4343.EROM 171 CESIROANDKE-PORT-2563-13652					
15. GENERATOR/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, hazard class, ID number, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (1) (i) am a large quantity generator) or (b) (1) am a small quantity generator) is true.					
Generator's/Officer's Printed/Typed Name RY. H. R. BLANKENSHIP, TRAFFIC SPECIALIST					
Signature [Signature]					
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.: Month Day Year 10 21 2006					
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name R.J. Pollock Signature [Signature] Month Day Year 10 21 2006 Transporter 2 Printed/Typed Name Signature Month Day Year					
18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
18b. Alternate Facility (or Generator) Manifest Reference Number: U.S. EPA ID Number: Facility's Phone: Signature of Alternate Facility (or Generator): Month Day Year					
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) 1 2 3 4 20. Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in item 18b Printed/Typed Name Signature Month Day Year					

EPA Form 500-22 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 406384
EQ Account #: 5247
Manifest / BOL: 001178127JJK
Transporter: USBULK
Date: 09/19/2006
Time In: 10:59 AM
Time Out: 11:56 AM

Line	Description Generator	Qty.	Unit
1 - A	H061097MDI - D006 Soil, Building 4343 VA1210020730 ALLIANT AMMUNITION AND POWDER CO Gross: 79,960 Tare: 32,440 Net: 47,520	23.760	TONS

NO SALVAGING ON PREMISES

Page 1 of 1

145

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved: OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number VA1 210 020 730	2. Page 1 of 1	3. Emergency Response Phone 800-660-2374	4. Manifest Tracking Number 001178127 JJK	
5. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141				Generator's Site Address (if different than mailing address) Rt. 114 Peppers Ferry Road Radford, VA 24141		
6. Generator's Phone 840-830-8743 ATTN: H.R. Blankenship				U.S. EPA ID Number PAD-987 347 515		
7. Transporter 1 Company Name US Bulk Transport Inc.				U.S. EPA ID Number		
8. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 43300 N. 1-34 Service Drive Belleville, MI 48111				U.S. EPA ID Number MID 003 724 651		
9. Facility's Phone 800-592-5469						
10. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) 1. RQ Hazardous Waste Solid, N.O.S. (cadmium) 9. NA3077, PGIII (D008)				10. Containers No. Type 0 0 1 DT		11. Total Quantity 44,000 EST
				12. U.S. Waste Code P		13. Waste Codes D008
14. Special Handling Instructions and Additional Information A. H061067MDI-OTS sol. Building 4343 ERGM 171				CESI John ROAN-TPORT-0803-13087		
15. GENERATOR/SHIPPER'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator/Shipper's Printed/Typed Name ALLIANT TECHNOLOGIES INC.				Signature <i>[Signature]</i>		Month Day Year 09/18/06
16. International Shipment: <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.				Port of entry/exit: Date leaving U.S.:		
17. Transporter Acknowledgment of Receipt of Materials						
Transporter 1 Printed/Typed Name Mark S. Reynolds				Signature <i>[Signature]</i>		Month Day Year 09/18/06
Transporter 2 Printed/Typed Name				Signature		Month Day Year
18. Discrepancy						
19a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
19b. Alternate Facility (or Generator) Manifest Reference Number: U.S. EPA ID Number:						
Facility's Phone:						
19c. Signature of Alternate Facility (or Generator)						
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19a						
Signature <i>[Signature]</i>				Month Day Year 09/19/06		

EPA Form 8700-22 (Rev. 3-00) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 406275
EQ Account #: 5247
Manifest / BOL: 001178130JJK
Transporter: USBULK
Date: 09/18/2006
Time In: 10:08 AM
Time Out: 11:33 AM

Line	Description Generator	Qty.	Unit
1 - A	H061097MDI - D006 Soil, Building 4343	22.530	TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO			
Gross: 74,620 Tare: 29,560 Net: 45,060			

NO SALVAGING ON PREMISES

#551

Please print or type. (Form designed for use on office (12-pitch) typewriter.)

Form Approved OMB No. 2050-0080

1. Generator ID Number VA1 210 020 730		2. Page 1 of 1	3. Emergency Response Phone 800-800-2374	4. Manifest Tracking Number 001178130 JJK
5. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141		Generator's Site Address (if different than mailing address) Alliant Ammunition & Powder Co. Rt. 110 Peppers Ferry Road Radford, VA 24141		
6. Generator's Phone: 840 830-8743 ATTN: H.R. Blankenship				
8. Transporter 1 Company Name US Bulk Transport Inc.		U.S. EPA ID Number PAC 927 347 816		
7. Transporter 2 Company Name		U.S. EPA ID Number		
8. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 49600 N. L-94 Service Drive Belleville, MI 48111		U.S. EPA ID Number MI0 000 724 831		
Facility's Phone: 800-242-4343				
9a. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) RO Hazardous Waste Solid, N.O.S. (cadmium) 9, NA3077, PGIII (D000)		9b. Quantity 0 0 1		9c. Waste Codes D000
14. Special Handling Instructions and Additional Information A. H001097MDI-DTS soil Building 4343 ERGW 471				
CESI 306 ROM-TPORT-2603-13862				
16. GENERATOR/SIGNOFFER'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled, secured, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste identification statement identified in 49 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.				
Generator's/Officer's Printed/Typed Name ALLIANT TECHSYSTEMS INC. Signature <i>H.R. Blankenship</i> Month 10 Day 9 Year 06				
BY: H. R. BLANKENSHIP, TRAFFIC SPECIALIST				
18. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Part of entry/out: Date leaving U.S.:				
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name BRYAN HENRY Signature <i>Bryan Henry</i> Month 10 Day 15 Year 06				
Transporter 2 Printed/Typed Name Signature Month Day Year				
18. Discrepancy				
18a. Discrepancy Indication (Spec) <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection				
18b. Alternate Facility (or Generator) Manifest Reference Number: U.S. EPA ID Number:				
Facility's Phone: 18c. Signature of Alternate Facility (or Generator) Month Day Year				
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)				
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a. Printed/Typed Name Signature Month Day Year				

EPA Form 700-22 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405936
EQ Account #: 5247
Manifest / BOL: 001178137JJK
Transporter: USBULK
Date: 09/11/2006
Time In: 4:33 PM
Time Out: 5:10 PM

Line	Description Generator	Qty	Unit
1 - A	H061097MDI - D008 Sol, Building 4343	24.210	TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO			
Gross: 77,820 Tare: 29,400 Net: 48,420			

NO SALVAGING ON PREMISES

Page 1 of 1

Form Approved: OMB No. 2050-0038

Please print or type. (Form designed for use on elite (12-pitch) typewriter).

1. Generator ID Number: **VA1 210 020 730**

2. Page 1 of 1

3. Emergency Response Phone: **800-550-2574**

4. Manifest Tracking Number: **001178137 JJK**

5. Generator's Name and Mailing Address:
Alliant Ammunition & Powder Co.
PO Box 1, Radford, VA 24141
 Generator's Phone: **540 830-8743 ATTN: H.R. Blankenship**

6. Transporter 1 Company Name: **US Bulk Transport Inc.**

7. Transporter 2 Company Name:

8. Designated Facility Name and Site Address:
Michigan Disposal Waste Treatment Plant
49300 N. L-84 Service Drive
Belleville, MI 48111
 Facility's Phone: **800-592-5450**

9. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)):
RG Hazardous Waste Solid, N.O.S. (cadmium) 9, NA3077, PGIII (D008)

10. Containers:
 No. **1** Type **DT**

11. Total Quantity:
46,000 EST.

12. Unit:
P

13. Waste Codes:
D008

14. Special Handling Instructions and Additional Information:
A. H951087MDI-01S soil Building 4343 ERG# 171

15. GENERATOR'S/CERTIFIER'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations if export shipment and I am the Primary Exporter. I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Receipt. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator/Certifier's Printed/Typed Name: **H. R. BLANKENSHIP**

Signature: *H. R. Blankenship*

Month **09** Day **08** Year **06**

16. International shipments: ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____

Transporter signature (for exports only):

17. Transporter Acknowledgment of Receipt of Materials:
 Transporter 1 Printed/Typed Name: **BRIAN HENRY**
 Signature: *Brian Henry*
 Transporter 2 Printed/Typed Name: _____

18. Discrepancy:
 18a. Discrepancy Indication Space: ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

18b. Manifest Reference Number: _____ U.S. EPA ID Number: _____

18c. Alternate Facility (or Generator):
 Facility's Phone: _____
 Signature of Alternate Facility (or Generator): _____

19. Hazardous Waste Report Management Method Codes (U.S. codes for hazardous waste treatment, disposal, and recycling systems):
 1. _____ 2. _____ 3. _____ 4. _____

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in item 20a.
 Signature: *[Signature]*

Month **09** Day **08** Year **06**

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49360 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405937
EQ Account #: 5247
Manifest / BOL: 001178138JJJ
Transporter: USBULK
Date: 09/11/2006
Time In: 4:37 PM
Time Out: 5:34 PM

Line	Description Generator	Qty. Unit
1 - A	H061097MDJ - D006 Soil, Building 4343	23,780 TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO		
Gross: 80,320 Tare: 32,760 Net: 47,560		

NO SALVAGING ON PREMISES

Page 1 of 1

Please print or type. (Form designed for use on site (12-plate) typewriter.)

Form Approved: EMB No. 2050-0039

1. Generator ID Number VA1 210 020 730		2. Page 1 of 1	3. Emergency Response Phone 800-565-2374	4. Manifest Tracking Number 001178138 JJK	
5. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. P.O. Box 1, Radford, VA 24141					
Generator's Phone: 840 830-8748 ATTN: H.R. Blankenship					
6. Transporter 1 Company Name US Bulk Transport Inc.			U.S. EPA ID Number PA0 987 347 515		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 49300 N. I-94 Service Drive Belleville, MI 48111			U.S. EPA ID Number MI0 000 724 581		
Facility's Phone: 800-682-5499					
9. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers	11. Total Quantity	12. Unit Wt/Lbs	13. Waste Codes	
	No.	Type			
	1	OT	46,000 EST	P	D008
	2				
	3				
14. Special Handling Instructions and Additional Information A. H021027MDI-OTS soil Building 434S ER04 171					
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled, discarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (1) is a large quantity generator or (b) (1) is a small quantity generator is the:					
Generator's/Offeror's Printed/Typed Name H. R. BLANKENSHIP		Signature <i>H. R. Blankenship</i>		Month: 09 Day: 08 Year: 06	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of origin: Date leaving U.S.:					
17. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name <i>Chris Beers</i>		Signature <i>Chris Beers</i>		Month: 10 Day: 08 Year: 06	
Transporter 2 Printed/Typed Name		Signature		Month: Day Year	
18. Discrepancy					
19a. Discrepancy Indication Species <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
Manifest Reference Number: U.S. EPA ID Number					
19b. Alternate Facility (or Generator)					
Facility's Phone: Month: Day Year					
19c. Signature of Alternate Facility (or Generator)					
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)					
1					
2					
3					
4					
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a					
Printed/Typed Name <i>Chris Beers</i>		Signature <i>Chris Beers</i>		Month: 10 Day: 08 Year: 06	

EPA Form 8700-02 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405921
EQ Account #: 5247
Manifest / BOL: 001178139JJK
Transporter: USBULK
Date: 09/11/2006
Time In: 2:38 PM
Time Out: 4:06 PM

Line	Description Generator	Qty	Unit
1 - A	H061097MDI - D006 Soil, Building 4343	30.80	TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO			
Gross: 93,120 Tare: 32,760 Net: 60,360			

NO SALVAGING ON PREMISES

Page 1 of 1

Please print/type. (Form designed for use on 12-pitch typewriter.)

Form Approved, OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number VA1 210 030 730	2. Page 1 of 1	3. Emergency Response Phone 800-580-2374	4. Manifest Tracking Number 001178139 JJK
5. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141 Generator's Phone: 540 830-8743 ATTN: H.R. Blankenship			Generator's Site Address (if different than mailing address) Alliant Ammunition & Powder Co. Rt. 114 Peppers Ferry Road Radford, VA 24141		
6. Transporter 1 Company Name US Bulk Transport Inc.			U.S. EPA ID Number PAD 987 347 615		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 49350 N. I-94 Service Drive Belleville, MI 48111 Facility's Phone: 300-592-6489			U.S. EPA ID Number 41D 000 734 891		
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		10. Containers No.	Type	11. Total Quantity
	1. RC Hazardous Waste Solid, N.D.S. (cadmium) 9, NA9077, PGIII (D006)		1	DT	46,000 EST
12. Waste Codes					
D006					
13. Special Handling Instructions and Additional Information A. H001097MDI-OTS soil Building 4343 EROW 171 CES: JMWRCAN-TFORT-2003-13552					
15. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/stenciled, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.					
Signature of Generator's Official/Typed Name H. R. BLANKENSHIP Signature: <i>H. R. Blankenship</i> Month: 09 Day: 08 Year: 06					
16. Informational Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of export: Date leaving U.S.:					
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name: Signature: Month: Day: Year: Transporter 2 Printed/Typed Name: Signature: Month: Day: Year:					
18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number: U.S. EPA ID Number:					
18b. Alternate Facility (or Generator) Facility's Phone: Signature of Alternate Facility (or Generator): Month: Day: Year:					
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) 1. 2. 3. 4.					
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a Printed/Typed Name: Signature: Month: Day: Year:					

EPA Form 6700-22 (Rev. 3-06) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405834
EQ Account #: 5247
Manifest / BOL: 001178140JJK
Transporter: USBULK
Date: 09/11/2006
Time In: 4:25 PM
Time Out: 5:07 PM

Line	Description Generator	Qty	Unit
1 - A	H061097MDI - D006 Soli, Building 4343	18,040	TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO			
Gross: 68,720 Tare: 32,640 Net: 36,080			

NO SALVAGING ON PREMISES

Page 1 of 1

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number VA1 210 020 730	2. Page 1 of 1	3. Emergency Response Phone 800-400-3874	4. Manifest Tracking Number 001178140 JJK
5. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Redford, VA 24141 Generator's Phone: 800-532-5743 ATTN: H.R. Blankenship					
Generator's Site Address (if different than mailing address) Alliant Ammunition & Powder Co. Rt. 114 Hoppers Ferry Road Redford, VA 24141					
6. Transporter 1 Company Name US Bulk Transport, Inc.					
7. Transporter 2 Company Name					
8. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 40950 N. I-94 Service Drive Bellefonte, MI 48111 Facility's Phone: 800-502-0489					
9. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) RC Hazardous Waste Solid, N.O.S. (cadmium) R, NA8077, PGIII (D990)					
10. Containers		11. Total Quantity		12. Unit	
No.	Type	Quantity		Wt./Vol.	13. Waste Codes
1	DR	44,000 EST.		P	0600
2					
3					
4					
14. Special Handling Instructions and Additional Information A: H001007MDI-DTS sell Building 4343 ERG# 171 CESI JJK# ROAN-TPOBT-2252-13552					
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name; and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I export shipment and I am the Primary Exporter. I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste identification statement identified in 40 CFR 262.27(a) (1) is a large quantity generator) or (b) (1) am a small quantity generator) is true.					
Generator's/Officer's Printed/Typed Name H. R. BLANKENSHIP					
Signature H. R. Blankenship					
Month Day Year 09 08 06					
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Threats/signatures (for exports only): Port of embarkment: Date leaving U.S.:					
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name Randy D. Ringer Signature Randy D. Ringer Month Day Year 09 10 06					
Transporter 2 Printed/Typed Name Signature Month Day Year					
18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
18b. Alternate Facility (or Generator) Manifest Reference Number: U.S. EPA ID Number:					
Facility's Phone: 18c. Signature of Alternate Facility (or Generator) Month Day Year					
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) 1. 2. 3. 4.					
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest export as noted in Item 18a Signature Month Day Year					

EPA Form 6700-22 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405835
EQ Account #: 5247
Manifest / BOL: 001178141JJJ
Transporter: USBULK
Date: 09/08/2006
Time In: 1:22 PM
Time Out: 2:59 PM

Line	Description Generator	Qty.	Unit
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1 - A	H061097MDT - D008 Soil, Building 4343	18.670	TONS
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VA1210020730 ALLIANT AMMUNITION AND POWDER CO

Gross: 74,080 Tare: 36,940 Net: 37,140

NO SALVAGING ON PREMISES

Page 1 of 1

#150

Please print or type. (Form designed for use on site (12-pitch) typewriter.)

Form Approved, OMB No. 2000-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number VA 210 020 730	2. Page 1 of 1	3. Emergency Response Phone 800-800-2374	4. Manifest Tracking Number 001178141 JJK
5. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141 Generator's Phone: 840-639-8743 ATTN: H.R. Blankenship			6. Generator's Site Address (if different than mailing address) Alliant Ammunition & Powder Co. Rt. 114 Peppers Ferry Road Radford, VA 24141		
7. Transporter 1 Company Name US Bulk Transport Inc.			U.S. EPA ID Number PA0 087 247 515		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 40350 N. I-94 Service Drive Bellefonte, MI 48811 Facility's Phone: 800-802-6489			U.S. EPA ID Number MI0 000 724 531		
9a. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		10. Containers No. Type	11. Total Quantity	12. Unit (M/L/W/G)	13. Waste Codes
1. RQ Hazardous Waste Solid, N.O.S. (cadmium) 9, NA8077, PGIII (D008)		1 01	44,000 EST.	F	D008
14. Special Handling Instructions and Additional Information A. H001007MO-OTS soil Building 4343 ERON 171		CESIROANOKE-PORT-2003-13202			
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded and are in all respects in proper condition for transport according to applicable federal, state and national governmental regulations. If export, I certify that the waste manifest complies with 40 CFR 262.27(e) (if I am a large quantity generator) or (f) (if I am a small quantity generator) as applicable.					
Generator's/Officer's Printed/Typed Name H. R. BLANKENSHIP					
Signature: <i>H. R. Blankenship</i> Month: 09 Day: 07 Year: 06					
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of export: Date leaving U.S.:					
17. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name Chip Reynolds			Signature: <i>Chip Reynolds</i> Month: 09 Day: 07 Year: 06		
Transporter 2 Printed/Typed Name			Signature: Month: Day: Year:		
18. Discrepancy					
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
18b. Alternate Facility (or Generator) Manifest Reference Number: U.S. EPA ID Number:					
Facility's Phone: 10c. Signature of Alternate Facility (or Generator) Month: Day: Year:					
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)					
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a					
Printed/Typed Name: JAMES POWELL			Signature: <i>James Powell</i> Month: Day: Year:		

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405859
EQ Account #: 5247
Manifest / BOL: 01178142JJK
Transporter: USBULK
Date: 09/08/2006
Time In: 5:04 PM
Time Out: 8:31 PM

Line	Description Generator	Qty. Unit
1 - A	H061097MDI - D006 Soil, Building 4343 VA1210020730 ALLIANT AMMUNITION AND POWDER CO Gross: 77,800 Tare: 32,560 Net: 45,240	22,420 TONS

NO SALVAGING ON PREMISES

Page 1 of 1

Please print or type. (Form designed for use on size (12-inch) typewriter.)

