February 21, 2012 **Total Arsenic by USEPA Method 6020A**

Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

INTRODUCTION

This data validation report covers one water sample collected on January 2, 2013 from the Shepley's Hill Landfill at the former Fort Devens Site, in Ayer, Massachusetts. The sample was submitted to Alpha Analytical Laboratories in Westborough, MA (Alpha) by Sovereign Consulting, Inc. (Sovereign) on January 3, 2013. Alpha assigned the sample to sample delivery group (SDG) L1300098. The effluent sample was analyzed for total arsenic by United States Environmental Protection Agency (USEPA) SW-846 Method 6020A.

Sample receipt status is presented in Table 1. The field sample identification (ID) and associated Alpha sample ID is presented in Table 2.

Data validation was performed using the ADR.net (Automated Data Review) software and an AMEC Environment & Infrastructure, Inc. (AMEC) chemist reviewed the ADR results. The ADR output was adjusted by AMEC based on professional judgment to complete the validation process. The laboratory's analytical data packages were reviewed to assess adherence to acceptable laboratory practices and the data validation requirements specified in the Department of Defense Quality Systems Manual (QSM) for Environmental Laboratories and the applicable analytical methods described above. The level of data validation specified in Table 1 was performed with reference to the Site Specific Quality Assurance Project Plan for Shepley's Hill Landfill and Treatment Plant Long-Term Monitoring and O&M Services Former Fort Devens Army Installation (May 2012) and EPA Region I Tier II Guidance. For Tier II data review, data quality objectives are assessed by review of the Contract Laboratory Program-like summary forms, with no review of the associated raw data.

Table 1. Sample Status

Data Validation Level	Matrix	Preservation	Temperature Sample Receipt	Laboratory	SDG Number
Tier II	Aqueous	Method specified	The cooler was received by the laboratory at 2.6 ºC	Alpha Analytical Laboratories, Eight Walkup Drive, Westborough, MA 01581	L1300098

Table 2. Field Sample List

Lab Sample Number	Field ID	Sample Date	Comments
L1300098-01	EFF-010213	1/02/2013	

February 21, 2012
Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

ADR Output Summary

The ADR.net software did not apply any qualifications to the data set.

ADR Output Adjustment

AMEC reviewed the Automated Data Review outputs for this set of data for accuracy and conformance with applicable data validation procedures. Based on review of the associated laboratory data package, AMEC made no changes to the ADR output and no sample results were qualified as a result of this validation.

If you have any questions or comments regarding this report, please contact the undersigned at (503) 639-3400.

Sincerely,

AMEC Environment & Infrastructure, Inc.

PREPARED BY:

Hope Mariska
Environmental Chemist

REVIEWED BY:

Marie Bevier
Environmental Chemist

March 25, 2013 **Total Arsenic by USEPA Methods 6020A**

Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

INTRODUCTION

This data validation report covers one water sample collected on February 6, 2013 from the Shepley's Hill Landfill at the former Fort Devens Site, in Ayer, Massachusetts. The sample was submitted to Alpha Analytical Laboratories in Westborough, MA (Alpha) by Sovereign Consulting, Inc. (Sovereign) on February 6, 2013. Alpha assigned the sample to sample delivery group (SDG) L1302207. The effluent sample was analyzed for total arsenic by United States Environmental Protection Agency (USEPA) SW-846 Method 6020A.

Sample receipt status is presented in Table 1. The field sample identification (ID) and associated Alpha sample ID is presented in Table 2.

Data validation was performed using the ADR.net (Automated Data Review) software and an AMEC Environment & Infrastructure, Inc. (AMEC) chemist reviewed the ADR results. The ADR output was adjusted by AMEC based on professional judgment to complete the validation process. The laboratory's analytical data package was reviewed to assess adherence to acceptable laboratory practices and the data validation requirements specified in the Department of Defense Quality Systems Manual (QSM) for Environmental Laboratories and the applicable analytical method described above. The level of data validation specified in Table 1 was performed with reference to the Site Specific Quality Assurance Project Plan for Shepley's Hill Landfill and Treatment Plant Long-Term Monitoring and O&M Services Former Fort Devens Army Installation (May 2012) and EPA Region I Tier II Guidance. For Tier II data review, data quality objectives are assessed by review of the Contract Laboratory Program-like summary forms, with no review of the associated raw data.

March 25, 2013

Total Arsenic by USEPA Methods 6020A

Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

Table 1. Sample Status

Data Validation Level	Matrix	Preservation	Temperature Sample Receipt	Laboratory	SDG Number
Tier II	Aqueous	Method specified	The cooler was received by the laboratory at 6 ºC	Alpha Analytical Laboratories, Eight Walkup Drive, Westborough, MA 01581	L1302207

Table 2. Field Sample List

Lab Sample Number	Field ID	Sample Date	Comments
L1302207-01	EFF-020613	2/06/2013	

ADR Output Summary

The ADR.net software did not apply any qualifications to the data set.

ADR Output Adjustment

AMEC reviewed the Automated Data Review outputs for this set of data for accuracy and conformance with applicable data validation procedures. Based on review of the associated laboratory data package, AMEC made no changes to the ADR output and no sample results were qualified as a result of this validation.

If you have any questions or comments regarding this report, please contact the undersigned at (503) 639-3400.

Sincerely,

AMEC Environment & Infrastructure, Inc.

PREPARED BY:

Hope Mariska
Environmental Chemist

REVIEWED BY:

Marie Bevier
Environmental Chemist

April 3, 2013
Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP, USEPA Region I Tier II Guidance, and DoD QSM

Total Metals by USEPA Methods 6020A and 6010C
Nitrate by USEPA Method 353.2
Chloride and Sulfate by USEPA Method 300.0

INTRODUCTION

This data validation report covers three water samples collected on March 1, 2013 from the Shepley's Hill Landfill at the former Fort Devens Site, in Ayer, Massachusetts. The samples were submitted to Alpha Analytical Laboratories in Westborough, MA (Alpha) by Sovereign Consulting, Inc. (Sovereign) on March 1, 2013. Alpha assigned the samples to sample delivery group (SDG) L1303496. The effluent sample was analyzed for total arsenic by United States Environmental Protection Agency (USEPA) SW-846 Method 6020A; beryllium, manganese and magnesium by USEPA SW-846 Method 6010C; nitrate by USEPA Method 353.2; and chloride and sulfate by USEPA Method 300.0. The remaining two water samples were analyzed for total arsenic by USEPA Method 6020A and iron and manganese by USEPA SW-846 Method 6010C.