Form Approved OMB No. 2080-0080

1. Generator ID Number VA1 210 020 730		2. Page 1 of 1		3. Emergency Response Phone 800-860-2374		4. Manifest Tracking Number 001178142 JJK	
5. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141				Generator's Site Address (if different from mailing address) Alliant Ammunition & Powder Co. Rt. 114 Peppers Ferry Road Radford, VA 24141			
6. Generator's Phone: 540-830-8748 ATTN: H.R. Blankenship				U.S. EPA ID Number PA00087 007 518			
8. Transporter 1 Company Name US Bulk Transport Inc.				U.S. EPA ID Number			
7. Transporter 2 Company Name				U.S. EPA ID Number			
9. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 49350 N. L-94 Service Drive Belleville, MI 48111				U.S. EPA ID Number MI00000 728 931			
Facility's Phone: 800-692-5499							
10. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))				11. Containers No. Type		12. Unit Wt./Vol.	
1. RG Hazardous Waste Solid, N.O.S. (cadmium) 9, NA3077, PGIII (D008)				1. 1 EXT		1. 43,000 EST.	
13. Waste Codes				14. Special Handling Instructions and Additional Information			
				A. H001097MDI-OTS soil Building 4343 ERG# 171		CESI Job# ROAN-TFORT-2053-13652	
15. GENERATOR'S/OWNER'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/certificated, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (i) (I am a large quantity generator) or (ii) (I am a small quantity generator) is true.							
Generator's/Owner's Printed/Typed Name H. R. BLANKENSHIP				Signature <i>H. R. Blankenship</i>		Month Day Year 09 07 06	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.				Port of entry/exit Date leaving U.S.:			
Transporter signature (for exports only):							
17. Transporter Acknowledgment of Receipt of Materials							
Transporter 1 Printed/Typed Name Mark J. Reynolds				Signature <i>Mark J. Reynolds</i>		Month Day Year 09 07 06	
Transporter 2 Printed/Typed Name				Signature		Month Day Year	
18. Discrepancy							
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection							
Manifest Reference Number: U.S. EPA ID Number							
18b. Alternate Facility (or Generator)							
Facility's Phone:							
18c. Signature of Alternate Facility (or Generator)							
Month Day Year							
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1. 2. 3.							
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest (except as noted in item 18a)							
Printed/Typed Name <i>Carl...</i>				Signature <i>Carl...</i>		Month Day Year 09 07 06	

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405850
EQ Account #: 5247
Manifest / BOL: 001178143JJK
Transporter: USBULK
Date: 09/06/2006
Time In: 3:26 PM
Time Out: 4:26 PM

Line	Description Generator	Qty.	Unit
1 - A	H061097MDI - D006 Soli, Building 4343	22.540	TONS
	VA1210020730 ALLIANT AMMUNITION AND POWDER CO		
	Gross: 78.820 Tare: 33.540 Net: 45.280		

NO SALVAGING ON PREMISES

Page 1 of 1

Please print or type. (Form designed for use on elite (12-pin) typewriter)

Form Approved OMB No. 2050-0029

1. Generator ID Number UNIFORM HAZARDOUS WASTE MANIFEST VA1-210 020 730		2. Page 1 of 1	3. Emergency Response Phone 800-800-2374	4. Manifest Tracking Number 001178143 JJK
5. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. P.O. Box 1, Radford, VA 24141 Generator's Phone: 540-630-9743 ATTN: H.R. Blankenship		6. Generator's Site Address (if different than mailing address) Alliant Ammunition & Powder Co. P.O. Box 14 Peppers Ferry Road Radford, VA 24141		
8. Transporter 1 Company Name U.S. Bulk Transport Inc.		U.S. EPA ID Number PAC 587 347 515		
7. Transporter 2 Company Name		U.S. EPA ID Number		
8. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 49350 N. I-94 Service Drive Belleville, MI 48111 Facility's Phone: 800-502-6480		U.S. EPA ID Number MD 000 724 931		
9a. HMI	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, (5) Minimize, and Packing Group (if any)) RQ Hazardous Waste Solid, N.O.S. (cadmium) P. NA3077, PGIII (D008)	10. Containers No. 1 Type DT	11. Total Quantity 46,000 EST	12. Unit Wt/Lb
		13. Waste Codes D008		
14. Special Handling Instructions and Additional Information A. H061097MDI-OTS soil Building 4343 ERG# 171 CESI Job# ROAN-TFORT-2853-13562				
15. GENERATOR/SUPPLIER'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.22(e) (if I am a large quantity generator) or (f) (if I am a small quantity generator) is true.				
Generator's/Supplier's Printed/Typed Name H. R. BLANKENSHIP		Signature <i>H.R. Blankenship</i>		Month Day Year 09 07 06
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Transporter signature (for exports only): Date leaving U.S.:				
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name RANDALL W. BURNETTE		Signature <i>Randall W. Burnette</i>		Month Day Year 12 18 06
Transporter 2 Printed/Typed Name		Signature		Month Day Year
18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number: U.S. EPA ID Number				
18b. Alternate Facility (or Generator) Facility's Phone: U.S. EPA ID Number				
19. Signature of Alternate Facility (or Generator) Month Day Year				
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)				
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest (except as noted in Item 18a) Printed/Typed Name: <i>Eric K...</i> Signature: <i>Eric K...</i> Month Day Year 12 18 06				

EPA Form 3700-22 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405855
EQ Account #: 5247
Manifest / BOL: 001178144JJK
Transporter: USBULK
Date: 09/08/2006
Time In: 4:24 PM
Time Out: 5:02 PM

Line	Description Generator	Qty. Unit
1 - A	H061097MDI - D006 Soil, Building 4343	26.140 TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO		
Gross: 83,780 Tare: 31,500 Net: 52,280		

NO SALVAGING ON PREMISES

Page 1 of 1

Please print or type. (Form designed for use on site (12-pick) typewriter).

Form App.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: VA1 210 020 730

2. Page 1 of 1

3. Emergency Response Phone: 800-368-2374

4. Manifest Tracking Number: 001178144 JJK

5. Generator's Name and Mailing Address: Alliant Ammunition & Powder Co., PO Box 1, Redford, VA 24141

Generator's Phone: 540 635-2743 ATTN: H.R. Blankenship

Generator's Site Address (if different than mailing address): Alliant Ammunition & Powder Co., Rt. 114 Peppers Ferry Road, Redford, VA 24141

6. Transporter 1 Company Name: US Bulk Transport Inc.

U.S. EPA ID Number: PAD 057 347 015

7. Transporter 2 Company Name:

U.S. EPA ID Number:

8. Designated Facility Name and Site Address: Michigan Disposal Waste Treatment Plant, 40350 N. I-94 Service Drives, Belleville, MI 48111

Facility's Phone: 800-592-5458

U.S. EPA ID Number: MID 060 724 831

9a. HM: 1

9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)): RQ Hazardous Waste Solid, N.O.S. (cadmium) @, NA3077, PGIII (D000)

10. Containers: No. 1, Type: DT

11. Total Quantity: 46,000 EST

12. Unit: P

13. Waste Codes: D000

14. Special Handling Instructions and Additional Information: A. H001027MDI-CYS soil Building 4343 ERGM 171

CESIROANDKE-2052-13052

15. GENERATOR'S/OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport, according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Operator's Printed/Typed Name: H. R. BLANKENSHIP

Signature: [Signature]

Month: 09, Day: 07, Year: 06

16. International Shipments: ☐ Import to U.S., ☐ Export from U.S.

Transporter signature (for exports only): [Signature]

Port of entry/exit: [Blank]

Date leaving U.S.: [Blank]

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: MIARIC D. RAGER

Signature: [Signature]

Month: 09, Day: 07, Year: 06

Transporter 2 Printed/Typed Name:

Signature:

Month: [Blank], Day: [Blank], Year: [Blank]

18. Discrepancy:

18a. Discrepancy Indication Space: ☐ Quantity, ☐ Type, ☐ Residue, ☐ Partial Rejection, ☐ Full Rejection

18b. Alternate Facility (or Generator):

Manifest Reference Number:

U.S. EPA ID Number:

Facility's Phone:

19a. Signature of Alternate Facility (or Generator):

Month: [Blank], Day: [Blank], Year: [Blank]

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems):

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a

Printed/Typed Name: [Signature]

Signature: [Signature]

Month: 12, Day: 18, Year: 06

EPA Form 3700-22 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405819
EQ Account #: 5247
Manifest / BOL: 001178145JJK
Transporter: USBULK
Date: 09/08/2006
Time In: 10:39 AM
Time Out: 11:32 AM

Line	Description Generator	Qty.	Unit
1 - A	H061097MDI - D006 Soil, Building 4343	22.550	TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO			
Gross: 76,480 Tare: 31,380 Net: 45,100			

NO SALVAGING ON PREMISES

Page 1 of 1

Please print or type. (Form designed for use on efile (12-pitch) typewriter.)

Form Approved OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number VA1 210 020 730	2. Page 1 of 1	3. Emergency Response Phone 800-660-2374	4. Manifest Tracking Number 001178145 JJK
5. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141			6. Generator's Site Address (if different than mailing address) Alliant Ammunition & Powder Co. Rt. 114 Peppers Ferry Road Radford, VA 24141		
7. Generator's Phone 840 830-8743, ATTN: H.R. Blankenship			10. EPA ID Number PAC0987347515		
8. Transporter 1 Company Name US Bulk Transport Inc.			U.S. EPA ID Number		
9. Transporter 2 Company Name No			U.S. EPA ID Number		
11. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 40300 N. I-94 Service Drive Belleville, MI 48111			U.S. EPA ID Number MI00000724831		
Facility's Phone: 800-502-0480					
12. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	1. U.S. DOT Description	2. Containers	3. Total Quantity	4. U.S. DOT Description	5. Waste Codes
	RQ Hazardous Waste Solid, N.O.S. (cadmium) B, NA3077, FGM (P006)	1	45,000 EST.		
13. Special Handling Instructions and Additional Information A. HDB1007MDI-QTS 2nd Building 4383 ECRH 171 CESIROANDKE					
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I certify that the waste minimization statement identified in 40 CFR 261.27(b) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.					
15. Generator's/Officer's Printed/Typed Name H. R. BLANKENSHIP					
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: 1. H.R. Blankenship Date leaving U.S.: 09/07/06					
17. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name: Jim White Signature: Jim White Month: 09 Day: 07 Year: 06					
Transporter 2 Printed/Typed Name: Signature: Month: Day: Year:					
18. Discrepancy					
18a. Discrepancy Indication Spec <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
18b. Alternate Facility (or Generator) Manifest Reference Number: U.S. EPA ID Number:					
Facility's Phone: 18c. Signature of Alternate Facility (or Generator): Month: Day: Year:					
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)					
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18b. Printed/Typed Name: Tommy M. Jones Signature: Tommy M. Jones Month: 09 Day: 07 Year: 06					

EPA Form 3500-25 (Rev. 5-05) (Previous editions are obsolete.)

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405820
EQ Account #: 5247
Manifest / BOL: 001178146JJK
Transporter: USBULK
Date: 09/08/2006
Time In:
Time Out: 11:26 AM

Line Description
Generator

Qty. Unit

1 - A H061097MDI - D006 Soil, Building 4343

22.080 TONS

VA1210020730 ALLIANT AMMUNITION AND POWDER CO

Gross: 74,540 Tare: 30,380 Net: 44,160

NO SALVAGING ON PREMISES

Page 1 of 1

1024-3

Please print or type. (Form designed for use on 12-pitch typewriter.)

Form Approved OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number VA1 210 020 738	2. Page 1 of 1	3. Emergency Response Phone 800-500-2273	4. Manifest Tracking Number 0011178146 JJK
5. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141 Generator's Phone: 540-630-8743 ATTN: H.R. Blankenship		6. Generator's Site Address (if different than mailing address) Alliant Ammunition & Powder Co. Rt. 114 Peppers Ferry Road Radford, VA 24141			
7. Transporter 1 Company Name US Bulk Transport Inc.		U.S. EPA ID Number PA0 087 347 515			
8. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 48380 N. I-04 Service Drive Belleville, MI 48111 Facility's Phone: 800-500-6480		U.S. EPA ID Number MI0 000 724 831			
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		10. Containers	11. Total Quantity	12. U.S. WASTE CODE
	RQ Hazardous Waste Solid, N.O.S. (cadmium) 9, NA3077, PGIII (Q095)		1	44,000 EST.	P
14. Special Handling Instructions and Additional Information A. MSD1087MDI-QTS soil Building 4843 ERG# 171 CESI JVAH ROAN-TPORT-2003-13652					
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (1) am a large quantity generator or (b) (1) am a small quantity generator is true.					
Generator's/Officer's Printed/Typed Name H. R. BLANKENSHIP		Signature <i>H.R. Blankenship</i>		Month Day Year 09 07 06	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:					
17. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name <i>James H. H. H.</i>		Signature <i>James H. H. H.</i>		Month Day Year 09 07 06	
Transporter 2 Printed/Typed Name		Signature		Month Day Year	
18. Discrepancy					
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Initial Rejection <input type="checkbox"/> Full Rejection					
18b. Alternate Facility (or Generator) Manifest Reference Number: U.S. EPA ID Number:					
Facility's Phone:					
18c. Signature of Alternate Facility (or Generator) Month Day Year					
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)					
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a					
Printed/Typed Name <i>James H. H. H.</i>		Signature <i>James H. H. H.</i>		Month Day Year 09 07 06	

EPA Form 3700-22 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
418 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405828
EQ Account #: 5247
Manifest / BOL: 001178147JJK
Transporter: USBULK
Date: 09/08/2006
Time In: 12:31 PM
Time Out: 1:25 PM

Line	Description Generator	Qty.	Unit
1 - A	H061097MDI - D006 Soil, Building 4343	22.650	TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO			
Gross: 78,340 Tare: 33,040 Net: 46,300			

NO SALVAGING ON PREMISES

Page 1 of 1

Please print or type. (Form designed for use on elite (12-pitch) typewriter)

Form Approved, OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number VA1 218 020 780	2. Page 1 of 1	3. Emergency Response Phone 800-560-2874	4. Manifest Tracking Number 001178147 JJK
5. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141		Generator's Site Address (if different from mailing address) Alliant Ammunition & Powder Co. Rt. 114 Peppers Ferry Road Radford, VA 24141			
Generator's Phone: 540 639-6742 ATTN: H.R. Blankenship					
6. Transporter 1 Company Name US Bulk Transport Inc.		U.S. EPA ID Number PAD 067 547 515			
7. Transporter 2 Company Name		U.S. EPA ID Number			
8. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 49350 N. I-94 Service Drive Belleville, MI 48111		U.S. EPA ID Number MID 006 724 831			
Facility's Phone: 800-692-5489					
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No. Type	11. Total Quantity	12. Unit Wt/Vol	13. Waste Codes
X ¹	EQ Hazardous Waste Solid, N.O.S. (cadmium) B. NA3077, PGIII (D008)	1 0T	114,000 EST.	P	D008
2.					
3.					
4.					
14. Special Handling Instructions and Additional Information A. H061097MD-OTS soil Building 4343 ERGM 171 CESI JJK# ROAN-TFORT-2653-13062					
15. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. (I certify that the waste minimization statement identified in 40 CFR 262.27(a) (1) I am a large quantity generator) or (b) (1) I am a small quantity generator) is true.					
Generator's/Owner's Printed/Typed Name H. R. BLANKENSHIP		Signature H. R. Blankenship		Month Day Year 09 07 06	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit: Date leaving U.S.:			
17. Transporter Acknowledgment of Receipt of Materials		Signature Signature		Month Day Year 09 07 06	
Transporter 1 Printed/Typed Name Signature		Signature		Month Day Year 09 07 06	
Transporter 2 Printed/Typed Name Signature		Signature		Month Day Year 09 07 06	
18. Discrepancy					
18a. Discrepancy Indication Space: <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
Manifest Reference Number:					
18b. Alternate Facility (or Generator)					
U.S. EPA ID Number					
Facility's Phone:					
18c. Signature of Alternate Facility (or Generator)					
Month Day Year					
18. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)					
1.	2.	3.	4.		
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a					
Printed/Typed Name Miguel P. Lopez		Signature Miguel P. Lopez		Month Day Year 09 07 06	

EPA Form 6700-22 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405833
EQ Account #: 5247
Manifest / BOL: 001178148JJK
Transporter: USBULK
Date: 09/08/2006
Time In: 12:44 PM
Time Out: 1:42 PM

Line	Description Generator	Qty.	Unit
1 - A	H081097MDI - D006 Soil, Building 4343	20.880	TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO			
Gross: 74,600 Tare: 32,840 Net: 41,760			

NO SALVAGING ON PREMISES

Page 1 of 1

Please print or type. (Form designed for use on 41x57 (12-pitch) typewriter.)

Form Approved OMB No. 2060-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number VA1 230 020 780	2. Page 1 of 1	3. Emergency Response Phone 800-660-2878	4. Manifest Tracking Number 001178148 JJK
5. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141 Generator's Phone: 540 630-8743 ATTN: H.R. Blankenship			Generator's Site Address (if different than mailing address) Alliant Ammunition & Powder Co. Rt. 114 Peppers Ferry Road Radford, VA 24141		
6. Transporter 1 Company Name US Bulk Transport Inc.			U.S. EPA ID Number PA0 987 347 616		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 49350 N. I-94 Service Drive Belleville, MI 48111 Facility's Phone: 800-592-5488			U.S. EPA ID Number MID 900 724 831		
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group, if any)		10. Containers No. Type		11. Total Quantity
	1. RQ Hazardous Waste Solid, N.O.S. (cadmium) B, NA3077, PGIII (D008)		1		44,000 EST
12. Unit (Vol./Wt.)					
13. Waste Codes					
14. Special Handling Instructions and Additional Information A. HQ0100TMDI-OTS 901 Building 4343 ERG# 171 CESI Job# ROAN-TF007-2663-13062					
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I, as the Primary Exporter, certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.					
Generator's/Officer's Printed/Typed Name H. R. BLANKENSHIP					
Signature H. R. Blankenship					
Month 09 Day 07 Year 06					
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.					
Transporter signature (for exports only): Signature Date leaving U.S.:					
17. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name David H. Spool					
Signature David H. Spool					
Month 09 Day 07 Year 06					
Transporter 2 Printed/Typed Name					
Signature					
Month Day Year					
18. Discrepancy					
19a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
19b. Alternate Facility (for Generator) Manifest Reference Number: U.S. EPA ID Number					
Facility's Phone:					
19c. Signature of Alternate Facility (for Generator)					
Month Day Year					
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)					
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in item 19g					
Signature M. J. Coward					
Month Day Year					

EPA Form 6700-22 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 405924
EQ Account #: 5247
Manifest / BOL: 001178153JJK
Transporter: USBULK
Date: 09/11/2006
Time In: 2:51 PM
Time Out: 4:23 PM

Line	Description Generator	Qty.	Unit
1 - A	H061097MDI - D006 Sol, Building 4343	21.680	TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO			
Gross: 76,940 Tare: 33,620 Net: 43,320			

NO SALVAGING ON PREMISES

Page 1 of 1

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Please print or type. (Form designed for use on electronic typewriter.)

Form Approved OMB No. 2050-0039

1. Generator ID Number VA1230020730		2. Page 1 of 1 800-555-2374	
3. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141		4. Manifest Tracking Number 001178153 JJK	
5. Generator's Phone 860-880-8743 ATTN: H.R. Blankenship		6. Generator's Site Address (if different than mailing address) Alliant Ammunition & Powder Co. Rt. 114 Peppers Ferry Road Radford, VA 24141	
7. Transporter's Name US Bulk Transport Inc.		8. U.S. EPA ID Number PA0000000000	
9. Facility's Name RO Harbison-Waters Gold, N.O. & (cadmium) S. NA5077, FOU (2000)			
10. Generator's Certification: I hereby declare that the contents of this manifest are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I export/shipped and I am the Primary Exporter. I certify that the contents of this manifest conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (1) (I am a large quantity generator) or (b) (I am a small quantity generator) is true.			
11. Generator's Signature/Typed Name H. R. BLANKENSHIP			
12. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. <input type="checkbox"/> Port of entry/exit: <input type="checkbox"/> Date leaving U.S.:			
13. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name: John T. Springer Signature: <i>[Signature]</i> Month: 9 Day: 6 Year: 06 Transporter 2 Printed/Typed Name: Signature: Month: Day: Year:			
14. Discrepancy 14a. Discrepancy Indication Specify: <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection			
15. Alternate Facility (or Generator) Facility's Name: 11111 U.S. EPA ID Number: 0911100 Facility's Phone: Signature: Month: Day: Year:			
16. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)			
17. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest (as noted in Item 14a) Printed Name: Tanya Cowan Signature: <i>[Signature]</i> Month: 09 Day: 11 Year: 06			

EPA Form 3700-22 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49360 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 406443
EQ Account #: 5247
Manifest / BOL: 001170128JJK
Transporter: USBULK
Date: 09/20/2006
Time In: 9:32 AM
Time Out: 10:19 AM

Line	Description Generator	Qty. Unit
1 - A	H061097MDI - D006 Sol, Building 4343 VA1210020730 ALLIANT AMMUNITION AND POWDER CO Gross: 80,380 Tare: 31,020 Net: 49,360	24.680 TONS

NO SALVAGING ON PREMISES

Page 1 of 1

Please print or type. Form designed for use on this (12-point) typewriter.

Print/Approved/OMB No. 2050-0039

1. Uniform Hazardous Waste Manifest		2. Page 1 of 1		3. Emergency Response Phone 800-426-2876		4. Manifest Tracking Number 001178128 JJK	
5. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141				6. Generator's EPA Address (if different than mailing address) Alliant Ammunition & Powder Co. Rt. 114 Pappas Ferry Road Radford, VA 24141			
7. Generator's Phone: 540-639-8743 ATTN: H.R. Blankenship				8. U.S. EPA ID Number EPA ID 887 247 618			
9. Transporter 1 Company Name US Bulk Transport Inc.				10. U.S. EPA ID Number			
11. Transporter 2 Company Name				12. U.S. EPA ID Number			
13. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 40950 N. I-93 Service Drive Belleville, MI 48111				14. U.S. EPA ID Number MID 000 724 851			
15. Facility's Phone: 800-502-5489				16. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))			
17. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))				18. Containers No. Type		19. Total Quantity	
1. RC Hazardous Waste Solid, N.O.S. (cadmium) 9, NA3077, PGIII (0000)				0 0 1 DT		46,000 EST.	
2.							
3.							
4.							
14. Special Handling Instructions and Additional Information A. H081007MDI-OTS soil Building 4343 ERG# 171 CESI JON ROAN-TFORT-2053-19882							
15. GENERATOR/SHIPPER'S CERTIFICATION: (I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I, the Generator/Shipper, certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator/Officer's Printed/Typed Name BY: H. R. BLANKENSHIP, TRAFFIC SPECIALIST				Signature <i>H.R. Blankenship</i>		Month Day Year 10 9 06	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.				Port of entry/exit: Date leaving U.S.:			
17. Transporter Acknowledgment of Receipt of Manifests Transporter 1 Printed/Typed Name <i>Larry Hood</i> Signature <i>Larry Hood</i> Month Day Year 10 9 06							
18. Discrepancy 18a. Discrepancy Indication (Select) <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number: U.S. EPA ID Number:							
19. Alternate Facility (or Generator) Facility's Phone: Signature of Alternate Facility (or Generator): Month Day Year:							
20. Hazardous Waste Report Management Method Code (Use codes for hazardous waste treatment, disposal, and recycling systems): 1 2 3 H H H							
21. Designated Facility Owner or Operator Certification (Check all hazardous materials covered by the manifest except as noted to item 20) Printed/Typed Name <i>John F. ...</i> Signature <i>John F. ...</i> Month Day Year 09 20 06							

EPA Form 8700-22 (Rev. 3-05). Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 406871
EC Account #: 5247
Manifest / BOL: 001178123JJK
Transporter: USBULK
Date: 09/27/2006
Time In: 10:34 AM
Time Out: 12:46 PM

Line	Description Generator	Qty.	Unit
1 - A	H061097MDI - D006 Soil, Building 4343	25,840	TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO			
Gross: 82,960 Tare: 31,280 Net: 51,680			

NO SALVAGING ON PREMISES

Page 1 of 1

Form Approved: OMB No. 2050-0039

Please print or type. (Form designed for use on 12-pitch typewriter.)

1. Generator's ID Number
VA1 210 020 730

2. Page 1 of 1
Emergency Response Phone
800-880-2374

3. Generator's Name and Mailing Address
**Alliant Ammunition & Powder Co.
PO Box 1, Radford, VA 24141**

4. Generator's Site Address (if different than mailing address)
**Alliant Ammunition & Powder Co.
Rt. 114 Peppers Ferry Road
Radford, VA 24141**

5. Generator's Phone: **540 620-8743** ATTN: **H.R. Blankenship**

6. Transporter 1 Company Name
US Bulk Transport Inc.

7. Transporter 2 Company Name

8. Designated Facility Name and Site Address
**Michigan Disposal Waste Treatment Plant
49950 N. I-94 Service Drive
Belleville, MI 48111**

9. Facility's Phone: **800-522-5489**

10. Manifest Tracking Number
001178123 JJK

11. U.S. EPA ID Number
PAL 987 347 615

12. U.S. EPA ID Number

13. U.S. EPA ID Number

14. U.S. EPA ID Number

15. U.S. EPA ID Number

16. U.S. EPA ID Number

17. U.S. EPA ID Number

18. U.S. EPA ID Number

19. U.S. EPA ID Number

20. U.S. EPA ID Number

21. U.S. EPA ID Number

22. U.S. EPA ID Number

23. U.S. EPA ID Number

24. U.S. EPA ID Number

25. U.S. EPA ID Number

26. U.S. EPA ID Number

27. U.S. EPA ID Number

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86. U.S. EPA ID Number

87. U.S. EPA ID Number

88. U.S. EPA ID Number

89. U.S. EPA ID Number

90. U.S. EPA ID Number

91. U.S. EPA ID Number

92. U.S. EPA ID Number

93. U.S. EPA ID Number

94. U.S. EPA ID Number

95. U.S. EPA ID Number

96. U.S. EPA ID Number

97. U.S. EPA ID Number

98. U.S. EPA ID Number

99. U.S. EPA ID Number

100. U.S. EPA ID Number

11. Total Quantity
44,000 EST.

12. Unit
P

13. Waste Codes
D006

14. Special Handling Instructions and Additional Information
A. H081097MDI-OT's soil Building 4343 ERG# 171

15. GENERATOR'S/CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I certify that the waste minimization statement identified in 40 CFR 263.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

16. Generator's Official Printed/Typed Name
ALLIANT TECHSYSTEMS INC.

17. International Shipments
☐ Import to U.S. ☐ Export from U.S.

18. Transporter's Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name
MARK J. R...

19. Discrepancy
19a. Discrepancy Indication Space
☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

20. Alternate Facility (or Generator)
Facility's Phone:
19b. Signature of Alternate Facility (or Generator)

21. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

22. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest receipt as noted in item 19b

23. Date of Receipt
10/2/06

24. Signature of Generator
H.R. Blankenship

25. Signature of Transporter
Mark J. R...

26. Signature of Facility Owner/Operator
...

27. Month Day Year
10 9 26 06

28. Month Day Year
10 9 26 06

29. Month Day Year
10 9 26 06

30. Month Day Year
10 9 26 06

31. Month Day Year
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43. Month Day Year
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44. Month Day Year
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81. Month Day Year
10 9 26 06

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 406870
EQ Account #: 5247
Manifest / BOL: 001178124JJK
Transporter: USBULK
Date: 09/27/2006
Time In: 10:30 AM
Time Out: 12:33 PM

Line	Description Generator	Qty.	Unit
1 - A	H061097MDI - D008 Soil, Building 4343	22.970	TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO			
Gross: 75,780 Tare: 30,620 Net: 45,140			

NO SALVAGING ON PREMISES

Page 1 of 1

544-2

Please print or type. (Form designed for use in either 12- or 15- column typewriter.)

Form Approved OMB No. 2050-0039

1. Uniform Hazardous Waste Manifest		2. Page 1 of 1		3. Emergency Response Phone No. 800-800-2374		4. Manifest Tracking Number 001178124 JJK	
5. Generator's Name and Mailing Address: Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141				6. Generator's Site Address (if different than mailing address): Attn: Ammunition & Powder Co. Rt. 114 Peppers Ferry Road Radford, VA 24141			
7. Generator's Phone: 540-630-9743 ATTN: H.R. Blankenship							
8. Transporter 1 Company Name: US Bulk Transport Inc.				U.S. EPA ID Number: PAZ 037 347 816			
9. Transporter 2 Company Name:				U.S. EPA ID Number:			
10. Designated Facility Name and Site Address: Michigan Disposal Waste Treatment Plant 4830 N. I-94 Service Drive Belleville, MI 48111				U.S. EPA ID Number: MID 000 724 831			
Facility's Phone: 313-662-5480				Facility's Fax: 313-662-5481			
11. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		12. Containers		13. Total Quantity		14. U.S. DOT Hazard Class	
X 1. RG Hazardous Waste Solid, N.O.S. (acetalum) B, NA3077, PGIII (D008)		0 0 1 DT		46,000		D008	
				EST			
15. Special Handling Instructions and Additional Information: A. H001007MDI-OTS soil Building 4843 ERG# 171 CESI Job# ROAN-TCORT 2053-13052							
16. GENERATOR/SUPPLIER'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, labeled and loaded/placed, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I warrant that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 263.27(a) (1) is a large quantity generator or (2) (3) I am a small quantity generator in this.							
Generator's Name and Title: ALLIANT TECHNOLOGIES INC. Signature: H.R. Blankenship Date: 10/12/06							
BY: H. R. BLANKENSHIP, TRAFFIC SPECIALIST Signature: H.R. Blankenship Date: 10/12/06							
17. Transporter Acknowledgment of Receipt of Material: Transporter 1 Printed/Typed Name: John D. Fergate Signature: John D. Fergate Date: 10/12/06							
Transporter 2 Printed/Typed Name: Signature: Date: 10/12/06							
18. Discrepancy							
18a. Discrepancy Indication Space: <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection							
18b. Alternate Facility (or Generator): Manifest Reference Number: U.S. EPA ID Number:							
Facility's Phone: 18c. Signature of Alternate Facility (or Generator): Month: Day: Year:							
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems):							
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18b: Signature: Date: 10/12/06							

EPA Form 6700-10 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 408866
EQ Account #: 5247
Manifest / BOL: 001178125JJK
Transporter: USBULK
Date: 00/27/2006
Time In: 10:19 AM
Time Out: 12:28 PM

Line	Description Generator	Qty.	Unit
1 - A	H061097MD1 - D006 Sol, Building 4343	24,440	TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO			
Gross: 81,600 Tare: 32,720 Net: 48,880			

NO SALVAGING ON PREMISES

Page 1 of 1

Please print or type. (Form designed for use on 8 1/2 (12-line) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's Name and Mailing Address
Alliant Ammunition & Powder Co.
PO Box 1, Radford, VA 24141

2. Generator's Phone: 800-830-8743 ATTN: H.R. Blankenship

3. Transporter's Name and Mailing Address
US Bulk Transport Inc.
1000 N. 14th Service Drive
Belleville, MI 48111

4. Designated Facility Name and Site Address
Michigan Chemical Waste Treatment Plant
48300 N. 14th Service Drive
Belleville, MI 48111

5. Facility's Phone: 800-587-3456

6. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))
RC Hazardous Waste Solid, N.O.E. (cadmium), G
NA3077, P011 (3008)

7. Containers
No. 1 Type DT Quantity 44,000 U.S. Unit P 5008

8. Special Handling Instructions and Additional Information
A. RC01007MD1-OTS soil Building 4243 ERROW 171

9. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (1) is a large quantity generator or (b) (1) I am a small quantity generator is true.

10. International Shipment
Transporter's signature (for export only) H.R. Blankenship
Export from U.S. Port of entry/exit: Date leaving U.S.: Month Day Year 10 9 2 6 10 6

11. Discrepancy
Discrepancy Indication Space Quantity Type Residue Partial Rejection Full Rejection

12. Signature of Alternate Facility (or Generator)
Signature: Art Bollock
Month Day Year 10 7 26 10 6

13. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

14. Signature of Alternate Facility (or Generator)
Signature: [Signature]
Month Day Year 10 7 26 10 6

15. Signature of Alternate Facility (or Generator)
Signature: [Signature]
Month Day Year 10 7 26 10 6

16. Signature of Alternate Facility (or Generator)
Signature: [Signature]
Month Day Year 10 7 26 10 6

17. Signature of Alternate Facility (or Generator)
Signature: [Signature]
Month Day Year 10 7 26 10 6

18. Signature of Alternate Facility (or Generator)
Signature: [Signature]
Month Day Year 10 7 26 10 6

19. Signature of Alternate Facility (or Generator)
Signature: [Signature]
Month Day Year 10 7 26 10 6

20. Signature of Alternate Facility (or Generator)
Signature: [Signature]
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21. Signature of Alternate Facility (or Generator)
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22. Signature of Alternate Facility (or Generator)
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23. Signature of Alternate Facility (or Generator)
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24. Signature of Alternate Facility (or Generator)
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25. Signature of Alternate Facility (or Generator)
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26. Signature of Alternate Facility (or Generator)
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27. Signature of Alternate Facility (or Generator)
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31. Signature of Alternate Facility (or Generator)
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32. Signature of Alternate Facility (or Generator)
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33. Signature of Alternate Facility (or Generator)
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34. Signature of Alternate Facility (or Generator)
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36. Signature of Alternate Facility (or Generator)
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64. Signature of Alternate Facility (or Generator)
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65. Signature of Alternate Facility (or Generator)
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66. Signature of Alternate Facility (or Generator)
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67. Signature of Alternate Facility (or Generator)
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68. Signature of Alternate Facility (or Generator)
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69. Signature of Alternate Facility (or Generator)
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71. Signature of Alternate Facility (or Generator)
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83. Signature of Alternate Facility (or Generator)
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86. Signature of Alternate Facility (or Generator)
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87. Signature of Alternate Facility (or Generator)
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88. Signature of Alternate Facility (or Generator)
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89. Signature of Alternate Facility (or Generator)
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90. Signature of Alternate Facility (or Generator)
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91. Signature of Alternate Facility (or Generator)
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92. Signature of Alternate Facility (or Generator)
Signature: [Signature]
Month Day Year 10 7 26 10 6

93. Signature of Alternate Facility (or Generator)
Signature: [Signature]
Month Day Year 10 7 26 10 6

94. Signature of Alternate Facility (or Generator)
Signature: [Signature]
Month Day Year 10 7 26 1

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 407220
EQ Account #: 5247
Manifest / BOL: 001178122JJK
Transporter: USBULK
Date: 10/03/2006
Time In: 11:31 AM
Time Out: 12:13 PM

Line	Description	Qty.	Unit
	Generator		
1 - A	H061097MDI - D006 Soil, Building 4343	25.340	TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO			
Gross: 82,340 Tare: 31,680 Net: 50,680			

NO SALVAGING ON PREMISES

Please print or type. (Form designed for use on 12-pitch typewriter.)

Form Approved. OMB No. 2060-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number VA1 240 020 780	2. Page 1 of 1	3. Emergency Response Phone 800-580-2374	4. Manifest Tracking Number 001178122 JJK
5. Generator's Name and Mailing Address Alliant Ammunition & Powder Co. PO Box 1, Radford, VA 24141 Bellevue's Phone: 540 630-8743 ATTN: H.R. Blankenship			Generator's Site Address (if different than mailing address) Alliant Ammunition & Powder Co. Rt. 114, Peppers Ferry Road Radford, VA 24141		
6. Transporter 1 Company Name US Bulk Transport Inc.			U.S. EPA ID Number PA0 067 347 616		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address Michigan Disposal Waste Treatment Plant 40300 N. I-94 Service Drive Bellevue's Phone: 800-580-6490 Belleville, MI 48111			U.S. EPA ID Number MID 000 724 831		
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Conditions No. Type		11. Total Quantity
	1	HQ Hazardous Waste Solid, N.O.S. (cadmium) 9, NA3077, PGIII (D008)	0 0 1 CT		47,000 (EST.)
	2				
	3				
	4				
12. Waste Codes					
13. Waste Codes					
14. Special Handling Instructions and Additional Information A. H081007MDI-OTS soil Building 4243 ERG# 171 CESI Job# RDAN-TPORT-2853-13852					
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placeholdered, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (2) (i) and a large quantity generator) or (b) (2) (i) am a small quantity generator) is true.					
Generator's/Officer's Printed/Typed Name: ALLIANT TECHSYSTEMS INC. Signature: H.R. Blankenship Date: 9-20-06					
16. International Shipments: <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: 10/02/06 Date leaving U.S.					
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name: Mark J. Ross Date: 10/02/06 Signature: M. J. Ross Transporter 2 Printed/Typed Name: Signature: Date: Month Day Year					
18. Discrepancy 18a. Discrepancy Indication Space: <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
18b. Alternate Facility (or Generator) Manifest Reference Number: U.S. EPA ID Number					
18c. Signature of Alternate Facility (or Generator) Facility's Phone: Month Day Year					
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)					
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in item 18c. Signature: Date: Month Day Year					

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

EQ-The Environmental Quality Co.
Michigan Disposal Waste Treatment Plant
49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

CAPITOL ENVIRONMENTAL - ROANOKE VA
416 SOUTH JEFFERSON ST - SUITE 208
ROANOKE, VA 24011

Receipt ID: 407655
EQ Account #: 5247
Manifest / BOL: 001178121JJK
Transporter: USBULK
Date: 10/10/2006
Time In: 11:06 AM
Time Out: 1:28 PM

Line	Description Generator	Qty.	Unit
1 - A	H061097MDI - D006 Soil, Building 4343	20.810	TONS
VA1210020730 ALLIANT AMMUNITION AND POWDER CO			
Gross: 74,780 Tare: 33,160 Net: 41,620			

NO SALVAGING ON PREMISES

Page 1 of 1

Please print or type. (Form designed for use on 8 1/2 x 11 inch typewriter.)

Form Approved OMB No. 2050-0038

1. Generator ID Number: **VA1 230 020 741**

2. Page 1 of 1

3. Emergency Response Phone: **800-260-2374**

4. Manifest Tracking Number: **001178121 JJK**

5. Generator's Name and Mailing Address:
**Alliant Ammunition & Powder Co.
PO Box 1, Radford, VA 24141**

6. Generator's Phone: **840 830-8743 ATTN: H.R. Blankenship**

7. Generator's Site Address (if different than mailing address):
**Alliant Ammunition & Powder Co.
Rt. 114 Peppers Ferry Road
Radford, VA 24141**

8. Transporter 1 Company Name: **US Bulk Transport Inc.**

9. Transporter 2 Company Name:

10. Designated Facility Name and Site Address:
**Michigan Disposal Waste Treatment Plant
49300 N. I-94 Service Drive
Bellefonte, MI 48811**

11. Facility's Phone: **800-592-5430**

12. U.S. EPA ID Number: **PA0 887 347 615**

13. U.S. EPA ID Number:

14. Special Handling Instructions and Additional Information:
A. HCS1097MDI-QTS and Building 4543 ERGM-171

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I warrant shipment and I am the Primary I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

16. Generator's/Officer's Printed/Typed Name: **H. R. BLANKENSHIP**

17. Signature: *H. R. Blankenship*

18. Month: **10**, Day: **09**, Year: **06**

19. International Shipments: ☐ Import to U.S. ☐ Export from U.S.

20. Transporter Acknowledgment of Receipt of Materials:

21. Transporter 1 Printed/Typed Name: **ART Pollock**

22. Signature: *Art Pollock*

23. Month: **10**, Day: **17**, Year: **06**

24. Transporter 2 Printed/Typed Name:

25. Signature:

26. Month: **10**, Day: **17**, Year: **06**

27. Discrepancy:

28. Discrepancy Indication: ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

29. Alternate Facility (or Generator):

30. Manifest Reference Number:

31. U.S. EPA ID Number:

32. Facility's Phone:

33. Signature of Alternate Facility (or Generator):

34. Month: **10**, Day: **17**, Year: **06**

35. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems):

36. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a.

37. Signature: *Michael Cowley*

38. Month: **10**, Day: **17**, Year: **06**

EPA Form 700-22 (Rev. 3-05) Previous editions are obsolete.

TRANSPORTER'S COPY

Hazardous Waste Profile for Soil Shipped Offsite



WASTE CHARACTERIZATION REPORT

Tracking #

☐ I authorize EQ – The Environmental Quality Company to choose the appropriate facility and method of waste management from the technologies offered at the EQ facilities identified below.