Sample receipt status is presented in Table 1. The field sample identification (ID) and associated Alpha sample ID is presented in Table 2.

Data validation was performed using the ADR.net (Automated Data Review) software and an AMEC Environment & Infrastructure, Inc. (AMEC) chemist reviewed the ADR results. The ADR output was adjusted by AMEC based on professional judgment to complete the validation process. The laboratory's analytical data packages were reviewed to assess adherence to acceptable laboratory practices and the data validation requirements specified in the Department of Defense Quality Systems Manual (QSM) for Environmental Laboratories and the applicable analytical methods described above. The level of data validation specified in Table 1 was performed with reference to the Site Specific Quality Assurance Project Plan for Shepley's Hill Landfill and Treatment Plant Long-Term Monitoring and O&M Services Former Fort Devens Army Installation (May 2012) and EPA Region I Tier II Guidance. For Tier II data review, data quality objectives are assessed by review of the Contract Laboratory Program-like summary forms, with no review of the associated raw data.

Table 1. Sample Status

Data Validation Level	Matrix	Preservation	Temperature Sample Receipt	Laboratory	SDG Numbers
Tier II	Aqueous	Method specified	The cooler was received by the laboratory at 5 ºC	Alpha Analytical Laboratories, Eight Walkup Drive, Westborough, MA 01581	L1303496

Table 2. Field Sample List

Lab Sample Number	Field ID	Sample Date	Comments
L1303496-01	EFF-030113	3/01/2013	
L1303496-02	EW-1-030113	3/01/2013	
L1303496-03	EW-4-030113	3/01/2013	

April 3, 2013
Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

Total Metals by USEPA Methods 6020A and 6010C
Nitrate by USEPA Method 353.2
Chloride and Sulfate by USEPA Method 300.0

ADR Output Summary

The ADR.net software did not apply any qualifications to the data set.

ADR Output Adjustment
AMEC reviewed the Automated Data Review outputs for this set of data for accuracy and conformance with applicable data validation procedures. AMEC made the following adjustments to the ADR output based on review of the associated laboratory data package.

- Magnesium recovery in the interference check sample AB was less than the QAPP-specified 80% to 120% limits at 78%. AMEC J qualified the detected magnesium result from sample EFF-030113 because of the potential low analytical bias.
- Alpha performed a post digestion spike on sample EW-4-030113. Manganese (68%) recovery was less than the QAPP-specified 75% to 125% limits at 68%. AMEC J qualified the detected manganese result from sample EW-4-030113 because of the potential low analytical bias.
- Alpha performed a serial dilution on sample EW-4-030113. Percent differences for iron (11%) and manganese (13%) were higher than the QAPP-specified maximum of 10% for parent sample concentrations greater than fifty times the method detection limit. AMEC J qualified the detected iron and manganese results from sample EW-4-030113 because of the potential analytical imprecision.

If you have any questions or comments regarding this report, please contact the undersigned at (503) 639-3400.

Sincerely,

AMEC Environment & Infrastructure, Inc.

PREPARED BY:

Hope Mariska
Environmental Chemist

REVIEWED BY:

Marie Bevier
Environmental Chemist

April 23, 2013 **Total Arsenic by USEPA Method 6020A**

Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

INTRODUCTION

This data validation report covers one water sample collected on April 3, 2013 from the Shepley's Hill Landfill at the former Fort Devens Site, in Ayer, Massachusetts. The sample was submitted to Alpha Analytical Laboratories in Westborough, MA (Alpha) by Sovereign Consulting, Inc. (Sovereign) on April 3, 2013. Alpha assigned the sample to sample delivery group (SDG) L1305660. The effluent sample was analyzed for total arsenic by United States Environmental Protection Agency (USEPA) SW-846 Method 6020A.

Sample receipt status is presented in Table 1. The field sample identification (ID) and associated Alpha sample ID is presented in Table 2.

Data validation was performed using the ADR.net (Automated Data Review) software and an AMEC Environment & Infrastructure, Inc. (AMEC) chemist reviewed the ADR results. The ADR output was adjusted by AMEC based on professional judgment to complete the validation process. The laboratory's analytical data packages were reviewed to assess adherence to acceptable laboratory practices and the data validation requirements specified in the Department of Defense Quality Systems Manual (QSM) for Environmental Laboratories and the applicable analytical methods described above. The level of data validation specified in Table 1 was performed with reference to the Site Specific Quality Assurance Project Plan for Shelpley's Hill Landfill and Treatment Plant Long-Term Monitoring and O&M Services Former Fort Devens Army Installation (May 2012) and EPA Region I Tier II Guidance. For Tier II data review, data quality objectives are assessed by review of the Contract Laboratory Program-like summary forms, with no review of the associated raw data.

Table 1. Sample Status

Data Validation Level	Matrix	Preservation	Temperature Sample Receipt	Laboratory	SDG Number
Tier II	Aqueous	Method specified	The cooler was received by the laboratory at 2.3 ºC	Alpha Analytical Laboratories, Eight Walkup Drive, Westborough, MA 01581	L1305660

Table 2. Field Sample List

Lab Sample Number	Field ID	Sample Date	Comments
L1305660-01	EFF-040313	4/03/2013	

ADR Output Summary

The ADR.net software did not apply any qualifications to the data set.

April 23, 2013 **Total Arsenic by USEPA Method 6020A**
Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

ADR Output Adjustment

AMEC reviewed the Automated Data Review outputs for this set of data for accuracy and conformance with applicable data validation procedures. Based on review of the associated laboratory data package, AMEC made no changes to the ADR output and no sample results were qualified as a result of this validation.