<input checked="" type="checkbox"/> Michigan Disposal Waste Treatment Plant (Stabilization and Treatment)	49350 N. I-94 Service Drive, Belleville, MI 48111 Phone: 800-592-5489 Fax: 800-592-5329	EPA ID # MID 000 724 831
<input type="checkbox"/> Wayne Disposal, Inc. Site #2 Landfill (Hazardous & PCB Waste Landfill)	49350 N. I-94 Service Drive, Belleville, MI 48111 Phone: 800-592-5489 Fax: 800-592-5329	EPA ID # MID 048 090 633
<input type="checkbox"/> EQ Detroit, Inc. (Stabilization, Wastewater Treatment)	1923 Frederick Street, Detroit, MI 48211 Phone: (313) 923-0080 Fax: 313-923-3375	EPA ID # MID 980 991 566
<input type="checkbox"/> EQ Resource Recovery, Inc. (Solvent Recycling, Fuel Blending, WW Treatment)	36345 Van Born Road, Romulus, MI 48174 Phone: 866-373-8357 Fax: 734-326-4033	EPA ID # MID 060 975 844
<input type="checkbox"/> EQ North Carolina (Stabilization, Treatment, Labpack Decommissioning)	1005 Investment Blvd, Apex, NC 27502 Phone: 919-363-4700 Fax: 919-363-4714	EPA ID # NCD 982 170 292
<input type="checkbox"/> EQ Florida, Inc. (Drum Consolidation, Labpack Decommissioning)	7202 East 8 th Ave, Tampa, FL 33619 Phone: 813-623-5463 Fax: 813-628-0842	EPA ID # FLD 981 932 494
<input type="checkbox"/> EQ Transfer & Processing (Drum Transfer/Universal Waste Handling)	2000 Ferry Street, Detroit, MI 48211 Phone: 313-923-0080 Fax: 313-922-8419	EPA ID # MIK 939 928 313
<input type="checkbox"/> EQ Indianapolis (Drum Transfer/Non-Hazardous Waste Processing)	4000 West 10 th Street, Indianapolis, IN 46222 Phone: 317-247-7160 Fax: 317-247-7170	EPA ID # IND 161 049 309
<input type="checkbox"/> EQ Atlanta (Drum Transfer/Non-Hazardous Waste Processing)	5600 Fulton Industrial Blvd SW, Atlanta, GA 30336 Phone: 404-494-3520 Fax: 404-494-3560	EPA ID # GAR 000 039 776
<input type="checkbox"/> EQ Augusta, Inc. (Wastewater Treatment)	3920 Goshen Industrial Blvd, Augusta, GA 30906 Phone: 706-771-9100 Fax: 706-771-9124	EPA ID # GAR 000 011 817

Waste Common Name: D006 Soil, Building 4343

Section 1 – Generator & Customer Information

SIC/NAICS*

Generator EPA ID # VA1 210 020 730

Generator Alliant Techsystems Inc.

Facility Address Rt. 114 Peppers Ferry Road

City Radford State VA Zip 24141

County Pulaski

Mailing Address PO Box 1

City Radford State VA Zip 24141

Generator Contact Jerry Redder/ Jeremy Flint

Title Project Engr/ Lead Compliance Eng

Phone 540-639-7668 Fax 540-639-8136

*For a list of NAICS codes, please refer to Section 9 of the EQ Resource Guide.

Internal Use Only: EQ Division

EQ Customer No. 5247

Invoicing Company Capitol Environmental Services, Inc.

Address 15C Trolley Square

City Wilmington State DE Zip 19806

Country USA

Invoicing Contact Terri Fort/ Tammy Crotty

Phone 540-777-6547 Fax 540-777-6549

Technical Contact same

Phone Fax

Mobile Pager

E-mail terri.fort@capitol-environmental.com

Section 2 – Shipping & Packaging Information

2.1) Shipping Volume & Frequency 1000 tons

☒ One Time Only ☐ Year ☐ Quarter ☐ Month

2.2) DOT Shipping Name RQ Hazardous Waste Solid, NOS (cadmium),9, NA3077, PGIII (D006)

2.3) Is this waste surcharge exempt? ☐ Yes ☒ No

If yes, please attach a surcharge exemption form, found in Section 2 of the EQ Resource Guide.

2.4) Packaging (check all that apply)

☐ Bulk Solid (Yd³ < 2000 lbs/yd³)

☒ Bulk Solid (Ton >2000 lbs/yd³)

☐ Bulk Liquids (Gallon)

☐ Totes, Size

☐ Cubic Yard Boxes/Bags

☐ Drums, Size

☐ Other (palletized, 5 gal. Pail, etc.)

Quoted bulk disposal charges for solid materials will be billed by the cubic yard, if the waste density is less than 2,000lbs./cubic yard. If waste density is greater than 2,000 lbs./cubic yard, then bulk disposal charges will be billed by the ton, regardless of the approved container.

Section 3 – Physical Characteristics

3.1) Color brown 3.2) Odor mild

3.3) Does this waste contain any "Potentially Odorous Constituents" as defined in the EQ Resource Guide? (Section 3) ☐ Yes ☒ No

3.4) Physical State at 70°F:

☒ Solid ☐ Dust/Powder ☐ Liquid ☐ Sludge
☐ ≤2 ☐ 2.1-4.9 ☒ 5-10 ☐ 10.1-12.4 ☐ ≥12.5
☐ <90°F ☐ 90-140°F ☐ 140-199°F ☒ >200°F

3.5) What is the pH of this waste?

3.6) What is the flash point of this waste?

3.7) Does this waste contain? (check all that apply)

☐ Biodegradable Sorbants ☐ Amines ☐ Ammonia ☐ Free Liquids ☐ Oily Residue ☐ Metal Fines
☐ Shock Sensitive Waste ☐ Reactive Waste ☐ Radioactive Waste ☐ Water Reactive ☐ Biohazard ☐ Aluminum
☐ Asbestos – non-friable ☐ Asbestos – friable ☐ Dioxins ☐ Explosives ☐ Pyrophoric Waste ☐ Isocyanates

Section 4 – Waste Composition and Generating Process

4.1) Describe the physical composition of the waste (i.e., soil, water, PPE, debris, key chemical compounds, etc.)

soil >96% to % grass, gravel <2 to %

tyveks, gloves <2% to % to %

Total: 100%

4.2) Provide a detailed description of the process generating this waste (attach flow diagram if available).

soil excavated around a building that housed a former cadmium operation

Section 5 – Is This Hazardous Waste?

Please refer to Section 5 of the EQ Resource Guide for a list of waste codes

As determined by 40 CFR, Part 261 and State Rules:

Please list applicable waste code(s):

5.1) Is this an EPA RCRA listed hazardous waste (F, K, P or U)?

☐ Yes ☒ No

5.2) Is this an EPA RCRA characteristic hazardous waste (D001-D043)?

☒ Yes ☐ No D006

5.3) Do any State Hazardous Waste Codes apply?

☐ Yes ☒ No

5.4) Is this waste intended for wastewater treatment?

☐ Yes* ☒ No

If you answered 'no' to 5.1, 5.2, and 5.3, please skip to Section 7. *If you answered 'yes' to 5.4, please attach the Waste Characterization Report Addendum found in Section 7 of the EQ Resource Guide.

Section 6 – Hazardous Wastes

6.1) Does this waste exceed Land Disposal Restriction levels?

☒ Yes ☐ No

6.1a) If this waste stream is greater than 50% soil, does it meet the alternative soil treatment standards of 40 CFR 268.49?

☐ Yes ☒ No

6.1b) Does this waste contain greater than 50% debris, by volume? (Debris is greater than 2.5 inches in size.)

☐ Yes ☒ No

6.2) Is the waste an oxidizer (D001)?

☐ Yes ☒ No

6.3) Does this waste contain reactive cyanide ≥ 250 ppm (D003)?

☐ Yes ☒ No

6.4) Does this waste contain reactive sulfide ≥ 500 ppm (D003)?

☐ Yes ☒ No

6.5) Please indicate which constituent concentrations are below or above the regulatory level. Please indicate the basis used in the determination. Either "Below" or "Above" MUST be checked for each constituent.

Based On: ☒ Generator Knowledge ☒ Analysis* ☐ MSDS*

*Please attach a copy. Analysis or MSDS are required for EQFL Non-hazardous wastes.

Code	Regulatory Level TCLP (mg/l)	Concentration (if above)	Code	Regulatory Level TCLP (mg/l)	Concentration (if above)
D004	Arsenic 5	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above	D024	m-Cresol 200	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above
D005	Barium 100	<input type="checkbox"/> Below <input type="checkbox"/> Above	D025	p-Cresol 200	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above
D006	Cadmium 1	<input type="checkbox"/> Below <input checked="" type="checkbox"/> Above 4.6	D026	Cresols 200	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above
D007	Chromium 5	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above	D027	1,4-Dichlorobenzene 7.5	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above
D008	Lead 5	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above	D028	1,2-Dichloroethane 0.5	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above
D009	Mercury 0.2	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above	D029	1,1-Dichloroethylene 0.7	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above
D010	Selenium 1	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above	D030	2,4-Dinitrotoluene 0.13	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above
D011	Silver 5	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above	D031	Heptachlor 0.008	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above
D012	Endrin 0.02	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above	D032	Hexachlorobenzene 0.13	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above
D013	Lindane 0.4	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above	D033	Hexachlorobutadiene 0.5	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above
D014	Methoxychlor 10	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above	D034	Hexachloroethane 3.0	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above
D015	Toxaphene 0.5	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above	D035	Methyl Ethyl Ketone 200	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above
D016	2,4-D 10	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above	D036	Nitrobenzene 2	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above
D017	2,4,5-TP (Silvex) 1	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above	D037	Pentachlorophenol 100	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above
D018	Benzene 0.5	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above	D038	Pyridine 5	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above
D019	Carbon Tetrachloride 0.5	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above	D039	Tetrachloroethylene 0.7	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above
D020	Chlordane 0.03	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above	D040	Trichloroethylene 0.5	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above
D021	Chlorobenzene 100	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above	D041	2,4,5-Trichlorophenol 400	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above
D022	Chloroform 6.0	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above	D042	2,4,6-Trichlorophenol 2	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above
D023	o-Cresol 200	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above	D043	Vinyl Chloride 0.2	<input checked="" type="checkbox"/> Below <input type="checkbox"/> Above

6.6) If this is a characteristic hazardous waste, does it contain underlying hazardous constituents?

☐ Yes ☒ No

If yes, please list the constituents in Section 11.

Section 7 – Non-Hazardous Wastes

For a complete list of non-hazardous waste codes, please refer to Section 7 of the EQ Resource Guide

Please list applicable waste code:

- 7.1) Is this a Michigan non-hazardous liquid industrial waste? ☐ Yes ☒ No
7.2) Is this a Universal waste? ☐ Yes ☒ No
7.3) Is this a Recyclable Commodity? (e.g.: computer monitors, free mercury, etc.) ☐ Yes ☒ No
7.4) Is this waste a recoverable petroleum product? ☐ Yes* ☒ No
7.5) Is this waste used oil as defined by 40 CFR Part 279? ☐ Yes* ☒ No

If you answered 'yes' to questions 7.4 or 7.5 please attach the Waste Characterization Report Addendum found in Section 7 of the EQ Resource Guide.

Section 8 – TSCA Information

- 8.1) What is the concentration of PCBs in the waste? ☒ None ☐ 0-5 ppm ☐ 6-49 ppm ☐ 50-499 ppm ☐ 500+ ppm
8.2) Does the waste contain PCB contamination from a source with a concentration ≥ 50 ppm? ☐ Yes ☒ No
If you answered "no" to 8.1 and 8.2, please skip to Section 9.
8.3) Has this waste been processed into a non-liquid form?
If yes, what was the concentration of PCBs prior to processing? ☐ N/A ☐ Yes ☐ No
8.4) Is the non-liquid PCB waste in the form of soil, rags, debris, or other contaminated media? ☐ Yes ☐ No
8.5) Are you a PCB capacitor manufacturer or a PCB equipment manufacturer? ☐ Yes ☐ No
8.6) Has the PCB Article (e.g., transformer, hydraulic machine, PCB-contaminated electrical equipment) been drained/flushed of all PCBs and decontaminated in accordance with 40 CFR 761.60(b)? ☐ N/A ☐ Yes ☐ No

Section 9 – Clean Air Act Information

- 9.1) Is this waste subject to regulation under 40 CFR, Part 63, Subpart DD or 40 CFR, Part 264, Subpart CC (RCRA)? ☐ Yes ☒ No
(Does the waste contain >500 ppm Volatile Organic Hazardous Air Pollutants – VOHAP's or Volatile Organic Compounds – VOC's?)

For a complete list of VOHAP's, please see Section 11 of the EQ Resource Guide

- 9.2) Is the site, or waste, subject to any other MACT or NESHAP? ☒ Yes, please specify: [SITE: Haz Waste Combustion, Boiler, HON, MON, Org Liq Dist] ☐ No
9.3) Does this waste stream contain Benzene? ☐ Yes ☒ No

If you answered "no" to 9.3, please skip to Section 10.

- 9.4) Does the waste stream come from a facility with one of the SIC/NAICS codes listed under the Benzene NESHAP identified in 40 CFR 61, Subpart FF? ☐ Yes ☐ No

- 9.5) Is the generating source of this waste stream a facility with Total Annual Benzene (TAB) ≥ 10 Mg/year? ☐ Yes ☐ No
For assistance in calculating the TAB, please see the TAB Worksheet in Section 9 of the EQ Resource Guide.

If you answered "no" to question 9.4 and 9.5, please skip to Section 10.

- 9.6) Does the waste contain $>10\%$ water? ☐ Yes ☐ No

- 9.7) What is the TAB quantity for your facility? _____ Mg/Year

- 9.8) Does the waste contain >1.0 mg/kg total Benzene? ☐ Yes ☐ No

- 9.9) What is the total Benzene concentration in your waste? _____ Percent or _____ ppmw.

(Supporting analysis must be attached. Do not use TCLP analytical results. Acceptable laboratory methods include 8020, 8240, 8260, 602 and 624.)

*For a list of NAICS codes, please refer to Section 9 of the EQ Resource Guide.

Section 10 – Fuel Blending Information

- 10.1) Is this waste intended for fuel blending? ☐ Yes* ☒ No

*If yes, Heat value (BTU/lb.) Chlorine (%) Water (%) Solids (%)

- 10.2) Is this waste intended for reclamation? ☐ Yes ☒ No (5-Gallon Sample required for all reclaim waste streams)

Section 11 – Constituent Information

Please identify your waste constituents from these four categories: Underlying Hazardous Constituents (UHC's), Volatile Organic Hazardous Air Pollutants (VOHAP's), Volatile Organic Compounds (VOC's) and Toxic Release Inventory Constituents (TRI)

Constituent	Concentration	UHC?	Constituent	Concentration	UHC?
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

Please see Section 11 of the EQ Resource Guide for a list of UHC's, VOHAP's and VOC's. For a complete list of TRI constituents, please refer to 40 CFR 372.65.

Section 12 – Certification

I certify that all information (including attachments) is complete and factual and is an accurate representation of the known and suspected hazards, pertaining to the waste described herein. I authorize EQ's Resource Team to add supplemental information to the waste approval file, provided I am contacted and give verbal permission. I authorize EQ's Resource Team to obtain a sample from any waste shipment for purposes of verification and confirmation. I agree that, if EQ approves the waste described herein, all such wastes that are transported, delivered, or tendered to EQ by Generator or on Generator's behalf shall be subject to, and Generator shall be bound by, the attached Standard Terms and Conditions.

Generator Signature Jeremy Flint Printed Name Jeremy Flint

Company Alliant Techsystems Inc Title Lead Compliance Engr. Date 8/25/2006

The generator's signature MUST appear on the EQ Waste Characterization Report. If the generator has authorized a third party to certify this document, a written notice (on generator letterhead) must accompany this submittal. Although the EQ Resource Team is authorized to make certain modifications to the information provided on this form, the addition or removal of waste codes and waste constituents must be documented by the generator.

STANDARD TERMS AND CONDITIONS

The Agreement between the Customer and EQ – The Environmental Quality Company and/or its member companies (hereinafter "EQ") related to or associated with Delivered Waste, as herein defined, shall be governed by the following Standard Terms and Conditions in addition to the terms and conditions contained in any Waste Characterization Report, Customer Approval Quote Confirmation, Generator Approval Notification, Notice of Waste Approval Expiration, and/or Credit Agreement associated with such Delivered Waste.

The Customer may use its standard forms (such as purchase orders, acknowledgments of orders, and invoices) to administer its dealings under this Agreement for convenience purposes, but all provisions thereof in conflict with these terms and conditions shall be deemed stricken.

Definitions

The following definitions shall apply for purposes of this Agreement:

"Acceptable Waste" shall mean any hazardous waste, as defined under applicable State or federal law, determined by EQ as acceptable for treatment and/or disposal in accordance with this Agreement.

"Delivered Wastes" shall mean all wastes (i) which are transported, delivered, or tendered to EQ by the Customer; (ii) which the Customer has arranged for the transport, delivery or tender to EQ; or (iii) which are transported, delivered, or tendered to EQ under a Credit Agreement between the Customer and EQ.

"Non-Conforming Wastes" shall mean wastes that (a) are not in accordance in all material respects with the warranties, descriptions, specifications or limitations stated in the Waste Characterization Report and this Agreement; (b) have constituents or components of a type or concentration not specifically identified in the Waste Characterization Report (i) which increase the nature or extent of the hazard and risk undertaken by EQ in treating and/or disposing of the waste, or (ii) for whose treatment and/or disposal a Waste Management Facility is not designed or permitted, or (iii) which increase the cost of treatment and/or disposal of waste beyond that specified in EQ's price quote; or (c) are not properly packaged, labeled, described, or placarded, or otherwise not in compliance with United States Department of Transportation and United States Environmental Protection Agency regulations.

Control of Operations

EQ shall have sole control over all aspects of the operation of any treatment and/or disposal facility of EQ receiving Delivered Wastes under this Agreement (hereinafter, "Waste Management Facility"), including, without limitation, maintaining EQ's desired volume of Acceptable Wastes being delivered to any Waste Management Facility by the Customer or any other person or entity.

Identification of Waste

For each waste material to be transported, delivered, or tendered to EQ under this Agreement, the Customer shall provide, or cause to be provided, to EQ a representative sample of the waste material and a completed Waste Characterization Report containing a physical and chemical description or analysis of such waste material, which description shall conform with any and all guidelines for waste acceptance provided by EQ. On the basis of EQ's analysis of such representative sample of the waste material and such Waste Characterization Report, EQ will determine whether such wastes are Acceptable Wastes. EQ does not make any guarantee that it will handle any waste material or any particular quantity or type of waste material, and EQ reserves the right to the decline to transport, treat and/or dispose of waste material. The Customer shall promptly furnish to EQ any information regarding known, suspected or planned changes in the composition of the waste material. Further, the Customer shall promptly inform EQ of any change in the characteristic or condition of the waste material which becomes known to the Customer subsequent to the date of the Waste Characterization Report.

Non-Conforming Wastes

In the event that EQ at any time discovers that any Delivered Waste is Non-Conforming Waste, EQ may reject or revoke its acceptance of the Non-Conforming Waste. The Customer shall have seven (7) days to direct an alternative lawful manner of disposition of the waste, unless it is necessary by reason of law or otherwise to move the Non-Conforming Waste prior to expiration of the seven (7) day period. If the Customer does not direct an alternative disposal, at its option, EQ may return any such Non-Conforming Wastes to the Customer, and the Customer shall pay or reimburse EQ for all costs and expenses incurred by EQ in connection with the receipt, handling, sampling, analyses, transportation and return to the Customer of such Non-Conforming Wastes. If it is impossible or impractical for EQ to return the Non-Conforming Waste to the Customer, the Customer shall reimburse EQ for all costs, of any type or nature whatsoever, incurred by EQ, solely because such Delivered Waste was Non-Conforming Waste (including, but not limited to, all costs associated with any remedial steps necessary, due to the nature of the Non-Conforming Waste, in connection with material with which the Non-Conforming Waste may have been commingled and all expenses and charges for analyzing, handling, locating, preparing for transporting, storing and disposing of any Non-Conforming Waste).

Customer Warranty - Acceptable Wastes

All Delivered Wastes shall be Acceptable Wastes and shall conform in all material respects to the description and specifications contained in the Waste Characterization Report. The information set forth in the Waste Characterization Report or any manifest, placard or label associated with any Delivered Wastes, or otherwise represented by the Customer or the generator (if other than the Customer) to EQ, is and shall be true, accurate and complete as of the date of receipt of the involved waste by EQ.

Customer Warranty - Title to Wastes

Either the Customer or the generator (if other than the Customer) shall hold clear title, free of any all liens, claims, encumbrances, and charges to Delivered Waste until such waste is accepted by EQ.