If you have any questions or comments regarding this report, please contact the undersigned at (503) 639-3400.

Sincerely,

AMEC Environment & Infrastructure, Inc.

PREPARED BY:

Hope Mariska
Environmental Chemist

REVIEWED BY:

Marie Bevier
Environmental Chemist

EDD Warning Log

Lab Reporting Batch ID: L1305660

eQAPP: Shepley's Hill Landfill

Laboratory: AAL

Table	Line #	Column	Value	Warning	Description
Sample Methods				9	A 'Matrix_Spike' is not reported for MethodBatch 'WG599483-6020A' for Method '6020A' and Matrix 'WATER'. The project eQapp requires a 'Matrix_Spike' sample for this method and matrix.
Sample Methods				9	A 'Matrix_Spike_Duplicate' is not reported for MethodBatch 'WG599483-6020A' for Method '6020A' and Matrix 'WATER'. The project eQapp requires a 'Matrix_Spike_Duplicate' sample for this method and matrix.

Data Qualifier Summary

Lab Reporting Batch ID: L1305660 **Laboratory: AAL**

EDD Filename: L1305660_2a **eQAPP Name: Shepley's Hill Landfill**

No Data Review Qualifiers Applied.

Field QC Assignments and Associated Samples

EDD File Name: L1305660
eQapp Name: Shepley's Hill Landfill

	Associated Samples	Sample Collection Date

May 28, 2013 **Total Arsenic by USEPA Methods 6020A**

Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

INTRODUCTION

This data validation report covers one water sample collected on May 1, 2013 from the Shepley's Hill Landfill at the former Fort Devens Site, in Ayer, Massachusetts. The sample was submitted to Alpha Analytical Laboratories in Westborough, MA (Alpha) by Sovereign Consulting, Inc. (Sovereign) on May 2, 2013. Alpha assigned the sample to sample delivery group (SDG) L1307778. The effluent sample was analyzed for total arsenic by United States Environmental Protection Agency (USEPA) SW-846 Method 6020A.

Sample receipt status is presented in Table 1. The field sample identification (ID) and associated Alpha sample ID is presented in Table 2.

Data validation was performed using the ADR.net (Automated Data Review) software and an AMEC Environment & Infrastructure, Inc. (AMEC) chemist reviewed the ADR results. The ADR output was adjusted by AMEC based on professional judgment to complete the validation process. The laboratory's analytical data packages were reviewed to assess adherence to acceptable laboratory practices and the data validation requirements specified in the Department of Defense Quality Systems Manual (QSM) for Environmental Laboratories and the applicable analytical methods described above. The level of data validation specified in Table 1 was performed with reference to the Site Specific Quality Assurance Project Plan for Shepley's Hill Landfill and Treatment Plant Long-Term Monitoring and O & M Services for the Former Fort Devens Army Installation (May 2012) and EPA Region I Tier II Guidance. For Tier II data review, data quality objectives are assessed by review of the Contract Laboratory Program-like summary forms, with no review of the associated raw data.

Table 1. Sample Status

Data Validation Level	Matrix	Preservation	Temperature Sample Receipt	Laboratory	SDG Number
Tier II	Aqueous	Method specified	The cooler was received by the laboratory at 3.8 ºC	Alpha Analytical Laboratories, Eight Walkup Drive, Westborough, MA 01581	L1307778

Table 2. Field Sample List

Lab Sample Number	Field ID	Sample Date	Comments
L1307778-01	EFF-050113	5/1/2013	

ADR Output Summary

The ADR.net software did not apply any qualifications to the data set.

May 28, 2013

Total Arsenic by USEPA Methods 6020A

Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

ADR Output Adjustment

AMEC reviewed the Automated Data Review outputs for this set of data for accuracy and conformance with applicable data validation procedures. Based on review of the associated laboratory data package, AMEC made no changes to the ADR output and no sample results were qualified as a result of this validation.

If you have any questions or comments regarding this report, please contact the undersigned at (503) 639-3400.

Sincerely,

AMEC Environment & Infrastructure, Inc.

PREPARED BY:

Hope Mariska
Environmental Chemist

REVIEWED BY:

Marie Bevier
Environmental Chemist

Data Qualifier Summary

Lab Reporting Batch ID: L1307778 **Laboratory: AAL**

EDD Filename: L1307778_2a_VAL **eQAPP Name: Shepley's Hill Landfill**

No Data Review Qualifiers Applied.

Field QC Assignments and Associated Samples

EDD File Name: L1307778
eQapp Name: Shepley's Hill Landfill

	Associated Samples	Sample Collection Date

July 15, 2013
Region I Data Review Worksheet
Project: SHL, Fort Devens, NIA
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

INTRODUCTION

This data validation report covers one hundred two (102) water samples, including 17 rinsate blanks and 11 field duplicates, collected between April 8 and May 9, 2013 from the Shepley's Hill Landfill at the former Fort Devens Site North Impact Area (NIA), in Ayer, Massachusetts. The samples were submitted to Accutest Laboratories in Marlborough, MA (Accutest) by Sovereign Consulting, Inc. (Sovereign) between April 8 and May 9, 2013. Accutest assigned the samples to sample delivery groups (SDGs) MC19637, MC19762, MC19884, MC20063, MC20199, and MC20556. The samples were analyzed for total arsenic by United States Environmental Protection Agency (USEPA) SW-846 Method 6020A.

Sample receipt status is presented in Table 1. The field sample identification (ID) and associated Accutest sample ID is presented in Table 2.

Data validation was performed using the ADR.net (Automated Data Review) software and an AMEC Environment & Infrastructure, Inc. (AMEC) chemist reviewed the ADR results. The ADR output was adjusted by AMEC based on professional judgment to complete the validation process. The laboratory's analytical data packages were reviewed to assess adherence to acceptable laboratory practices and the data validation requirements specified in the Department of Defense Quality Systems Manual (QSM) for Environmental Laboratories and the applicable analytical methods described above. The level of data validation specified in Table 1 was performed with reference to the Site Specific Quality Assurance Project Plan for Shelpley's Hill Landfill Supplemental Investigations, Long-Term Monitoring and Treatment System O & M Services for the Former Fort Devens Army Installation (April 2013) and EPA Region I Tier II Guidance. For Tier II data review, data quality objectives are assessed by review of the Contract Laboratory Program-like summary forms, with no review of the associated raw data.

Table 1. Sample Status

Data Validation Level	Matrix	Preservation	Temperature Sample Receipt	Laboratory	SDG Numbers
90% Tier I/ 10% Tier II	Aqueous	Method specified	The coolers were received by the laboratory at the following temperatures: MC19637 – 4.5 ºC MC19762 – 0.2 ºC MC19884 – 1.2 ºC MC20063 – 0.4 ºC MC20199 – 0.5 ºC MC20556 – 0.6 ºC	Accutest Laboratories, 496 Tech Center West, Building 1, Marlborough, MA 01752	MC19637 MC19762 MC19884 MC20063 MC20199 MC20556

Table 2. Field Sample List

Lab Sample Number	Field ID	Sample Date	Comments
MC19637-1	GP-13-04-025	4/8/2013	Matrix Spike (MS)/Matrix Spike Duplicate (MSD)
MC19637-2	GP-13-04-035	4/8/2013	
MC19637-3	DUP-040813-F	4/8/2013	Field Duplicate of Sample GP-13-04-035
MC19637-4	RB-040813-U	4/8/2013	Rinsate Blank
MC19637-5	GP-13-04-045	4/9/2013	
MC19637-6	GP-13-05-020	4/9/2013	
MC19637-7	RB-040913-U	4/9/2013	Rinsate Blank
MC19637-8	GP-13-05-084	4/10/2013	
MC19637-9	GP-13-05-080	4/10/2013	
MC19637-10	DUP-041013-F	4/10/2013	Field Duplicate of Sample GP-13-05-080
MC19637-11	GP-13-05-070	4/10/2013	
MC19637-12	GP-13-05-060	4/10/2013	
MC19637-13	GP-13-05-050	4/10/2013	
MC19637-14	GP-13-05-040	4/10/2013	
MC19637-15	GP-13-05-030	4/10/2013	
MC19637-16	RB-041013-U	4/10/2013	Rinsate Blank
MC19637-17	GP-13-12-087	4/11/2013	
MC19637-18	GP-13-12-077	4/11/2013	
MC19637-19	GP-13-12-067	4/11/2013	
MC19637-20	GP-13-12-057	4/11/2013	
MC19762-1	GP-13-12-047	4/11/2013	
MC19762-2	GP-13-12-037	4/11/2013	MS/MSD
MC19762-3	RB-04112013-U	4/11/2013	Rinsate Blank
MC19762-4	GP-13-12-027	4/12/2013	
MC19762-5	DUP-041213-F	4/12/2013	Field Duplicate of Sample GP-13-12-027
MC19762-6	GP-13-12-017	4/12/2013	
MC19762-7	GP-13-12-008	4/12/2013	
MC19762-8	RB-041213-U	4/12/2013	Rinsate Blank
MC19762-9	GP-13-02-015	4/15/2013	
MC19762-10	GP-13-02-025	4/15/2013	
MC19762-11	GP-13-02-035	4/15/2013	
MC19762-12	DUP-041513-F	4/15/2013	Field Duplicate of Sample GP-13-02-035
MC19762-13	GP-13-02-045	4/15/2013	
MC19762-14	GP-13-02-055	4/15/2013	
MC19762-15	GP-14-02-065	4/15/2013	
MC19762-16	RB-041513-U	4/15/2013	Rinsate Blank
MC19762-17	GP-13-02-071	4/16/2013	
MC19762-18	GP-13-03-010	4/16/2013	
MC19762-19	GP-10-03-020	4/16/2013	
MC19762-20	GP-13-03-030	4/16/2013	
MC19884-1	RB-041613-U	4/16/2013	Rinsate Blank
MC19884-2	GP-13-03-040	4/17/2013	
MC19884-3	GP-13-03-050	4/17/2013	
MC19884-4	GP-13-06-020	4/17/2013	MS/MSD
MC19884-5	GP-13-06-030	4/17/2013	

Lab Sample Number	Field ID	Sample Date	Comments
MC19884-6	DUP-041713-F	4/17/2013	Field Duplicate of Sample GP-13-06-030
MC19884-7	RB-01713-U	4/17/2013	Rinsate Blank
MC19884-8	GP-13-06-040	4/18/2013	
MC19884-9	GP-13-06-050	4/18/2013	
MC19884-10	GP-13-06-058	4/18/2013	
MC19884-11	GP-13-07-021	4/18/2013	
MC19884-12	RB-041813-U	4/18/2013	Rinsate Blank
MC19884-13	GP-13-07-031	4/19/2013	
MC19884-14	GP-13-07-041	4/19/2013	
MC19884-15	GP-13-07-048	4/19/2013	
MC19884-16	RB-041913-U	4/19/2013	Rinsate Blank
MC19884-17	GP-13-08-025	4/22/2013	
MC19884-18	DUP-042213-F	4/22/2013	Field Duplicate of Sample GP-13-08-025
MC19884-19	GP-13-08-035	4/22/2013	
MC19884-20	GP-13-08-045	4/22/2013	
MC20063-1	GP-13-08-055	4/22/2013	
MC20063-2	GP-13-08-065	4/22/2013	
MC20063-3	GP-13-08-071	4/22/2013	
MC20063-4	RB-042213-U	4/22/2013	Rinsate Blank
MC20063-5	GP-13-09-025	4/23/2013	MS/MSD
MC20063-6	GP-13-09-035	4/23/2013	
MC20063-7	GP-13-09-045	4/23/2013	
MC20063-8	DUP-042313-F	4/23/2013	Field Duplicate of Sample GP-13-09-045
MC20063-9	GP-13-09-055	4/23/2013	
MC20063-10	GP-13-09-065	4/23/2013	
MC20063-11	GP-13-09-075	4/23/2013	
MC20063-12	RB-042313-U	4/23/2013	Rinsate Blank
MC20063-13	GP-13-09-085	4/24/2013	
MC20063-14	GP-13-09-095	4/24/2013	
MC20063-15	RB-042413-U	4/24/2013	Rinsate Blank
MC20063-16	GP-13-10-025	4/24/2013	
MC20063-17	GP-13-10-035	4/24/2013	
MC20063-18	GP-13-10-045	4/25/2013	
MC20063-19	DUP-042413-F	4/25/2013	Field Duplicate of Sample GP-13-10-045
MC20063-20	GP-13-10-055	4/25/2013	
MC20063-21	RB-042513-U	4/25/2013	Rinsate Blank
MC20199-1	GP-13-10-065	4/25/2013	
MC20199-2	GP-13-10-075	4/25/2013	MS/MSD
MC20199-3	DUP-042513A-F	4/25/2013	Field Duplicate of Sample GP-13-10-075
MC20199-4	GP-13-10-083	4/25/2013	
MC20556-1	GP-13-01-015	5/7/2013	
MC20556-2	GP-13-01-025	5/7/2013	MS/MSD
MC20556-3	GP-13-01-035	5/7/2013	
MC20556-4	GP-13-01-045	5/7/2013	
MC20556-5	GP-13-01-051	5/7/2013	
MC20556-6	DUP-050713-F	5/7/2013	Field Duplicate of Sample GP-13-01-025