Customer Warranty - Compliance with Laws

The Customer shall comply with all applicable federal, state and local environmental statutes, regulations, and other governmental requirements, as well as directives issued by EQ from time to time, governing the transportation, treatment and/or disposal of Acceptable Wastes, including, but not limited to, all packaging, manifesting, containerization, placarding and labeling requirements.

Customer Warranty - Updating Information

If the Customer receives information that Delivered Waste or other hazardous waste described in the Waste Characterization Report, or some component of such waste, presents or may present a hazard or risk to persons, property or the environment which was not disclosed to EQ, or if the Customer or generator (if other than the Customer) has changed the process by which such waste results, the Customer shall promptly report such information to EQ in writing.

Customer Indemnity

The Customer shall indemnify, defend and hold harmless EQ, and its affiliated or related companies, and all of their respective present or future officers, directors, shareholders, employees and agents from and against any and all losses, damages, liabilities, penalties, fines, forfeitures, demands, claims, causes of action, suits, costs and expenses (including, but not limited to, reasonable costs of defense, settlement, and reasonable attorneys' fees), which may be asserted against any or all of them by any person or any governmental agency, or which any or all of them may hereafter suffer, incur, be responsible for or pay out, as a result of or in connection with bodily injuries (including, but not limited to, death, sickness, disease and emotional or mental distress) to any person (including EQ's employees), damage (including, but not limited to, loss of use) to any property (public or private), or any requirements to conduct or incur expense for investigative, removal or remedial expenses in connection with contamination of or adverse effect on the environment, or any violation or alleged violation of any statutes, ordinances, orders, rules or regulations of any governmental entity or agency, caused or arising out of (i) a breach of this Agreement by the Customer, (ii) the failure of any warranty of the Customer to be true, accurate and complete, or (iii) any willful or negligent act or omission of the Customer, or its employees or agents in connection with the performance of this Agreement.

Force Majeure

EQ shall not be liable for any failure to accept, receive, handle, treat, and/or dispose of Delivered Waste due to an act of God, fire, casualty, flood, war, strike, lockout, labor trouble, failure of public utilities, equipment failure, facility shutdown, injunction, accident, epidemic, riot, insurrection, destruction of operation or transportation facilities, the inability to procure materials, equipment, or sufficient personnel or energy in order to meet operational needs without the necessity of allocation, the failure or inability to obtain any governmental approvals or to meet Environmental Requirements (including, but not limited to voluntary or involuntary compliance with any act, exercise, assertion, or requirement of any governmental authority) which may temporarily or permanently prohibit operations of EQ, the Customer, or the Generator, or any other circumstances beyond the control of EQ which prevents or delays performance of any of its obligations under this Agreement.

Governing Laws

This Agreement shall in all respects be governed by and shall be construed in accordance with the laws of the State of Michigan applied to contracts executed and performed wholly within such state.



Land Disposal Restriction & Certification Form

Please check the appropriate facility:

<input checked="" type="checkbox"/> Michigan Disposal Waste Treatment Plant	49350 N. I-94 Service Drive, Belleville, MI 48111	EPA ID # MID 000 724 831
<input type="checkbox"/> Wayne Disposal, Inc. Site #2 Landfill	49350 N. I-94 Service Drive, Belleville, MI 48111	EPA ID # MID 048 090 633
<input type="checkbox"/> EQ Detroit, Inc.	1923 Frederick Street, Detroit, MI 48211	EPA ID # MID 980 991 566
<input type="checkbox"/> EQ Resource Recovery, Inc.	36345 Van Born Road, Romulus, MI 48174	EPA ID # MID 060 975 844
<input type="checkbox"/> EQ North Carolina	1005 Investment Blvd, Apex, NC 27502	EPA ID # NCD 982 170 292
<input type="checkbox"/> EQ Florida, Inc.	7202 East 8 th Ave, Tampa, FL 33619	EPA ID # FLD 981 932 494

Generator Name: Alliant Techsystems Inc. U.S. EPA ID No.: VA1 210 020 730

Generator Address: Rt. 114 Peppers Ferry Road, Radford, VA 24141

State Manifest No.: Manifest Doc. No.:

Instructions

Column 1: Identify all U.S. EPA hazardous waste codes that apply to this waste shipment.

Column 2: Choose the appropriate treatability group: Non-Wastewater (NWW) or Wastewater (WW).

Column 3: Enter the appropriate Subcategory, if applicable, and also enter "Contaminated Soil" or "Debris" if the waste will be treated using one of the alternative treatment technologies provided by 268.49 (c) – soil, or 268.45 – debris.

Column 4: Enter the letter of the appropriate paragraph from pages 1-2 of this form.

Column 5: For F001 – F005, F039, D001 – D043, Debris and Contaminated Soil: please enter the Reference Number(s) for any constituents in your waste stream subject to treatment. The Reference Number(s) can be found in the EQ Resource Guide, LDR/UHC Constituent Table.

Manifest Line Item	U.S. EPA Hazardous Waste Code (s)	NWW or WW	Subcategory	How Must the Waste be Managed?	Reference Number(s) of Hazardous Constituents contained in the waste. Complete for F001-F005, F039, D001-D043, Soil and Debris wastes.
11A	D006	NWW	NONE	A	204
11B					
11C					
11D					

I hereby certify that all information submitted on this and all associated documents is complete and accurate to the best of my knowledge and information.

Generator Signature: Jeremy Flint Title: Compliance Engineer
Printed Name: Jeremy Flint Date: 8/25/06

How Must the Waste Be Managed?

S. THIS CONTAMINATED SOIL DOES / DOES NOT CONTAIN LISTED HAZARDOUS WASTE AND DOES / DOES NOT EXHIBIT A
(CIRCLE ONE) CHARACTERISTIC OF HAZARDOUS WASTE AND IS SUBJECT TO / COMPLIES WITH THE SOIL TREATMENT STANDARDS
(CIRCLE ONE)

AS PROVIDED BY 268.49(c) OR THE UNIVERSAL TREATMENT STANDARDS. I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and believe that it has been maintained and operated properly so as to comply with treatment standards specified in 40 CFR 268.49 without impermissible dilution of the prohibited wastes. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.



Land Disposal Restriction & Certification Form

- A. THIS RESTRICTED WASTE REQUIRES TREATMENT TO THE APPLICABLE STANDARD. This waste must be treated to the applicable performance based treatment standard set forth in 40CFR Part 268 Subpart C, 268.32, Subpart D, 268.40 or RCRA Section 3004(d) prior to land disposal.
- B. THIS HAZARDOUS DEBRIS IS SUBJECT TO THE ALTERNATIVE TREATMENT STANDARDS OF 40 CFR 268.45.
- C. THIS RESTRICTED WASTE HAS BEEN TREATED TO THE PERFORMANCE STANDARDS. I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and base this certification upon my inquiry of those individuals immediately responsible for obtaining this information. I believe that the treatment process has been operated and maintained properly so as to comply with the performance levels specified in 40 CFR part 268 Subpart D, and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d) without impermissible dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.
- D. THIS RESTRICTED WASTE, FOR WHICH THE TREATMENT STANDARD IS EXPRESSED AS A SPECIFIED TECHNOLOGY, HAS BEEN TREATED BY THE SPECIFIED TECHNOLOGY. I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.42. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.
- E. THIS RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT TREATMENT. I certify under penalty of law that I have personally examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d). I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.
- F. THIS RESTRICTED DEBRIS HAS BEEN TREATED IN ACCORDANCE WITH 40 CFR 268.45. I certify under penalty of law that the debris has been treated in accordance with the requirements of 40 CFR 268.45. I am aware that there are significant penalties for making false certification, including the possibility of a fine and imprisonment.
- G. THIS LAB PACK DOES NOT CONTAIN ANY WASTES IDENTIFIED AT APPENDIX IV TO PART 268. I certify under penalty of law that I personally have examined and am familiar with the waste and that the statement above is true and that this lab pack will be sent to a combustion facility in compliance with the alternative treatment standards for lab packs at 40 CFR 268.42(c). I am aware that there are significant penalties for submitting a false certification including possibility of fine or imprisonment.
- H. THIS RESTRICTED WASTE HAS BEEN TREATED TO REMOVE THE HAZARDOUS CHARACTERISTIC. I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 to remove the hazardous characteristic. This decharacterized waste contains underlying hazardous constituents that require further treatment to meet universal treatment standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.
- I. THIS RESTRICTED WASTE HAS BEEN TREATED TO REMOVE THE HAZARDOUS CHARACTERISTIC AND BEEN TREATED FOR UNDERLYING HAZARDOUS CONSTITUENTS. I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 to remove the hazardous characteristic, and that underlying hazardous constituents, as defined in 268.48 Universal Treatment Standards. I am aware that there are significant penalties for submitting false certification, including the possibility of fine and imprisonment.
- J. THIS RESTRICTED WASTE IS SUBJECT TO AN EXEMPTION FROM LAND DISPOSAL. (Please include the date the waste is subject to the prohibitions in Column 5) This waste is subject to an exemption from a prohibition on the type of land disposal method utilized for the waste (such as, but not limited to, a case-by-case extension under 40 CFR Part 268.5, an exemption under 40 CFR 268.6, or a nationwide capacity variance under 40 CFR 269 Subpart C)
- K. THIS RESTRICTED WASTE WITH TREATMENT STANDARDS EXPRESSED AS CONCENTRATIONS IN THE WASTE PURSUANT TO 268.43, IF COMPLIANCE WITH THE TREATMENT STANDARDS IN SUBPART D OF THIS PART IS BASED IN PART OR IN WHOLE ON THE ANALYTICAL DETECTION LIMIT ALTERNATIVE IN 268.439(c). I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining information, I believe that the nonwastewater organic constituents have been treated by incineration in units operated in accordance with 40 CFR part 264, Subpart O, or 40 CFR part 265, Subpart O, or by combustion in fuel substitution units operating in accordance with the applicable technical requirements, and I have been unable to detect that nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.
- L. THIS DECHARACTERIZED WASTE CONTAINS UNDERLYING HAZARDOUS CONSTITUENTS THAT REQUIRE FURTHER TREATMENT TO MEET UNIVERSAL TREATMENT STANDARDS. I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 to remove the hazardous characteristics. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.
- M. THIS WASTE HAS BEEN TREATED IN ACCORDANCE WITH THE REQUIREMENTS OF 40 CFR 268.40 TO REMOVE THE HAZARDOUS CHARACTERISTIC AND THE UNDERLYING HAZARDOUS CONSTITUENTS, AS DEFINED IN 268.2(i) HAVE BEEN TREATED ON-SITE TO MEET THE 268.48 UNIVERSAL TREATMENT STANDARDS. I certify under penalty of law that the above is true. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.

Appendix D

Shipping Logs

Appendix D-1

Non-Hazardous Waste Truck Log

Radford Army Arsenal Plant
Concrete/Steel/Asphalt Truck Log

Shipment Date	Carrier / Facility	Truck Number	Actual Weight	Material Shipped	Ticket Number
09/22/06	First Piedmont to Vinton Scrap	260	13,520	steel	135079
09/14/06	First Piedmont to Landfill	91	40,920	concrete	102829
09/15/06	First Piedmont to Landfill	260	33,220	concrete	102963
09/18/06	First Piedmont to Landfill	260	34,420	concrete	103186
09/19/06	First Piedmont to Landfill	239	33,580	concrete	103311
09/20/06	First Piedmont to Landfill	239	39,200	concrete	103475
09/20/06	First Piedmont to Landfill	211	40,340	concrete	103474
09/21/06	Thompson to Landfill	3085	37,700	concrete	103630
09/21/06	First Piedmont to Landfill	239	42,200	concrete	103617
09/21/06	First Piedmont to Landfill	260	38,920	concrete	103619
09/21/06	First Piedmont to Landfill	91	41,540	concrete	103624
09/22/06	Thompson to Landfill	456	30,180	concrete	103645
09/22/06	Thompson to Landfill	159	36,560	concrete	103663
09/22/06	Thompson to Landfill	157	29,380	concrete	103816
09/22/06	Thompson to Landfill	167	28,540	concrete	103640
09/22/06	Thompson to Landfill	118	36,020	concrete	103644
09/22/06	Thompson to Landfill	413	35,500	concrete	103643
09/22/06	Thompson to Landfill	3357	36,240	concrete	103642
09/22/06	First Piedmont to Landfill	239	38,520	concrete	103735
09/22/06	First Piedmont to Landfill	91	32,700	concrete	103815
09/22/06	Thompson to Landfill	214	24,940	concrete	103788
10/05/06	First Piedmont to Landfill	239	9,840	asphalt	105264
			733,980		
			367.0	Tons	

Appendix D-2

Hazardous Waste Truck Log

Radford Army Arsenal Plant
Contaminated Soils Truck Log

Shipment Date	Carrier	Manifest Number	Actual Weight	Manifest Document Number	Trailer Number
08/30/06	U.S. Bulk Transport Inc.	MI9570243	49,960	01016	XN76170 PA
08/30/06	U.S. Bulk Transport Inc.	MI9570244	48,020	01017	XZ68858 PA
08/30/06	U.S. Bulk Transport Inc.	MI9570245	43,700	01018	1158332 MD
08/30/06	U.S. Bulk Transport Inc.	MI9570246	44,380	01019	XZ24416 PA
08/30/06	U.S. Bulk Transport Inc.	MI9570247	43,380	01020	595255 IN
09/06/06	U.S. Bulk Transport Inc.	001178155	46,700	No document numbers	XN73638 PA
09/06/06	U.S. Bulk Transport Inc.	001178154	44,260	New National Manifest	XZ24416 PA
09/06/06	U.S. Bulk Transport Inc.	001178153	43,320	being used	XS19524 PA
09/06/06	U.S. Bulk Transport Inc.	001178152	45,760		PT1034K PA
09/06/06	U.S. Bulk Transport Inc.	001178151	47,400		XZ68858 PA
09/07/06	U.S. Bulk Transport Inc.	001178141	37,140		XP09363PA
09/07/06	U.S. Bulk Transport Inc.	001178142	45,240		1158332ME
09/07/06	U.S. Bulk Transport Inc.	001178143	45,280		512355IN
09/07/06	U.S. Bulk Transport Inc.	001178144	52,280		TNE4410OH
09/07/06	U.S. Bulk Transport Inc.	001178145	45,100		172982IN
09/07/06	U.S. Bulk Transport Inc.	001178146	44,160		172979IN
09/07/06	U.S. Bulk Transport Inc.	001178147	46,300		44584IN
09/07/06	U.S. Bulk Transport Inc.	001178148	41,760		44585IN
09/08/06	U.S. Bulk Transport Inc.	001178137	48,420		605020IN
09/08/06	U.S. Bulk Transport Inc.	001178138	47,560		LI9912IN
09/08/06	U.S. Bulk Transport Inc.	001178139	60,380		326957IN
09/08/06	U.S. Bulk Transport Inc.	001178140	36,080		605020IN
09/15/06	U.S. Bulk Transport Inc.	001178130	45,080		605020IN
09/18/06	U.S. Bulk Transport Inc.	001178126	44,040		
09/18/06	U.S. Bulk Transport Inc.	001178127	47,520		
09/19/06	U.S. Bulk Transport Inc.	001178128	49,380		
09/26/06	U.S. Bulk Transport Inc.	001178123	51,680		
09/26/06	U.S. Bulk Transport Inc.	001178124	45,140		
09/26/06	U.S. Bulk Transport Inc.	001178125	48,880		
10/02/06	U.S. Bulk Transport Inc.	001178122	50,680		
10/09/06	U.S. Bulk Transport Inc.	001178121	41,620		
			1,430,600		
			715.3	Total Tons Shipped	

Appendix E

Asbestos Project Monitor Report and Notification Memo



Shaw® Shaw Environmental & Infrastructure, Inc.

June 20, 2006

Mr. Tim Leahy
Shaw Environmental, Inc.
2113 Emmorton Park Rd.
Edgewood, MD 21085

Dear Mr. Leahy:

On May 16, 2006, Mr. George Csordas of Shaw Environmental, Inc. (Shaw) conducted an asbestos survey of building 4343, Former Cadmium Plating Facility, at the Radford Army Ammunition Plant. The purpose of the survey was to identify the presence and locations of asbestos-containing materials (ACM). The building is planned for demolition. The results of the assessment follow. It should be noted that all asbestos removed prior to demolition should be done by a state licensed asbestos abatement contractor.

Asbestos-Containing Materials

A total of 14 samples of suspect materials were collected from the building as part of the determination of the presence and location of ACM. Table 1 presents a summary of the sampling effort and analytical results. Appendix A presents the laboratory report for the asbestos bulk sampling. Table 2 presents a summary of ACM identified during the survey. Materials identified are based on sampling results and those materials assumed by the inspector to contain asbestos based on technical knowledge and accepted industry standard. It should be noted from a regulatory standpoint that a minimum of three negative (nondetect) results are generally required in order to document that a material does not contain asbestos.

Sincerely,

George N. Csordas

SHAW ENVIRONMENTAL, INC.

Table 1. Bulk Sampling Summary of Suspect Asbestos-Containing Materials

Sample No.	Material	Material Use	Sample Location	Result ¹
B43ASB-01	Transite/ cement board (exterior)	Insulation under Square D electric push/pull button	Building exterior, near west corner of building, five and a half (5.5) feet above the ground.	25 % chrysotile
B43ASB-02	Transite/ cement board (ceiling)	Ceiling	Building interior, near south corner, at ceiling.	25 % chrysotile
B43ASB-03	Debris	Debris on table	Building interior, six (6) feet from south corner of building, on table	10 % chrysotile, 10 % amosite
B43ASB-04	Debris	Debris on table	Building interior, seven (7) feet from south corner of building, on table	10 % chrysotile, 10 % amosite
B43ASB-05	Tape	Tape at joints of ceiling panels	Building interior, near south corner, at ceiling.	None Detected
B43ASB-06	Tape	Tape at joints of ceiling panels	Building interior, six (6) feet from south corner of building, at ceiling	None Detected
B43ASB-07	Tape	Tape at joints of ceiling panels	Building interior, four (4) feet from northeast wall, nine (9) feet from east corner, at ceiling.	None Detected
B43ASB-08	Preformed block pipe insulation	On heating lines	Building interior, three (3) feet right of door, at pipe support.	None Detected
B43ASB-09	Preformed block pipe insulation	On heating lines	Building interior, five (5) feet right of door.	None Detected
B43ASB-10	Preformed block pipe insulation	On heating lines	Building interior, three (3) feet from northeast wall, ten (10) feet from east corner	None Detected
B43ASB-11	Tape	Tape at joints of ceiling panels	Building interior, four (4) feet from northeast wall, nine (9) feet from east corner, at ceiling (QA of B43ASB-07).	None Detected
B43ASB-12	Cementitious insulation	On fittings of heating lines	Building interior, three (3) feet right of door, near ceiling	1.8 % chrysotile (PC)
B43ASB-13	Cementitious insulation	On fittings of heating lines	Building interior, along northeast wall, ten (10) feet from east corner, near ceiling.	1.4 % chrysotile (PC)
B43ASB-14	Cementitious insulation	On fittings of heating lines	Building interior, along northeast wall, eleven (11) feet from east corner, near ceiling.	1.1 % chrysotile (PC)

¹ PC = Point Counting

Table 2. Inspection Summary of Asbestos-Containing Materials

Material	Building Area	Location of Asbestos-Containing Material	Sampled or Assumed ¹
Transite/ cement board	Exterior	Behind/Under Square D electric push/pull button	Sampled
Transite/ cement board	Interior	Ceiling	Sampled
Transite/ cement board	Exterior	Southwest of the building, on exterior of wood storage hut/shelter	Assumed
Debris	Interior	Two small piles of debris on table	Sampled
Cementitious insulation	Interior	Five (5) fittings on heating lines	Sampled

¹ Assumed - All assumed materials contain asbestos, based on technical knowledge and generally accepted industry standards.