Lab Sample Number	Field ID	Sample Date	Comments
MC20556-7	RB-050713-U	5/7/2013	Rinsate Blank
MC20556-8	GP-13-11-025	5/8/2013	MS/MSD
MC20556-9	GP-13-11-035	5/8/2013	
MC20556-10	DUP-050813-F	5/8/2013	Field Duplicate of Sample GP-13-11-035
MC20556-11	GP-13-11-045	5/8/2013	
MC20556-12	GP-13-11-055	5/8/2013	
MC20556-13	RB-050813-U	5/8/2013	Rinsate Blank
MC20556-14	GP-13-13-025	5/9/2013	MS/MSD
MC20556-15	GP-13-13-035	5/9/2013	
MC20556-16	GP-13-13-041	5/9/2013	
MC20556-17	RB-050913-U	5/9/2013	Rinsate Blank

ADR Output Summary

The ADR.net software made the following qualifications to the data set:

MC19637

- ADR J qualified the detected dissolved arsenic results from samples DUP-040813-F, GP-13-04-025, GP-13-04-035, and RB-040813-U because of high matrix spike recovery.
- ADR J qualified the detected dissolved arsenic results from the following samples because the detected concentrations were between the limit of detection (LOD) and the limit of quantitation (LOQ): GP-13-05-020, GP-13-05-030, GP-13-05-040, GP-13-12-067, GP-13-12-077, and RB-040813-U.

MC19762

- ADR J qualified the detected dissolved arsenic results from the following samples because the detected concentrations were between the LOD and the LOQ: DUP-041213-F, DUP-041513-F, GP-13-02-015, GP-13-02-025, GP-13-02-035, GP-13-02-045, GP-13-02-055, GP-13-02-065, GP-13-03-010, GP-13-12-008, GP-13-12-017, GP-13-12-027, GP-13-12-037, and GP-13-12-047.

MC19884

- ADR U qualified the detected dissolved arsenic results from samples GP-13-06-020 and GP-13-07-021 because of contamination present in the associated rinsate blanks: RB-041713-U and RB-041813-U, respectively.
- ADR J qualified the detected dissolved arsenic results from the following samples because the detected concentrations were between the LOD and the LOQ: RB-041613-U, RB-041713-U, RB-041813-U, and RB-041913-U.

MC20063

- ADR U qualified the detected dissolved arsenic result from sample GP-13-09-025 because of contamination present in the associated method blank.
- ADR J qualified the detected dissolved arsenic results from the following samples because the detected concentrations were between the LOD and the LOQ: GP-13-10-025 and RB-042213-U.

MC20199

- The ADR.net software did not make any qualifications to data associated with this SDG.

MC20556

- ADR U qualified the detected dissolved arsenic results from samples DUP-050713-F, DUP-050813-F, GP-13-01-015, GP-13-01-025, GP-13-01-035, GP-13-01-045, GP-13-01-051, GP-13-11-025, GP-13-11-035, GP-13-11-045, and GP-13-11-055 because of contamination present in the associated rinsate blanks.
- ADR J qualified the detected dissolved arsenic results from the following samples because the detected concentrations were between the LOD and the LOQ: RB-050713-U, GP-13-13-025, GP-13-13-035, and GP-13-13-041.

ADR Output Adjustment

AMEC reviewed the Automated Data Review outputs for this set of data for accuracy and conformance with applicable data validation procedures. Based on review of the associated laboratory data package, AMEC made the following changes to the ADR output.

- Rinsate blank sample results are only used to assess the data usability for the associated field samples and are not qualified during the data validation process. AMEC removed any qualifications made to the rinsate blank samples by ADR.
- It should be noted that during the collection of samples included in SDG MC20556, the sample label "SHM" was incorrectly applied instead of the "GP" label indicating that the samples were "Groundwater Profile" samples. For the purposes of this Data Review, AMEC has changed the sample labels for the samples included in SDG MC20556 to reflect the correct sample designation. However, sample IDs included in the associated lab report still maintain the "SHM" label. It is AMEC's opinion that this sample labeling oversight does not affect data usability.
- It should be noted that the laboratory incorrectly reported sample GP-13-06-058 in SDG MC19884, the sample label "GP" was correctly indicated on the chain but the laboratory reported GW-13-06-058. For the purposes of this Data Review, AMEC has changed the sample label to reflect the correct sample designation. However, the sample ID included in the associated lab report still maintain the "GW" label. It is AMEC's opinion that this sample labeling oversight does not affect data usability.

MC19637

- The MSD for arsenic performed on sample GP-13-04-025 was high at 136%. The background arsenic concentration of the native, unspiked sample, at 3,510 micrograms per liter (µg/L), was greater than four times the spike concentration of 500 µg/L and qualification is not required. AMEC removed the qualifications made to samples DUP-040813-F, GP-13-04-025, and GP-13-04-035 by ADR based on high matrix spike recovery.

MC20063

- The relative percent difference (RPD) between sample GP-13-09-045 (77.2 µg/L) and the associated field duplicate DUP-042313-F (165 µg/L) was high at 73%. AMEC J qualified the detected dissolved arsenic results from these samples because of field duplicate imprecision.

MC19762, MC19884, MC 20199, and MC20556

- AMEC did not make any adjustments to the ADR qualifications for samples associated with these SDGs.

If you have any questions or comments regarding this report, please contact the undersigned at (503) 639-3400.

Sincerely,

AMEC Environment & Infrastructure, Inc.

PREPARED BY:

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Environmental Chemist

REVIEWED BY:

Marie Bevier
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August 2, 2013
Region I Data Review Worksheet
Project: SHL, Fort Devens, LTMMP and NIA
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

Metals by USEPA Methods 6020A/6010C
Total Alkalinity by SM 2320B
Ammonia, Sulfide and Chloride by SM4500
Nitrate/Nitrite by USEPA Method 353.2
Sulfate by ASTM D516-90
Dissolved Organic Carbon by SM5310B

INTRODUCTION

This data validation report covers sixty nine (69) water samples, including 7 rinsate blanks and 7 field duplicates, collected between May 21 and June 13, 2013 from the Shepley's Hill Landfill at the former Fort Devens Site North Impact Area (NIA), in Ayer, Massachusetts. The samples were submitted to Accutest Laboratories in Marlborough, MA (Accutest) by Sovereign Consulting, Inc. (Sovereign) between May 22 and June 13, 2013. Accutest assigned the samples to sample delivery groups (SDGs) MC21083, MC21156, MC21202, MC21261, and MC21832. The samples were analyzed for dissolved metals by United States Environmental Protection Agency (USEPA) methods 6010C and 6020A; total alkalinity by Standard Method (SM) 2320B; ammonia, sulfide, and chloride by SM 4500; sulfate by American Society for Testing and Materials (ASTM) Method D516-90; nitrate/nitrite by USEPA Method 353.2; and dissolved organic carbon (DOC) by SM 5310B. Rinsate blanks were analyzed for dissolved metals only.

Sample receipt status is presented in Table 1. The field sample identification (ID) and associated Accutest sample ID is presented in Table 2.

Data validation was performed using the ADR.net (Automated Data Review) software and an AMEC Environment & Infrastructure, Inc. (AMEC) chemist reviewed the ADR results. The ADR output was adjusted by AMEC based on professional judgment to complete the validation process. The laboratory's analytical data packages were reviewed to assess adherence to acceptable laboratory practices and the data validation requirements specified in the Department of Defense Quality Systems Manual (QSM) for Environmental Laboratories and the applicable analytical methods described above. The level of data validation specified in Table 1 was performed with reference to the Site Specific Quality Assurance Project Plan for Shelpley's Hill Landfill Supplemental Investigations, Long-Term Monitoring and Treatment System O & M Services for the Former Fort Devens Army Installation (April 2013) and EPA Region I Tier II Guidance. For Tier II data review, data quality objectives are assessed by review of the Contract Laboratory Program-like summary forms, with no review of the associated raw data.

August 2, 2013
Region I Data Review Worksheet
Project: SHL, Fort Devens, LTMMP and NIA
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

Metals by USEPA Methods 6020A/6010C
Total Alkalinity by SM 2320B
Ammonia, Sulfide and Chloride by SM4500
Nitrate/Nitrite by USEPA Method 353.2
Sulfate by ASTM D516-90
Dissolved Organic Carbon by SM5310B

Table 1. Sample Status

Data Validation Level	Matrix	Preservation	Temperature Sample Receipt	Laboratory	SDG Numbers
90% Tier I/ 10% Tier II	Aqueous	Method specified	The coolers were received by the laboratory at the following temperatures: MC21083 – 3.2 Degrees Celsius (ºC) MC21156 – 2.2 ºC MC21202 – 1.0 ºC MC21261 – 1.3 ºC MC21832 – 1.7 ºC	Accutest Laboratories, 496 Tech Center West, Building 1, Marlborough, MA 01752	MC21083 MC21156 MC21202 MC21261 MC21832

Table 2. Field Sample List

Lab Sample Number	Field ID	Sample Date	Comments
MC21083-1	SHL-8D-052113	5/21/2013	
MC21083-2	SHM-96-5B-052113	5/21/2013	
MC21083-3	PZ-12-09-052113	5/21/2013	
MC21083-4	PZ-12-02-052113	5/21/2013	
MC21083-5	SHM-10-08-052113	5/21/2013	
MC21083-6	SHL-5-052113	5/21/2013	
MC21083-7	RB-052113	5/21/2013	Rinsate Blank
MC21083-8	SHM-05-41C-052113	5/21/2013	
MC21083-9	SHM-05-41B-052213	5/22/2013	
MC21083-10	SHM-05-42A-052213	5/22/2013	
MC21083-11	PZ-12-05-052213	5/22/2013	
MC21083-12	PZ-12-10-052213	5/22/2013	Matrix Spike(MS)/Matrix Spike Duplicate(MSD)
MC21083-13	SHM-10-05A-052213	5/22/2013	
MC21083-14	DUP-052213	5/22/2013	Field Duplicate of Sample SHM-10-05A-052213
MC21083-15	SHM-05-41A-052213	5/22/2013	
MC21083-16	SHM-05-42B-052213	5/22/2013	
MC21083-17	SHL-10-052213	5/22/2013	
MC21083-18	SHL-20-052213	5/22/2013	
MC21083-19	SHL-10-06A-052213	5/22/2013	
MC21083-20	RB-052213	5/22/2013	Rinsate Blank
MC21156-1	SHM-10-11-052313	5/23/2013	
MC21156-2	DUP-052313	5/23/2013	Field Duplicate of Sample SHM-10-11-052313
MC21156-3	SHM-10-14-052313	5/23/2013	
MC21156-4	SHP-01-38B-052313	5/23/2013	
MC21156-5	SHP-01-38A-052313	5/23/2013	
MC21156-6	SHM-10-07-052313	5/23/2013	
MC21156-7	SHM-10-13-052313	5/23/2013	MS/MSD