APPENDIX A

CERTIFICATE OF ANALYSIS

Client: Shaw Environmental Inc.
5050 Section Ave.
Cincinnati OH 45212

Report Date: 5/30/2006
Project: RadfordArmyAmmunitionPlant
Project No.: 117982.03040000

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 2592560 Description / Location: Grey Transite
Client No.: B43ASB01

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
25	Chrysotile	None Detected	None Detected	75

Lab No.: 2592561 Description / Location: White Transite
Client No.: B43ASB02

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
25	Chrysotile	None Detected	None Detected	75

Lab No.: 2592562 Description / Location: White Insulation
Client No.: B43ASB03

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
10	Chrysotile	None Detected	None Detected	80
10	Amosite			

Lab No.: 2592563 Description / Location: White Insulation
Client No.: B43ASB04

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
10	Chrysotile	None Detected	None Detected	80
10	Amosite			

NIST-NVLAP No. 101165-0

NY-DOH No. 11021

AIHA Lab No. 100188

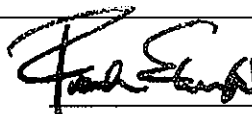
This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA or any agency of the U.S. government
This report shall not be reproduced except in full, without written approval of the laboratory.

Analysis Method: EPA 600/R-93/116

Comments: (PC) Indicates Stratified Point Count Method performed. Method not performed unless stated. Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, negative PLM results cannot be guaranteed. Electron Microscopy can be used as a confirming technique. Regulatory Limit is based upon the sample matrix. Quantification at <0.25% by volume is possible with this method. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed.

Analysis Performed By: R. Caran

Approved By:



Frank E. Ehrenfeld, III
Laboratory Director

Date: 5/26/2006

CERTIFICATE OF ANALYSIS

Client: Shaw Environmental Inc.
5050 Section Ave.
Cincinnati OH 45212

Report Date: 5/30/2006
Project: RadfordArmyAmmunitionPlant
Project No.: 117982.03040000

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 2592564	Description / Location: White Wrap			
Client No.: B43ASB05				
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	70	Cellulose	30

Lab No.: 2592565	Description / Location: Tan/White Wrap			
Client No.: B43ASB06				
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	95	Cellulose	5

Lab No.: 2592566	Description / Location: Brown Wrap			
Client No.: B43ASB07				
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	95	Cellulose	5

Lab No.: 2592567	Description / Location: White Insulation			
Client No.: B43ASB08				
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	10	Cellulose	80
		10	Fibrous Glass	

NIST-NVLAP No. 101165-0

NY-DOH No. 11021

AIHA Lab No. 100188

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This report shall not be reproduced except in full, without written approval of the laboratory.*

Analysis Method: EPA 600/R-93/116

Comments: (PC) Indicates Stratified Point Count Method performed. Method not performed unless stated. Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, negative PLM results cannot be guaranteed. Electron Microscopy can be used as a confirming technique. Regulatory Limit is based upon the sample matrix. Quantification at <0.25% by volume is possible with this method. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed.

Analysis Performed By: R. Caran

Date: 5/26/2006

CERTIFICATE OF ANALYSIS

Client: Shaw Environmental Inc.
5050 Section Ave.
Cincinnati OH 45212

Report Date: 5/30/2006
Project: RadfordArmyAmmunitionPlant
Project No.: 117982.03040000

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 2592568	Description / Location: White Insulation			
Client No.: B43ASB09				
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	30	Cellulose	70

Lab No.: 2592569	Description / Location: White Insulation			
Client No.: B43ASB10				
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	30	Cellulose	70

Lab No.: 2592570	Description / Location: Brown Wrap			
Client No.: B43ASB11				
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	95	Cellulose	5

Lab No.: 2592571	Description / Location: White Insulation			
Client No.: B43ASB12				
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
PC 1.8	Chrysotile	10	Fibrous Glass	PC 88.2

NIST-NVLAP No. 101165-0

NY-DOH No. 11021

AIHA Lab No. 100188

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This report shall not be reproduced except in full, without written approval of the laboratory.*

Analysis Method: EPA 600/R-93/116

Comments: (PC) Indicates Stratified Point Count Method performed. Method not performed unless stated. Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, negative PLM results cannot be guaranteed. Electron Microscopy can be used as a confirming technique. Regulatory Limit is based upon the sample matrix. Quantification at <0.25% by volume is possible with this method. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed.

Analysis Performed By: R. Caran

Date: 5/26/2006

CERTIFICATE OF ANALYSIS

Client: Shaw Environmental Inc.

5050 Section Ave.

Cincinnati OH 45212

Report Date: 5/30/2006**Project:** RadfordArmyAmmunitionPlant**Project No.:** 117982.03040000

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 2592572**Client No.:** B43ASB13**Description / Location:** White Insulation

<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
PC 1.4	Chrysotile	10	Fibrous Glass	PC 88.6

Lab No.: 2592573**Client No.:** B43ASB14**Description / Location:** White Insulation

<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
PC 1.1	Chrysotile	10	Fibrous Glass	PC 88.9

NIST-NVLAP No. 101165-0**NY-DOH No. 11021****AIHA Lab No. 100188**

*This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA or any agency of the U.S. government
This report shall not be reproduced except in full, without written approval of the laboratory.*

Analysis Method: EPA 600/R-93/116

Comments: (PC) Indicates Stratified Point Count Method performed. Method not performed unless stated. Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, negative PLM results cannot be guaranteed. Electron Microscopy can be used as a confirming technique. Regulatory Limit is based upon the sample matrix. Quantification at <0.25% by volume is possible with this method. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed.

Analysis Performed By: R. Caran**Date:** 5/26/2006



Shaw Environmental & Infrastructure, Inc.

ANALYSIS REQUEST AND

CHAIN OF CUSTODY RECORD*

Reference Document No. 589711

Page 1 of 2

Project Name/No. Redford Army Ammunition Plant / 117982-03040000

Samples Shipment Date 5/18/2006

Sample Team Members George Coorlas

Profit Center No.

Project Manager Tim Leahy

Purchase Order No. 6128 by P-Card

Required Report Date 11 June 1, 2006

Lab Destination IATL

Lab Contact Ray Sanket

Project Contact /Phone George Coorlas / 513-782-4794

Carrier / Waybill No.

Bill To: Drew Kendall
Shaw Environmental, Inc.
5050 Section Ave.
Cincinnati, OH 45212
Report To: George Coorlas
Shaw Environmental, Inc.
5050 Section Ave.
Cincinnati, OH 45212

ONE CONTAINER PER LINE

Sample Number	Sample Description / Type	Date / Time Collected	Container Type	Sample Volume	Pre-Servative	Requested Testing Program	Condition on Receipt	Disposal Record No.
B43ASB01	Asbestos / bulk	5/16/2006	ziploc baggie	<50ml	None	PLM asbestos analysis EPA 600/R-93/116	2592560	
B43ASB02							2592561	LAB
B43ASB03							2592562	ONLY
B43ASB04							2592563	
B43ASB05							2592564	
B43ASB06							2592565	LAB
B43ASB07							2592566	ONLY
B43ASB08							2592567	

Special Instructions: Normal Turn Around Time

Possible Hazard Identification:

No-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Asbestos ☒

Sample Disposal:

Return to Client ☐ Disposal by Lab ☐ Archive ☐ (mos.)

Turnaround Time Required:

Normal ☒ Rush ☐

QC Level:

I. ☐ II. ☐ III. ☐

Project Specific (Specify):

1. Relinquished by (Signature/Affiliation) George N. Coorlas / Shaw Environmental Date: 5/18/2006 Time: 1500

2. Relinquished by (Signature/Affiliation) [Signature] Date: 5/26/06 Time:

3. Relinquished by (Signature/Affiliation) [Signature] Date: Time:

Comments:

RECEIVED

Date: MAY 19 2006
Date:
Time:
IATL - By:
Date:
Time:

00615106



Shaw Environmental & Infrastructure, Inc.

ANALYSIS REQUEST AND
CHAIN OF CUSTODY RECORD* (CONT.)

Reference Document No. 589711
Page 2 of 2

Project Name/No. Redford Army Ammunition Plant
Project No. 117982.03040000

Samples Shipment Date 5/18/2006

ONE CONTAINER PER LINE

14 Sample Number	15 Sample Description / Type	16 Date / Time Collected	17 Container Type	18 Sample Volume	19 Pre- Servative	20 Requested Testing Program	21 Condition on Receipt	22 Disposal Record No.
B43ASB09	Asbestos / Bulk	5/16/2006	Ziploc Baggie	<50ml	None	Asbestos EPA 600/R-93/116	2592568	
B43ASB10							2592569	FOR LAB
B43ASB11							2592570	FOR LAB ONLY
B43ASB12							2592571	
B43ASB13							2592572	FOR LAB
B43ASB14							2592573	USE ONLY
								FOR LAB
								USE ONLY
								FOR LAB
								USE ONLY
								FOR LAB
								USE ONLY
								FOR LAB
								USE ONLY
								FOR LAB
								USE ONLY



Inc. 211 Roanoke Street, Suite 15 * Christiansburg, VA. 24073
Licensed Class "A" Contractor Number 2701 007061

September 14, 2006

SHAW Environmental
Attn: Tim Leahy
Fax 1-410-612-6351

RE: Notification for non-friable asbestos removal

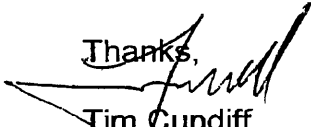
Tim,

Per your request, EPA NESHAP regulations [40 CFR Part 61 Subpart M] state that asbestos-cement products [transite] that are removed using hand tools that do not cause significant damage [as is the practice in this project] the materials are not considered RACM [regulated asbestos containing materials] and can be disposed of with other construction debris.

Further, there is some asbestos pipe insulation, but our estimated amount to be removed is less than 10 lb/ft and therefore is not reportable under the VA Department of Labor and Industry Asbestos Permit Application and Notification For Demolition/Renovation, copy of which I sent you.

If you have any further questions, please do not hesitate to contact me.

Thanks,


Tim Cundiff
Estimator, WACO Inc.



DLI PERMIT NUMBER: _____

ASBESTOS PERMIT APPLICATION AND NOTIFICATION FOR DEMOLITION / RENOVATION

1. TYPE OF NOTIFICATION:		<input checked="" type="checkbox"/> ORIGINAL	<input type="checkbox"/> AMENDED	<input type="checkbox"/> CANCEL	<input type="checkbox"/> NESHAPS
2. FACILITY INFORMATION: (facility owner, removal, demolition & other contractors)					
OWNER: _____					
ADDRESS: _____					
CITY: _____		STATE: _____		ZIP CODE: _____	
CONTACT: _____			TELEPHONE #: _____		
REMOVAL CONTRACTOR: _____			LICENSE #: _____		
FEDERAL EMPLOYER IDENTIFICATION NUMBER: 54-0720555					
ADDRESS: _____					
CITY: _____		STATE: VA		ZIP CODE: _____	
CONTACT: _____			TELEPHONE: _____		
DEMOLITION CONTRACTOR: n/a					
ADDRESS: _____					
CITY: _____		STATE: _____		ZIP CODE: _____	
CONTACT: _____			TELEPHONE #: _____		
OTHER OPERATOR: n/a					
ADDRESS: _____					
CITY: _____		STATE: _____		ZIP CODE: _____	
CONTACT: _____			TELEPHONE #: _____		
3. TYPE OF OPERATION: <input type="checkbox"/> DEMOLITION <input checked="" type="checkbox"/> RENOVATION <input type="checkbox"/> EMERGENCY RENOVATION <input type="checkbox"/> ENCAPSULATE					
4. IS ASBESTOS PRESENT: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO					
5. FACILITY DESCRIPTION (INCLUDE BUILDING NAME, NUMBER AND FLOOR OR ROOM NUMBER):					
BUILDING NAME: _____					
STREET ADDRESS: _____			COUNTY: _____		
CITY: _____		STATE: _____		ZIP CODE: _____	
SITE LOCATION: _____					
BUILDING SIZE: _____		# FLOORS: _____		AGE IN YEARS: _____	
PRESENT USE: _____			PRIOR USE: _____		
6. SCHEDULED DATES: REMOVAL START: _____ FINISH: _____					
REMOVAL TIMES: _____		DAYS OF OPERATION: _____		(MON - SUN) _____	
		WORKSHIFT HOURS: _____		(MON - FRI) _____	
				(SAT - SUN) _____	
7. SCHEDULED DATES: DEMOLITION START: _____ FINISH: _____					

ASBESTOS PERMIT APPLICATION AND NOTIFICATION FOR DEMOLITION/RENOVATION

8. PROCEDURE, INCLUDING ANALYTICAL METHOD, USED TO DETECT THE PRESENCE OF ASBESTOS:

INSPECTOR:		VA. CERTIFICATION #:	
9. ACM TO BE REMOVED	AMOUNT	10. ACM NOT REMOVED	
DESCRIPTION		DESCRIPTION	AMOUNT
PIPE	LNFT	FRIABLE	FT
SURFACE AREA	SQFT	CATEGORY I	FT
VOL. ACM OFF FACILITY (NESHAPS)	CUFT	CATEGORY II	FT

11. DESCRIPTION OF PLANNED DEMOLITION OR RENOVATION WORK, AND METHOD(S) TO BE USED:

12. DESCRIPTION OF WORK PRACTICES AND ENGINEERING CONTROLS TO BE USED TO PREVENT EMISSIONS OF ASBESTOS AT THE DEMOLITION AND RENOVATION SITE:

13. WASTE TRANSPORTER #1: NAME:		
ADDRESS:		
CITY:	STATE:	ZIP CODE:
CONTACT:		TELEPHONE:
WASTE TRANSPORTER #2: NAME:		
ADDRESS:		
CITY:	STATE: VA	ZIP CODE:
CONTACT:		TELEPHONE:
14. WASTE DISPOSAL SITE: NAME:		
LOCATION:		
CITY: I	STATE: WV	ZIP CODE:
TELEPHONE: (800) 610-6266		LANDFILL PERMIT #:
15. IF DEMOLITION ORDERED BY A GOVERNMENT AGENCY, IDENTIFY THE AGENCY BELOW:		
NAME:		TITLE:
AUTHORITY:		
DATE OF ORDER:		DATE ORDERED TO BEGIN:
16. FOR EMERGENCY RENOVATIONS:		
DATE AND HOUR OF EMERGENCY:		TIME:
DESCRIPTION OF THE SUDDEN, UNEXPECTED EVENT:		

EXPLANATION OF HOW THE EVENT CAUSED UNSAFE CONDITIONS OR WOULD CAUSE EQUIPMENT DAMAGE

17. DESCRIPTION OF PROCEDURES TO BE FOLLOWED IN THE EVENT THAT UNEXPECTED ASBESTOS IS FOUND OR

ASBESTOS PERMIT APPLICATION AND NOTIFICATION FOR DEMOLITION/RENOVATION

PREVIOUSLY NONFRIABLE ASBESTOS MATERIAL BECOMES CRUMBLED, PULVERIZED, OR REDUCED TO POWDER:

18. I CERTIFY THAT AN INDIVIDUAL TRAINED IN THE PROVISIONS OF THE NESHAP REGULATIONS WILL BE ON-SITE DURING THE DEMOLITION OR RENOVATION AND EVIDENCE THAT THE REQUIRED TRAINING HAS BEEN ACCOMPLISHED BY THIS PERSON WILL BE AVAILABLE AT THE PROJECT SITE FOR INSPECTION. (40 CFR PART 61, SUBPART M, REQUIRED AFTER NOVEMBER 20, 1991)

SUPERVISOR: _____

LICENSE #: _____

PROJECT MONITOR: _____

LICENSE #: _____

PROJECT DESIGNER: _____

LICENSE #: _____

LABORATORY: _____

LICENSE #: _____

SIGNATURE OF OWNER/OPERATOR _____

DATE: _____

19. I CERTIFY THAT THE INFORMATION SUBMITTED IS ACCURATE TO THE BEST OF MY KNOWLEDGE AND THAT ACCREDITED PERSONS ARE BEING USED ON THIS PROJECT.

NAME: _____

TITLE: _____

SIGNATURE: _____

DATE: _____

20. AMOUNT OF ASBESTOS FEE SUBMITTED: \$ _____

An asbestos project permit fee shall be submitted with the completed project notification. The fee shall be in accordance with the following schedule unless a blanket notification (as described below) is granted.

1. \$50 for each project equal to or greater than 10 linear feet or 10 square feet up to and including 260 linear feet or 160 square feet.
2. \$160 for each project equal to or greater than 260 linear feet or 160 square feet up to and including 2600 linear feet 1600 square feet.
3. \$470 for each project of more than 2600 linear feet or 1600 square feet.
4. If the amount of the asbestos is reported in both linear feet and square feet the amounts will be added and treated as if the total were all in square feet for this subsection.
5. \$15 for each amended notification.

A blanket notification, valid for a period of one year, may be granted to a contractor who enters into a contract for asbestos removal or encapsulation on a specific site which is expected to last one year or longer.

Address all notifications as described below:

ASBESTOS PROGRAM
DEPARTMENT OF LABOR AND INDUSTRY
POWERS-TAYLOR BUILDING
13 SOUTH THIRTEENTH STREET
RICHMOND, VA. 23219
FAX (804) 371-7634

CREDIT CARD TYPE: (CHECK ONE)

☐ VISA

CARD # _____

EXP. DATE: _____

☐ MASTERCARD

AUTHORIZED SIGNATURE: _____

TriniDyne

PCM ANALYSIS FIELD REPORT

CLIENT NAME CAPITOL ENVIRONMENTAL SERVICES, INC.			PROJ. # 283-11	
ADDRESS 416 SOUTH JEFFERSON STREET, 208			LOT# 001	
CITY ROANOKE	STATE VA	ZIP 24011	DATE 09-14-06	
PHONE 540-777-6547	FAX 540-777-6549	DATE COLLECTED 09-14-06		
CONTACT TERRI FORT (703-283-8635)			SAMPLE COLLECTOR BILL BOWER	
CLIENT PROJECT ID PO # ROAN-TFORT-2653/BLDG 4343C ATK			ANALYST WILLIAM (BILL) BOWER	

SAMPLE ID	TYPE	DESCRIPTION OR SAMPLE LOCATION	START STOP	FLOW RATE	VOLUME (L)	# OF FIBERS	# OF FIELDS	CONC. (fibers/cc)
1 AC810	OE	BLDG. 4343 OUTSIDE AT ENTRANCE	ST 1030 SP 1430	4.0 4.0	960	0.0	100	<0.005
2			ST SP					
3			ST SP					
4			ST SP					
5			ST SP					
6			ST SP					
7			ST SP					
8			ST SP					
9			ST SP					
10			ST SP					

METHODOLOGY AND LEGEND:

All samples analyzed by phase contrast microscopy in accordance with NIOSH Method 7400, "A" counting rules. Microscope field area: 0.0078 mm². All sample volumes are in liters, and f/cc values are corrected for blank count. TDTC = too dirty to count in accordance with NIOSH 7400 due to filter-obstructing particulate matter. Analysis by BEST, Inc.: VA AB Lab License # 3333 000267

SAMPLE TYPE CODES:

BL = BASELINE
OE = OUTSIDE ENVIR.
IE = INSIDE ENVIR.
FC = FINAL CLEAR
BK = BLANK
OT = OTHER
PR = PERSONAL

COMMENTS:ANALYST
SIGNATURE*William Bower*MICROSCOPE CALIBRATED
AND ALIGNED?

YES

NO

ASG:

PROJ _____ LOT _____

TriniDyne - P.O. Box 118, Blacksburg, VA 24063-0118 (540) 961.6464

Field Report Ira Stuart

TriniDyne**PROJECT MONITORING
SUMMARY NOTES**

PROJECT # 283-11

LOT # 001

DATE 09-14-06

PAGE 1 OF 2

INSPECTOR/MONITOR BILL BOWER

JOB ID BLDG 4343 - RADFORD AMMO

THURSDAY WEATHER: LOW 60°F, HIGH 80°F, SUNNY TODAY.

0730 BILL BOWER (B.B.) OF TRINIDYNE MEETS RON MYERS (R.M.) OF WACO AT RADFORD, VA ARMY AMMO PLANT. WACO CREW MEMBERS ARE: ELMIN L. SANTOS AND RUBEN PERDOMO.

CREW PAPERWORK IS INCOMPLETE. KENT BROWN (K.B.) OF WACO NOTIFIED AND WILL FAX PAPERWORK ASAP. WE MEET WITH STEVE KRITAK (S.K.) AND CHARLES GREEN (C.G.) OF SHAW ENVIRONMENTAL (PRIME CONTRACTOR). JEREMY FLINT (J.F.) OF ATK AMMUNITION & ENERGETICS ALSO ON SITE WITH JAMES MCKENNA (J.M.) OF ATK.