August 2, 2013
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Metals by USEPA Methods 6020A/6010C
Total Alkalinity by SM 2320B
Ammonia, Sulfide and Chloride by SM4500
Nitrate/Nitrite by USEPA Method 353.2
Sulfate by ASTM D516-90
Dissolved Organic Carbon by SM5310B

Lab Sample Number	Field ID	Sample Date	Comments
MC21156-8	SHM-10-06-052313	5/23/2013	
MC21156-9	SHL-11-052313	5/23/2013	
MC21156-10	RB-052313	5/23/2013	Rinsate Blank
MC21156-11	SHM-10-12-052313	5/23/2013	
MC21156-12	PZ-12-03-052413	5/24/2013	
MC21156-13	PZ-12-08-052413	5/24/2013	
MC21156-14	SHL-4-052413	5/24/2013	
MC21156-15	DUP-02-052413	5/24/2013	Field Duplicate of Sample SHL-4-052413
MC21156-16	PZ-12-07-052413	5/24/2013	
MC21156-17	PZ-12-04-052413	5/24/2013	
MC21202-1	SHM-10-03-052413	5/24/2013	
MC21202-2	DUP-01-052413	5/24/2013	Field Duplicate of Sample SHM-10-03-052413
MC21202-3	SHL-19-052413	5/24/2013	
MC21202-4	PZ-12-06-052413	5/24/2013	
MC21202-5	SHM-10-15-052413	5/24/2013	
MC21202-6	RB-052413	5/24/2013	Rinsate Blank
MC21202-7	DUP-052813	5/28/2013	Field Duplicate of Sample SHL-22-052813
MC21202-8	SHL-8S-052813	5/28/2013	
MC21202-9	PZ-12-01-052813	5/28/2013	
MC21202-10	SHM-07-03-052813	5/28/2013	
MC21202-11	SHM-93-22B-052813	5/28/2013	
MC21202-12	SHM-11-06-052813	5/28/2013	
MC21202-13	SHM-96-5C-052813	5/28/2013	
MC21202-14	SHL-9-052813	5/28/2013	MS/MSD
MC21202-15	SHL-22-052813	5/28/2013	
MC21261-1	SHM-10-16-052813	5/28/2013	
MC21261-2	SHM-93-22C-052813	5/28/2013	
MC21261-3	SHM-13-05-052813	5/28/2013	
MC21261-4	SHM-13-04-052813	5/28/2013	
MC21261-5	RB-052813	5/28/2013	Rinsate Blank
MC21261-6	SHM-13-03-052913	5/29/2013	
MC21261-7	SHM-10-04-052913	5/29/2013	
MC21261-8	DUP-052913	5/29/2013	Field Duplicate of Sample SHM-10-04-052913
MC21261-9	SHM-10-01-052913	5/29/2013	
MC21261-10	SHM-10-02-052913	5/29/2013	
MC21261-11	SHM-10-10-052913	5/29/2013	
MC21261-12	SHM-13-02-052913	5/29/2013	
MC21261-13	RB-052913	5/29/2013	Rinsate Blank
MC21832-1	SHM-13-06-061313	6/13/2013	
MC21832-2	SHM-13-08-061313	6/13/2013	
MC21832-3	DUPLICATE-061313	6/13/2013	Field Duplicate of Sample SHM-13-08-061313
MC21832-4	RINSATE BLANK-061313	6/13/2013	Rinsate Blank

August 2, 2013
Region I Data Review Worksheet
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Metals by USEPA Methods 6020A/6010C
Total Alkalinity by SM 2320B
Ammonia, Sulfide and Chloride by SM4500
Nitrate/Nitrite by USEPA Method 353.2
Sulfate by ASTM D516-90
Dissolved Organic Carbon by SM5310B

QAPP Deviations

Accutest deviated from the QAPP and analyzed the sulfate samples by method ASTM method D516-90 instead of the QAPP-specified EPA method 300.0. All future samples are to be analyzed by the QAPP-specified method. In AMEC's professional opinion data quality is not impacted.

ADR Output Summary

The ADR.net software made the following qualifications to the data set:

MC21083

- ADR J qualified the detected nitrate/nitrite result from sample PZ-12-10-052213 because of high matrix spike recovery.
- ADR J qualified the detected DOC result from sample PZ-12-10-052213 because of laboratory duplicate imprecision.
- ADR J qualified the detected results from the following samples because the detected concentrations were between the limit of detection (LOD) and the limit of quantitation (LOQ):
    - Nitrate/nitrite: SHL-8D-052113
    - Sulfate: SHL-10-052213
    - DOC: DUP-052213, SHM-05-42A-052213, and SHM-10-05A-052213
    - Magnesium: DUP-052213, PZ-12-09-052113, PZ-12-10-052213, SHL-10-052213, SHL-10-06A-052213, SHL-20-052213, SHL-5-052113, SHL-8D-052113, SHM-05-41A-052213, SHM-05-41B-052213, SHM-05-42A-052213, and SHM-10-05A-052213
    - Potassium: DUP-052213, PZ-12-09-052113, PZ-12-10-052213, SHL-10-052213, SHL-10-06A-052213, SHL-5-052113, SHL-8D-052113, SHM-05-41A-052213, SHM-05-41C-052113, SHM-05-42A-052213, SHM-10-05A-052213, and SHM-10-08-052113
    - Sodium: PZ-12-10-052213, SHL-10-052213, SHL-10-06A-052213, SHL-5-052113, SHM-05-41A-052213, and SHM-05-42A-052213
    - Iron: SHL-10-052213 and SHM-10-08-052113
    - Arsenic: PZ-12-10-052213, RB-052113, RB-052213, SHL-8D-052113, and SHM-05-42A-052213