1000 AFTER LENGTHY CHECK-IN WE PROCEED TO GATE 10 WHICH IS LOCATED @ EIGHT MILES AWAY. WE CHECK IN THERE AND PROCEED TO BLDG 4343 @ ONE MILE FURTHER.

1030 BLDG 4343 IS A ONE STORY CINDER BLOCK STRUCTURE @ 30' X 12' WITH A TIN ROOF. ONE ENTRANCE/EXIT DOOR AND FOUR WINDOWS. ABATEMENT WILL CONSIST OF: TRANSITE CEILING TILES 450 SQ FT, TRANSITE ELECTRIC BOX PAD 2 SQ FT, DEBRIS WITH TILES 5 SQ FT, HEATING LINE FITTINGS 20 L.FT, AND ONE ADD ON: TRANSITE SIDING ON NEARBY DOG HOUSE (3 SIDES) 42 SQ FT.

S.K. AND C.G. ON SITE. B.B. SETS PCM AIR SAMPLING EQUIPMENT IN PLACE. BARRIER TAPE AND SIGNAGE IN PLACE. POLY ON FLOOR TO CATCH DEBRIS. CREW USING PROTECTIVE SUITS, RESPIRATORS, HARD HATS, GLOVES, SAFETY SHOES, PUMP SPRAYER WITH AMENDED WATER, FIBERGLASS LADDER TO REACH CEILING, HAND TOOLS, LABELED

TriniDyne

PROJECT MONITORING SUMMARY NOTES

PROJECT # 28311

LOT# 001

DATE 09-14-06

PAGE 2 OF 2

INSPECTOR/MONITOR BILL BOWER

JOB ID BLDG. 4343 RADFORD AMMO

DISPOSAL BAGS TAPED SHUT. BAGS TRANSPORTED TO OFF SITE
DUMPER IN AN ENCLOSED TRAILER PROVIDED BY WACO.

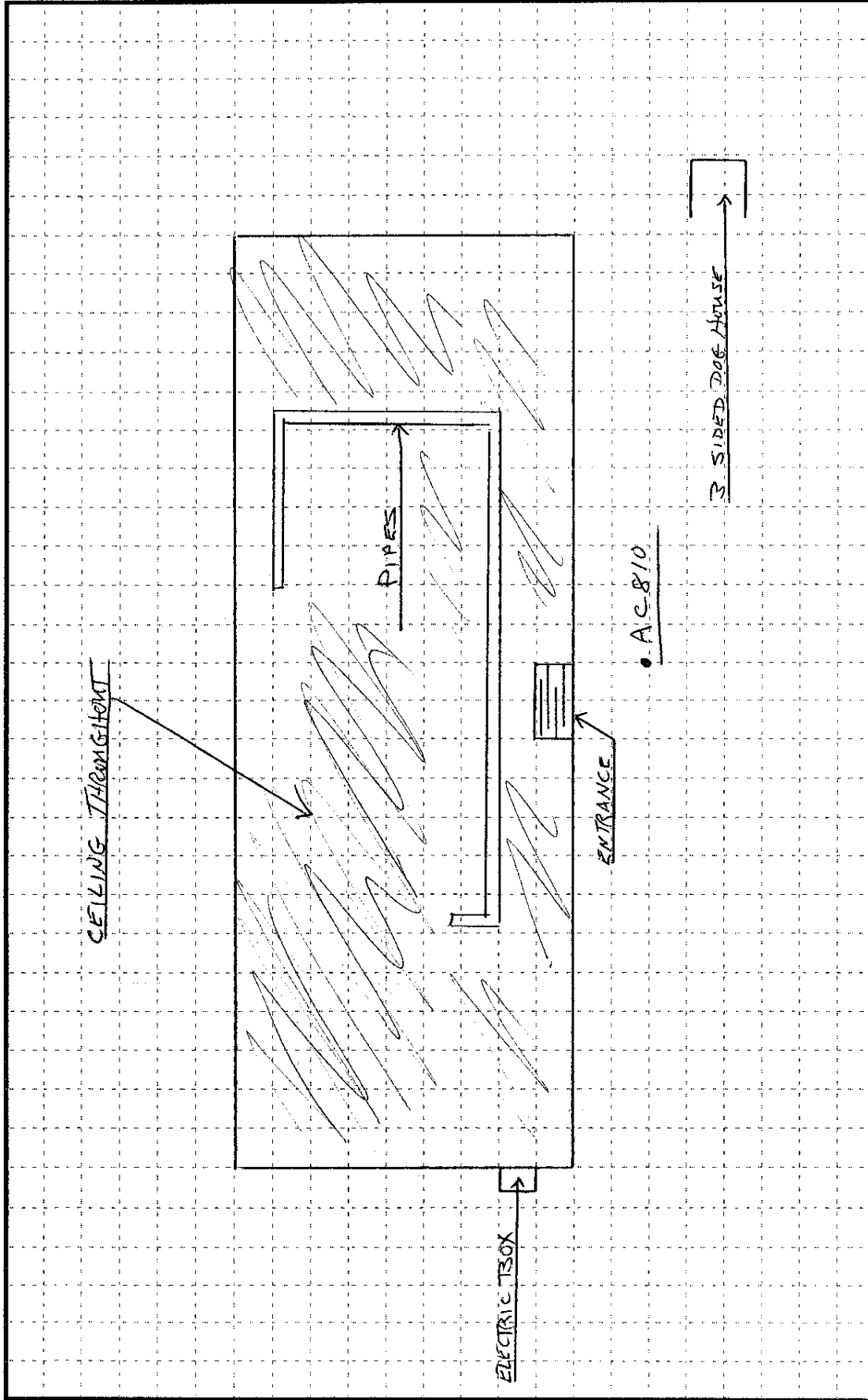
WRT METHOD USED FOR ABATEMENT.

1130 CREW AT WORK. CEILING COMES DOWN WITH NO PROBLEMS.

1200 CREW WILL WORK THROUGH LUNCH BECAUSE OF LATE START AND
SMALL JOB. PIPES WILL STRIP/CUT EASILY.

1430 ALL FOUND ACM'S HAVE BEEN ABATED AND BAGGED OUT TO
TRAILER. CREW CLEANS UP AND PREPARES TO LEAVE JOB SITE.
BLDG 4343 IS COMPLETED. GOOD CLEAN JOB.

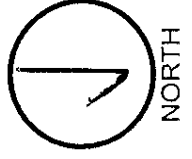
ALL REQUIRED BADGES AND PAPERWORK IS RETURNED TO GATE
HOUSE. TERRI FORT OF CAPITOL ENVIRONMENTAL EMAILED WITH
DETAILS. THIS JOB DID NOT REQUIRE ANY NOTIFICATION.



Building Name: 4343 RADFORD ARMY AMMO Project Number: 283-11 LOT # 001

Floor / Area: INSIDE CEILING + OUTSIDE AREA Date: 09-14-06

Drawn By: BILL BOWEN Scale: NOT TO SCALE TriniDyne ~ 540.961.6464



AIR SAMPLE LOCATION

Appendix F

Daily Quality Control Reports



Shaw Environmental, Inc.

Building 4343 IM

Report No. 001

Contract No. DACW31-03-D-001

CTO No.

Date: 8/28/06

Number of Manhours worked onsite through today 32

WEATHER: ☒ Clear ☐ P. Cloudy ☐ Cloudy Wind 0-5 mph

Temperature: High 91 Low 67

Precipitation: Today None

Previous Period (e.g., weekend) none

Site Conditions: Dry

Lost Time Due to Inclement Weather: %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Site set up and H&S review, Equip. Inspection and extra samples taken to delineate contamination

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). Excavator and Loader (delivery of equip. 8/24 and 8/25)

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.)

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by IT on construction deficiencies identified, required retesting, etc., and the corresponding action to be taken.) NONE

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) NONE

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.



MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) NONE

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw® Shaw Environmental, Inc.

Building 4343 IM

Report No. 002

Contract No. DACW31-03-D-001

CTO No.

Date: 8/29/06

Number of Manhours worked onsite through today 64

WEATHER: ☒ Clear ☐ P. Cloudy ☐ Cloudy Wind 0-5 mph

Temperature: High 90 Low 70

Precipitation: Today None

Previous Period (e.g., weekend) none

Site Conditions: Dry

Lost Time Due to Inclement Weather: %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. No Trucks today, started removal of footers of old tank area. Stockpiled concrete for further demo later in project.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). Hertz delivered Supplies ordered last week.

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.)

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by IT on construction deficiencies identified, required retesting, etc., and the corresponding action to be taken.) NONE

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) NONE

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.



MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) Hertz Equipment Co.

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Found that the footers were all not the same, back set of footers had concrete pads under them not constructed key shape like front footers. This is going to require more hammer work and possible increase disposal total for concrete above as bid total.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 003

Contract No. DACW31-03-D-001

CTO No.

Date: 8/30/06

Number of Manhours worked onsite through today 96

WEATHER: ☐ Clear ☒ P. Cloudy

☐ Cloudy Wind 0-5 mph

Temperature: High 90 Low 63

Precipitation: Today None

Previous Period (e.g., weekend) none

Site Conditions: Dry

Lost Time Due to Inclement Weather: %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. 5 Trucks loaded today with contaminated soils from Bldg.4343 site. Excavated 3 spot areas and started swale area.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). Hertz delivered roll of poly sheeting ordered last week.

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.)

OFF-SITE SURVEILLANCE ACTIVITIES:(Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by IT on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) Client requested we try and cover swale area with poly sheeting.

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) NONE



SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) Hertz Equipment Co.

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

First truck was loaded and escorted to scale to check weight against estimate using trucks gauges. First truck 1700 lbs. overweight brought back to site and adjusted weight. Second and Third truck loaded slightly underweight and also taken to scales, second truck weighted 78,400 gross and third truck weighted 75,400. Fourth and fifth truck light loaded also. We are estimating weights using truck gauges now that we have good feel on how many buckets we need to reach 78,000 lbs.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Building 4343 IM

Report No. 004

Contract No. DACW31-03-D-001 CTO No. Date: 8/31/06

Number of Manhours worked onsite through today 128

WEATHER: ☐ Clear ☐ P. Cloudy ☒ Cloudy Wind 0-5 mph

Temperature: High 84 Low 60

Precipitation: Today Rain Showers Previous Period (e.g., weekend) none

Site Conditions: Wet

Lost Time Due to Inclement Weather: %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Worked on removing additional footers after preparing site for potential major rainfall from Hurricane Ernesto

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.)

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by IT on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) USACE informed Shaw he would meet us onsite today to observe the installation of soils and sediment controls.

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None



SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) Hertz Equipment Co.

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Placed poly sheeting over the swale excavation to protect disturbed soils from eroding to contaminated areas in the event of the heavy rains that are being predicted. Installed section of silt fence at bottom of excavated swale area as back up measures to poly cover. Worked on barricading the spot excavations with concrete and caution tape. Also worked on additional footer removal. Shut site down at 1530 and cancelled Fridays work. Will start site back up Tuesday morning.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Building 4343 IM

Report No. 005

Contract No. DACW31-03-D-001 CTO No. _____ Date: 9/5/06

Number of Manhours worked onsite through today 160

WEATHER: ☐ Clear ☐ P. Cloudy ☒ Cloudy Wind 0-5 mph

Temperature: High 70 Low 63

Precipitation: Today Rain Showers Previous Period (e.g., weekend) Rain showers
Over 1" rain fell

Site Conditions: Wet

Lost Time Due to Inclement Weather: _____ %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Working on cleaning site and preparing for trucks tomorrow. Excavated out concrete pipe and sump outside bldg.4343

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.)

OFF-SITE SURVEILLANCE ACTIVITIES:(Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by IT on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.



MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) Hertz Equipment Co.

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Keeping erosion and sediment controls intact until tomorrow morning, showers still continuing today. Will work on concrete pipe and sump removal. Ordered additional supplies from Hertz.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 006

Contract No. DACW31-03-D-001

CTO No.

Date: 9/6/06

Number of Manhours worked onsite through today 192

WEATHER: ☐ Clear ☒ P. Cloudy ☐ Cloudy Wind 0-5 mph

Temperature: High 77 Low 65

Precipitation: Today None

Previous Period (e.g., weekend)

Site Conditions: Drying

Lost Time Due to Inclement Weather: %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime) Bell Oil Co. (supplier) US Bulk Haulers (sub)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Continued excavation of contaminated soils and loading into trucks for disposal. Total of 5 trucks arrived onsite but the first didn't arrive till 1015 hrs.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). Fuel delivery

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.)

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by IT on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None



Shaw Environmental, Inc.

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Five trucks loaded and manifested for shipment today. Estimated 111.5 tons shipped today. Brings total to 10 loads shipped and approximately 225.5 tons shipped.

Attachments: See Truck Log

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 007

Contract No. DACW31-03-D-001

CTO No.

Date: 9/07/06

Number of Manhours worked onsite through today 224

WEATHER: ☒ Clear ☐ P. Cloudy ☐ Cloudy Wind 0-5 mph

Temperature: High 80 Low 67

Precipitation: Today None

Previous Period (e.g., weekend)

Site Conditions: Dry

Lost Time Due to Inclement Weather: %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime), US Bulk Haulers (sub)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Continued excavation of contaminated soils and loading into trucks for disposal. Total of 10 trucks scheduled for today starting at 0730 and 1 ready every 45 minutes after that to be brought into site. 1st truck didn't show until 0920 and was not ready to go directly into site, wasn't ready till 0940. Lateness of trucks caused cut back of last 2 until Friday. Did manage to get all 8 trucks out before Gate 10 was closed at 1600 hrs. Began taking confirmation samples, 9, in the three spot excavation areas. Sent FedEx to Accutest this afternoon.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.)

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by IT on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None



CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Eight trucks loaded and manifested for shipment today. Estimated 178 tons shipped today. Brings total to 18 loads shipped and approximately 403.5 tons shipped.

Attachments: See Truck Log

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 008

Contract No. DACW31-03-D-001

CTO No.

Date: 9/08/06

Number of Manhours worked onsite through today 256

WEATHER: ☒ Clear ☐ P. Cloudy ☐ Cloudy Wind 0-5 mph

Temperature: High 83 Low 63

Precipitation: Today None

Previous Period (e.g., weekend)

Site Conditions: Dry

Lost Time Due to Inclement Weather: %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime), US Bulk Haulers (sub)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Continued excavation of contaminated soils and loading into trucks for disposal. Total of 4 trucks scheduled for today starting at 0730, all 4 trucks in and loaded, and excavation activities completed per drawing delineations. Took 22 additional samples from excavation area for confirmation sampling. Sent FedEx to Accutest this afternoon. Removed pipe going across roadway and segregated asphalt and metal pipe from other waste. Secured excavation area with hi visibility fencing and caution tape. Also added section of silt fence across west end of swale at bottom of hill (direction of any runoff per USACE Representative on site).

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier).

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.)

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by IT on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) Install silt fence as described above.



Shaw Environmental, Inc.

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Four trucks loaded and manifested for shipment today. Estimated 91 tons shipped today. Brings total to 22 loads shipped and approximately 494.5 tons shipped. Excavation completed.

Attachments: See Truck Log

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw® Shaw Environmental, Inc.

Building 4343 IM

Report No. 009

Contract No. DACW31-03-D-001

CTO No.

Date: 9/11/06

Number of Manhours worked onsite through today 288

WEATHER: ☒ Clear ☐ P. Cloudy ☐ Cloudy Wind 0-5 mph

Temperature: High 83 Low 63

Precipitation: Today None Previous Period (e.g., weekend) None

Site Conditions: Dry

Lost Time Due to Inclement Weather: %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Worked on removal of remaining concrete footers and removal of pipes and valves.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier).

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.)

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

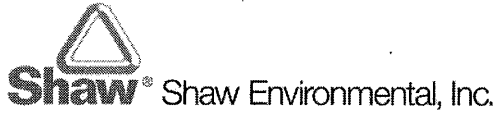
1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by IT on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.



MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Waiting for United Rentals to come back with date for delivery of Backhoe with hammer, no security guard after 10 am today.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Building 4343 IM

Report No. 010

Contract No. DACW31-03-D-001

CTO No.

Date: 9/12/06

Number of Manhours worked onsite through today 320

WEATHER: ☐ Clear ☐ P. Cloudy ☒ Cloudy Wind 0-5 mph

Temperature: High 75 Low 57

Precipitation: Today None

Previous Period (e.g., weekend) None

Site Conditions: Dry

Lost Time Due to Inclement Weather: %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Worked on removal of equipment and debris inside bldg.4343 in preparation for Asbestos abatement and demolition.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Today we removed 5 fluorescent light bulbs from inside bldg.4343 and temporarily laid them outside the building on the ground. We left the site to pick up some supplies and Jim Mckenna visited the site and saw the bulbs were not properly stored. He notified the Project Manager and I received a call from the PM and I was told we maybe able to bring them to the electrical shop so we put the bulbs in a empty box that previously contained a roll of poly sheeting and moved it into the building. Before the PM received an answer about the electrical shop Jim Mckenna and Jerry Redder came back with a proper box and transported the bulbs to the electrical shop.

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken) Inspected and sampled both general fill and top soil stockpiles. Both piles are located off route 114 in Christiansburg and owned by Hodges Trucking.

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by IT on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None



CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

No security guard on duty today they will return tomorrow. United rentals delivered the backhoe and hammer at 1300hrs. Took samples today of general fill and top soil for backfill and sent to Lab for 24 hr. turn around.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 011

Contract No. DACW31-03-D-001

CTO No.

Date: 9/13/06

Number of Manhours worked onsite through today 352

WEATHER: ☐ Clear ☐ P. Cloudy ☒ Cloudy Wind 0-5 mph

Temperature: High 77 Low 53

Precipitation: Today 1/2" Previous Period (e.g., weekend) None

Site Conditions: Rain heavy at times

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Working with Hydraulic hammer reducing size of concrete to 2 X 2 X 2 pieces or smaller for disposal. Used rainy weather to our advantage and worked all day on breaking concrete.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) None

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None



Shaw Environmental, Inc.

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Received sample results for soil confirmation, will setup another few trucks and re-excavate areas still above 70.3 ppm. There were 10 samples that came back above the limit.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 012

Contract No. DACW31-03-D-001

CTO No.

Date: 9/14/06

Number of Manhours worked onsite through today 384

WEATHER: ☒ Clear ☐ P. Cloudy ☐ Cloudy Wind 0-5 mph

Temperature: High 85 Low 64

Precipitation: Today None Previous Period (e.g., weekend) None

Site Conditions: Wet but starting to dry

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

- a. Shaw E&I (Prime), WACO Inc. (Asbestos sub), Trinidyne (Asbestos Monitor), United Rentals (mechanic)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Asbestos subcontractor onsite at 0800, getting them visitor badges for the day. 0945 we have all paperwork correct and are at building 4343 to begin. Hammer still down due to broken bolt, mechanic on way to repair. Hammer repaired and continued hammer operations on concrete footers.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

- a. Preparatory Inspection: (Attach minutes)

- b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

- c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

- d. Final Inspection:

- e. Completion Inspection: (USACE)

- f. Safety Inspection: (Include safety violations and corrective actions taken.) Safety Inspection of Asbestos subcontractor.

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) Jim McKenna and Jeremy Flint asked if we could have WACO remove the asbestos siding on the "doghouse" outside building 4343 if possible.



CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting, Safety Meeting with subcontractors to review H&S Plan.

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Received sample results for soil confirmation, will setup another few trucks and re-excavate areas still above 70.3 ppm. There were 10 samples that came back above the limit. Asbestos contractor removed 76 bags of asbestos. An additional 42 sq. ft. were removed from "doghouse" outside building. Shipped out 1 30 yd. roll off of concrete to First Piedmont Landfill, approximately 15 cu.yds. in box.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 013

Contract No. DACW31-03-D-001

CTO No.

Date: 9/15/06

Number of Manhours worked onsite through today 416

WEATHER: ☒ Clear ☐ P. Cloudy

☐ Cloudy Wind 0-5 mph

Temperature: High 80 Low 55

Precipitation: Today None

Previous Period (e.g., weekend) None

Site Conditions: drying

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Continued breaking of concrete footers, loaded 1 Bulk Transport truck with contaminated soils and 1 20 yd. roll off with concrete.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.



MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Ordered an additional 3 trucks for contaminated soils and will continue to ship concrete roll offs next week. Also ordered 2000 gallon water truck from Hertz for Monday delivery for potential dust suppression while building 4343 is taken down.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 014

Contract No. DACW31-03-D-001

CTO No.

Date: 9/18/06

Number of Manhours worked onsite through today 448

WEATHER: ☒ Clear ☐ P. Cloudy ☐ Cloudy Wind 0-5 mph

Temperature: High 73 Low 50

Precipitation: Today None

Previous Period (e.g., weekend) None

Site Conditions: dry

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Continued breaking of concrete footers, loaded 2 Bulk Transport truck with contaminated soils and 1 20 yd. roll off with concrete. Pulled 10 additional confirmation samples from excavation area and sent to Lab.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). Water Truck by Hertz, Bell Oil delivered fuel

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None



Shaw Environmental, Inc.

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Finished breaking concrete footers into small pieces for disposal, waiting for Water Truck delivery. Loaded 1 concrete truck from First Piedmont and 2 soil trucks from Bulk Transport. Waiting for location to fill water truck, it was delivered at approximately 1030 am.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 015

Contract No. DACW31-03-D-001

CTO No.

Date: 9/19/06

Number of Manhours worked onsite through today 480

WEATHER: ☐ Clear ☒ P. Cloudy

☐ Cloudy

Wind 0-5 mph

Temperature: High 70 Low 45

Precipitation: Today Trace amount

Previous Period (e.g., weekend) None

Site Conditions: dry

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Loaded 1 Bulk Transport truck with soil and 1 First Piedmont with concrete, 2 trucks didn't show up today. Filled Water Truck this morning from location ATK / Army gave us took 2 hours to get 1/3 of a load. We'll make water last. Wet down building and commenced demolition of Building 4343.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES:(Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) Called Kay Bland of ATK about PCB ballasts and fluorescent light bulb, she instructed the Electrical Shop to pick the items up from us today.



CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Prior to demolition of building 4343 we removed 4 PCB light ballasts and 1 additional fluorescent light bulb. Placed the ballasts in a 5 gallon plastic bucket and wrapped the bulb in bubble wrap and placed all inside 55 gallon drum until ATK electricians come pick them up from us. Building 4343 completely demolished today and materials segregated for disposal.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Building 4343 IM

Report No. 016

Contract No. DACW31-03-D-001

CTO No.

Date: 9/20/06

Number of Manhours worked onsite through today 512

WEATHER: ☐ Clear ☒ P. Cloudy

☐ Cloudy

Wind 0-5 mph

Temperature: High 77 Low 41

Precipitation: Today none

Previous Period (e.g., weekend) None

Site Conditions: dry

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Crew completing segregating of the materials from the demo, and starting to break up concrete floor of building 4343. Only 2 First Piedmont trucks loaded today need more trucks to finish concrete this week. Called Capital Environmental about getting more trucks for tomorrow.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES : (Include action taken) called Asphalt sub contractors but could only leave messages, waiting for call backs from 1 of 3 called.

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None



CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Continued working on breaking of the floor and footers of the building, loaded only 2 trucks from First Piedmont today. Informed Capital Environmental we had 15 or 16 loads left. Terry Fort informed us that we would have 7 Thompson trucks and 3 First Piedmont trucks on Thursday. Called the Hertz Water truck off rent this afternoon.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 017

Contract No. DACW31-03-D-001

CTO No.

Date: 9/21/06

Number of Manhours worked onsite through today 544

WEATHER: ☐ Clear ☒ P. Cloudy ☐ Cloudy Wind 5-10 mph gusting to 25 mph

Temperature: High 70 Low 41

Precipitation: Today none Previous Period (e.g., weekend) None

Site Conditions: dry

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Completed breaking of the concrete footers from building 4343 and decontaminating backhoe prior to bring outside fence at Gate 10. Loaded 10 trucks with concrete today, 7 from Thompson trucking and 3 from First Piedmont.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES:(Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None



Shaw Environmental, Inc.

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Loaded 10 trucks today informed Capital we need 4 additional trucks tomorrow to complete concrete and debris load out. Received sample results from Lab today 5 samples still above clean up limit. Sample B43SC030, 30A (duplicate sample), 34, 36 and 37 were all hot. All samples located in bottom of swale halfway down to where it starts to widen out. We will re-excavate this area on Tuesday of next week.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 018

Contract No. DACW31-03-D-001

CTO No.

Date: 9/22/06

Number of Manhours worked onsite through today 570

WEATHER: ☒ Clear ☐ P. Cloudy ☐ Cloudy Wind 0-5 mph

Temperature: High 72 Low 46

Precipitation: Today none

Previous Period (e.g., weekend) None

Site Conditions: dry

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Loaded the remaining 4 loads of concrete and debris, area cleaned of all material. Placed poly sheeting over areas still above clean up limits in preparation for potential heavy rains over the weekend. Ordered 3 Bulk Transport trucks for Tuesday loading.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None



Shaw Environmental, Inc.

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Crew left today for weekend trip home will return Monday at noon to continue work. Scheduled roll off for Monday morning from metal recycler. 1 30 yard box should be all we need. I'll load box in the morning and when crew arrives we'll excavated but not stockpile material for Tuesdays 3 loads. Still need to contact Asphalt contractors, will work on Monday again and find a hydro seeding contractor to seed site. Ordered general fill material for Wednesday and Thursday, we will stockpile material along side of trench area while we wait for sample results. Water truck and backhoe both sitting outside Gate 10 waiting to be picked up by owners.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 019

Contract No. DACW31-03-D-001

CTO No.

Date: 9/25/06

Number of Manhours worked onsite through today 602

WEATHER: ☐ Clear ☒ P. Cloudy

☐ Cloudy Wind 0-5 mph

Temperature: High 73 Low 51

Precipitation: Today none

Previous Period (e.g., weekend) Over 3/4" fell over wk.

Site Conditions: Wet

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Inspecting area after weekend rains, covering over areas awaiting sample results intact. Loading scrap metal into 30 yard roll off today. Talked to 3 Asphalt contractors today, Donnie's Driveway agreed to patch driveway.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None



Shaw Environmental, Inc.

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Crew back on site a regular time didn't take advantage of extra time off. Cleaning up site where we loaded trucks and roadway to and from top of hill. Loaded 30 yard roll off. Did not schedule security at gate 10 for today used main gate except for when First Piedmont came and left with box.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 020

Contract No. DACW31-03-D-001

CTO No.

Date: 9/26/06

Number of Manhours worked onsite through today 634

WEATHER: ☐ Clear ☒ P. Cloudy

☐ Cloudy Wind 0-5 mph

Temperature: High 75 Low 48

Precipitation: Today none

Previous Period (e.g., weekend) None

Site Conditions: Site drying

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Began excavating trench area that had hot samples and also excavating 2 hot spots at areas west of building location. Also excavated out 1 foot from building footprint area for disposal. Bulk Transport sent three trucks for shipment to Michigan today. After completion of excavation we sampled for clean confirmation. Packaged and shipped samples to Lab.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES:(Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None



Shaw Environmental, Inc.

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Took 14 soil confirmation samples from areas in trench that were hat after 2 re excavation and under the footprint of the building.

Sampled 1 area (B43SC51T) for TCLP Cadmium. See Drawing for locations.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Building 4343 IM

Report No. 021

Contract No. DACW31-03-D-001

CTO No.

Date: 9/27/06

Number of Manhours worked onsite through today 666

WEATHER: ☐ Clear ☒ P. Cloudy ☐ Cloudy Wind 0-5 mph

Temperature: High 70 Low 42

Precipitation: Today none

Previous Period (e.g., weekend) None

Site Conditions: Dry

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Started receiving shipments of general fill from Hodges Trucking and will backfill areas already cleaned and have clean sample results to confirm levels below 70.3 ppm. Hodges ran 3 trucks today with approximately 12 yards per load making 6 trips each.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES:(Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None



Shaw® Shaw Environmental, Inc.

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Received approximately 216 cubic yards of material today. Backfilled and compacted with excavator.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Building 4343 IM

Report No. 022

Contract No. DACW31-03-D-001

CTO No.

Date: 9/28/06

Number of Manhours worked onsite through today 690

WEATHER: ☐ Clear ☐ P. Cloudy ☒ Cloudy Wind 0-5 mph

Temperature: High 70 Low 48

Precipitation: Today None (rained late in the Day and Overnight) Previous Period (e.g., weekend) Overnight 1/2" rain and heavy winds.

Site Conditions: Wet (rained heavy late Thursday night)

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Continued with receiving and placing backfill in areas that have tested clean. Hodges Trucking bringing in general fill again today.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None



SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Received approximately 252 cubic yards of material today. Backfilled and compacted with excavator. Received total of 468 cubic yards of material to date. Health and Safety left project today to start new project in NY.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 023

Contract No. DACW31-03-D-001

CTO No.

Date: 9/29/06

Number of Manhours worked onsite through today 714

WEATHER: ☐ Clear ☐ P. Cloudy ☒ Cloudy Wind 0-5 mph

Temperature: High 72 Low 38

Precipitation: Today None

Previous Period (e.g., weekend) Overnight 1/2" rain and heavy winds.

Site Conditions: Wet

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Inspected site this morning after heavy showers overnight, had backfill material that was delivered previously needs to be moved into place and compacted. Hodges trucking called early this morning and will try and get into site to continue bringing backfill. We will decide later about whether they can get trucks into their site. 1030 A.M. Hodges Trucking called and said they cannot get trucks down into site to load so we decided to hold off until Monday. Had security lock gate 10 for today and crew will use main gate to get into site.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None



CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

No backfill delivered today, fill site to wet for trucks to get into and out of. Backfilled and compacted with excavator material stockpiled yesterday. Total of 468 cubic yards of material to date. Received sample results from Lab today, B43SC39, 40, 40A all retaken in lower part of trench were still above clean up limit. Also B43SC47 (located north sidewall under building) and B43SC48 (located south side floor center under building) were both above the clean up limit and will be re excavated too.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Building 4343 IM

Report No. 024

Contract No. DACW31-03-D-001

CTO No.

Date: 10/02/06

Number of Manhours worked onsite through today 738

WEATHER: ☒ Clear ☐ P. Cloudy ☐ Cloudy Wind 0-5 mph

Temperature: High 77 Low 45

Precipitation: Today None Previous Period (e.g., weekend) None

Site Conditions: Dry

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Loaded 1 Bulk Transport truck with contaminated soils and received 12 loads of general fill material from Hodges trucking.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.



MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Total of 600 cubic yards of general fill material received to date.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 025

Contract No. DACW31-03-D-001

CTO No.

Date: 10/03/06

Number of Manhours worked onsite through today 762

WEATHER: ☒ Clear ☐ P. Cloudy

☐ Cloudy Wind 0-5 mph

Temperature: High 72 Low 39

Precipitation: Today None

Previous Period (e.g., weekend) None

Site Conditions: Dry

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Top Soil being delivered and spread today.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.



MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Total of 308 cubic yards of Top Soil delivered to date. Total trucks shipped or received to date: Contaminated Soils shipped – 30, Concrete debris – 20, Metal – 1, General fill received – 51, Top Soil – 28. Also dropped off security badge of C. Green to security office.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 026

Contract No. DACW31-03-D-001

CTO No.

Date: 10/04/06

Number of Manhours worked onsite through today 786

WEATHER: ☒ Clear ☐ P. Cloudy ☐ Cloudy Wind 0-5 mph

Temperature: High 83 Low 54

Precipitation: Today None

Previous Period (e.g., weekend) None

Site Conditions: Dry

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Continuing with delivery of top soils and placing soils.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.



MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Total of 539 cubic yards of Top Soil delivered to date. Total trucks shipped or received to date: Contaminated Soils shipped – 30, Concrete debris – 20, Metal – 1, General fill received – 51, Top Soil – 49. Gregory Seeding scheduled to come out next week to look at area for hydro-seeding.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 027

Contract No. DACW31-03-D-001

CTO No.

Date: 10/05/06

Number of Manhours worked onsite through today 810

WEATHER: ☐ Clear ☒ P. Cloudy

☐ Cloudy Wind 0-5 mph

Temperature: High 68 Low 38

Precipitation: Today None

Previous Period (e.g., weekend) None

Site Conditions: wet

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Continuing with delivery of top soils and placing soils. Received sample results 1 area still above 70.3, sample B43SC55 78ppm. Will excavate additional area and schedule truck also sent out 1 additional load of debris today.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None



Shaw® Shaw Environmental, Inc.

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Total of 539 cubic yards of Top Soil delivered to date. Total trucks shipped or received to date: Contaminated Soils shipped – 30, Concrete debris – 21, Metal – 1, General fill received – 51, Top Soil – 49.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 028

Contract No. DACW31-03-D-001

CTO No.

Date: 10/06/06

Number of Manhours worked onsite through today 834

WEATHER: ☐ Clear ☐ P. Cloudy

☒ Cloudy Wind 0-5 mph

Temperature: High 70 Low 41

Precipitation: Today Heavy Rains (PM)

Previous Period (e.g., weekend) None

Site Conditions: Wet

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Repairs made to backfilled areas because of runoff from overnight rains. Scheduled 1 additional Bulk Transport truck for Monday and waiting for clearance to use Donnie's Driveway to repair asphalt. They need to be approved by Corporate procurement.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None



Shaw® Shaw Environmental, Inc.

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Total trucks shipped or received to date: Contaminated Soils shipped – 30, Concrete debris – 21, Metal – 1, General fill received – 51, Top Soil – 49.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Building 4343 IM

Report No. 029

Contract No. DACW31-03-D-001 CTO No. Date: 10/09/06

Number of Manhours worked onsite through today 858

WEATHER: ☐ Clear ☐ P. Cloudy ☒ Cloudy Wind 0-5 mph

Temperature: High 70 Low 41

Precipitation: Today Heavy Rains (PM) Previous Period (e.g., weekend) None

Site Conditions: Wet

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Repairs made to backfilled areas because of runoff from weekend rains. Bulk Transport truck on site for 31st load of contaminated soils. Gregory Seeding on site for site walk to look at area for hydro seeding. Donnie's driveway cancelled due to no workers compensation on employees. Spoke to owner 2 or 3 times about insurance issues today. Took four more soils samples today for Cadmium, TCLP – cadmium and SPLP – cadmium, all sent to lab. Ordered 2 more loads of general fill from Hodges trucking.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES:(Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None



Shaw Environmental, Inc.

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Total trucks shipped or received to date: Contaminated Soils shipped – 31, Concrete debris – 21, Metal – 1, General fill received – 51, Top Soil – 49.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Building 4343 IM

Report No. 030

Contract No. DACW31-03-D-001 CTO No. _____ Date: 10/10/06

Number of Manhours worked onsite through today 882

WEATHER: ☒ Clear ☐ P. Cloudy ☐ Cloudy Wind 0-5 mph

Temperature: High 72 Low 38

Precipitation: Today None Previous Period (e.g., weekend) None

Site Conditions: Drying

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Spoke to Donnie's driveway last evening and confirmed cancellation for tomorrow with him since he didn't meet the insurance, workers comp, requirements for procurement. He stated he'd have to shuffle his schedule and he had a sister company that could meet the requirements but the minimum would be \$5000.00 not \$1500.00 to come on site and due any work. I told him thanks but that was extremely high for this small patch work. @ loads of general fill arrived on site today and called the dozer off rent after it was decontaminated today.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES:(Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None



Shaw® Shaw Environmental, Inc.

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Total trucks shipped or received to date: Contaminated Soils shipped – 31, Concrete debris – 21, Metal – 1, General fill received – 53, Top Soil – 49.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 031

Contract No. DACW31-03-D-001

CTO No.

Date: 10/11/06

Number of Manhours worked onsite through today 906

WEATHER: ☒ Clear ☐ P. Cloudy ☐ Cloudy Wind 0-5 mph

Temperature: High 68 Low 35

Precipitation: Today None

Previous Period (e.g., weekend) None

Site Conditions: Dry

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Crew waiting for sample results to complete backfill and top soils over final excavation area. Heavy rains forecasted for next 2 days want to complete ASAP. Sample results came back clean this afternoon, finishing up backfill and top soil today.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES:(Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None



SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Total trucks shipped or received to date: Contaminated Soils shipped – 31, Concrete debris – 21, Metal – 1, General fill received – 53, Top Soil – 49.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 032

Contract No. DACW31-03-D-001

CTO No.

Date: 10/12/06

Number of Manhours worked onsite through today 930

WEATHER: ☐ Clear ☐ P. Cloudy ☒ Cloudy Wind 0-5 mph

Temperature: High 65 Low 42

Precipitation: Today Heavy overnight

Previous Period (e.g., weekend) None

Site Conditions: Wet

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Crew fixing minor run off damage from rain overnight, decon of excavator being performed, and excavator taken off rent at end of day. Dozer picked up by Hertz today and excavator scheduled for Friday.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None



SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Total trucks shipped or received to date: Contaminated Soils shipped – 31, Concrete debris – 21, Metal – 1, General fill received – 53, Top Soil – 49.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 033

Contract No. DACW31-03-D-001

CTO No.

Date: 10/13/06

Number of Manhours worked onsite through today 954

WEATHER: ☒ Clear ☐ P. Cloudy ☐ Cloudy Wind 0-5 mph

Temperature: High 70 Low 45

Precipitation: Today none

Previous Period (e.g., weekend) None

Site Conditions: Dry

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Clean up of site completed, excavator demobilized from site and crew traveling home today, project completed except for hydro seeding and asphalt repairs. Turned in badges for crew.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None



Shaw® Shaw Environmental, Inc.

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Total trucks shipped or received to date: Contaminated Soils shipped – 31, Concrete debris – 21, Metal – 1, General fill received – 53, Top Soil – 49.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Building 4343 IM

Report No. 034

Contract No. DACW31-03-D-001

CTO No.

Date: 10/19/06

Number of Manhours worked onsite through today 962

WEATHER: ☒ Clear ☐ P. Cloudy ☐ Cloudy Wind 0-5 mph

Temperature: High 70 Low 45

Precipitation: Today none Previous Period (e.g., weekend) None

Site Conditions: Dry

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Hydro seeder on site to hydro seed approximately 2 – 2.5 acres of area at former bldg. 4343 site.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.



Shaw® Shaw Environmental, Inc.

MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Total trucks shipped or received to date: Contaminated Soils shipped – 31, Concrete debris – 21, Metal – 1, General fill received – 53, Top Soil – 49.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager



Shaw Environmental, Inc.

Building 4343 IM

Report No. 035

Contract No. DACW31-03-D-001

CTO No.

Date: 10/20/06

Number of Manhours worked onsite through today 970

WEATHER: ☒ Clear ☐ P. Cloudy

☐ Cloudy

Wind 0-5 mph

Temperature: High 72 Low 40

Precipitation: Today none

Previous Period (e.g., weekend) None

Site Conditions: Dry

Lost Time Due to Inclement Weather: 0 %

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:

(Include number, trade, hours, employer, location, and description of work)

a. Shaw E&I (Prime)

WORK PERFORMED (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attach subcontractor daily activity reports when applicable):

1. Hodges Trucking on site to perform asphalt patch of area disturbed removing pipe from across driveway at former bldg. 4343 site.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier). None

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken)

a. Preparatory Inspection: (Attach minutes)

b. Initial Inspection: (Attach minutes) See attached Initial Inspection Form

c. Follow-Up Inspection: (List results of inspection compared to specification requirements.)

d. Final Inspection:

e. Completion Inspection: (USACE)

f. Safety Inspection: (Include safety violations and corrective actions taken.) Shaw safety audit performed.

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken)

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

1.

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified required retesting, etc., and the corresponding action to be taken.) None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [e.g., scope of work and/or drawings], delays to the project attributable to site, and weather conditions, etc) None

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

1.



MEETINGS: (List the meetings, e.g., Health and Safety, Site Operations, Cost/Schedule, etc.) Tailgate Safety Meeting

VISITORS: (See attached visitors log) None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Total trucks shipped or received to date: Contaminated Soils shipped – 31, Concrete debris – 21, Metal – 1, General fill received – 53, Top Soil – 49.

Attachments:

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above:

Construction QC System Manager