MC21156

- ADR J qualified the detected nitrate/nitrite result from sample SHM-10-13-052313 because of low matrix spike recovery.
- ADR J qualified the detected iron results from samples DUP-02-052413, DUP-052313, PZ-12-03-052413, PZ-12-04-052413, PZ-12-07-052413, PZ-12-08-052413, SHL-11-052313, SHL-4-052413, SHM-10-06-052313, SHM-10-07-052313, SHM-10-11-052313, SHM-10-12-052313, SHM-10-13-052313, SHM-10-14-052313, SHP-01-38A-052313, and SHP-01-38B-052313 because of high matrix spike recovery.
- ADR J qualified the detected results from the following samples because the detected concentrations were between the LOD and the LOQ:
    - Ammonia: PZ-12-08-052413
    - Iron: DUP-02-052413 and SHL-4-052413

- Magnesium: DUP-02-052413, DUP-052313, PZ-12-07-052413, PZ-12-08-052413, SHL-4-052413, SHM-10-11-052313, SHM-10-12-052313, SHM-10-14-052313, and SHP-01-38A-052313
- Potassium: DUP-02-052413, DUP-052313, PZ-12-07-052413, PZ-12-08-052413, SHL-4-052413, SHM-10-11-052313, SHM-10-12-052313, and SHP-01-38A-052313

MC21202

- ADR J qualified the detected DOC result from sample SHM-10-03-052413 and UJ qualified the nondetected DOC result from its field duplicate DUP-01-052413 because of field duplicate imprecision.
- ADR J qualified the detected iron and manganese results from sample SHM-10-03-052413 and its field duplicate DUP-01-052413 because of field duplicate imprecision.
- ADR J qualified the detected iron results from samples DUP-052813, PZ-12-01-052813, PZ-12-06-052413, SHL-22-052813, SHL-9-052813, SHM-10-15-052413, SHM-11-06-052813, SHM-93-22B-052813, SHM-96-5C-052813 and UJ qualified the nondetected iron results from samples RB-052413, SHL-8S-052813, and SHM-07-03-052813 because of low matrix spike recovery.
- ADR U qualified the detected arsenic results from samples DUP-01-052413 and SHM-10-03-052413 because of contamination detected in the associated rinsate blank.
- ADR J qualified the detected results from the following samples because the detected concentrations were between the LOD and the LOQ:
  - Ammonia: SHL-19-052413 and SHL-8S-052813
  - DOC: SHM-10-03-052413
  - Potassium: DUP-052813, PZ-12-01-052813, SHL-19-052413, SHL-8S-052813, SHL-9-052813, and SHM-07-03-052813
  - Magnesium: SHL-19-052413, SHL-8S-052813, SHL-9-052813, SHM-07-03-052813, and SHM-10-15-052413
  - Sodium: SHL-19-052413
  - Iron: SHM-10-03-052413
  - Manganese: SHL-8S-052813 and SHM-07-03-052813
  - Arsenic: SHL-8S-052813 and RB-052413

MC21261

- ADR J qualified the detected nitrate/nitrite result from sample SHM-10-16-052813 because of low matrix spike recovery.
- ADR J qualified the detected DOC result from sample SHM-10-16-052813 because of high matrix spike recovery.
- ADR J qualified the detected manganese results from samples SHM-10-01-052913, SHM-10-02-052913, SHM-10-10-052913 and SHM-13-02-052913 because of high matrix spike recovery.
- ADR U qualified the detected arsenic results from samples DUP-052913, SHM-10-01-052913, SHM-10-02-052913, SHM-10-04-052913, SHM-10-10-052913, and SHM-13-02-052913 because of contamination detected in the associated rinsate blank.
- ADR J qualified the detected results from the following samples because the detected concentrations were between the LOD and the LOQ:

- Sulfate: SHM-10-16-052813
- Potassium: DUP-052913, SHM-10-01-052913, SHM-10-02-052913, SHM-10-04-052913, SHM-10-10-052913, SHM-13-02-052913, SHM-13-04-052813, and SHM-93-22C-052813
- Magnesium: SHM-10-01-052913, SHM-13-02-052913, SHM-13-04-052813, and SHM-93-22C-052813
- Iron: SHM-10-02-052913 and SHM-10-10-052913
- Arsenic: RB-052813 and RB-052913

MC21832

- ADR J qualified the detected results from the following samples because the detected concentrations were between the LOD and the LOQ:
  - Magnesium: DUPLICATE-061313, SHM-13-06-061313, and SHM-13-08-061313
  - Potassium: SHM-13-06-061313
  - Arsenic: RINSATE BLANK-061313

ADR Output Adjustment

AMEC reviewed the Automated Data Review outputs for this set of data for accuracy and conformance with applicable data validation procedures. Based on review of the associated laboratory data package, AMEC made the following changes to the ADR output.

- Rinsate blank sample results are only used to assess the data usability for the associated field samples and are not qualified during the data validation process. AMEC removed any qualifications made to the rinsate blank samples by ADR, except for J qualifiers applied by the laboratory for detected concentrations between the LOD and the LOQ.

MC21083

- Accutest performed a laboratory duplicate on sample PZ-12-10-052213 for DOC. The relative percent difference (RPD) between the primary (2.0 milligrams per liter [mg/L]) and duplicate results (2.8 mg/L) was high at 33.3%. However, the difference between the results was less than the LOD of 1.0 mg/L. AMEC removed the qualification made to sample PZ-12-10-052213 by ADR based on laboratory duplicate imprecision.
- Arsenic was detected in rinsate blank RB-052113 at a concentration of 0.58 mg/L. AMEC U qualified the detected arsenic results from samples PZ-12-09-052113, SHM-10-08-052113, and SHL-8D-052113 because the detected arsenic results were less than five times the concentration detected in the rinsate blank. The remaining arsenic results for the associated samples were either nondetected or were detected at concentrations greater than five times the concentration detected in the rinsate blank.
- Arsenic was detected in rinsate blank RB-052213 at a concentration of 0.52 mg/L. AMEC U qualified the detected arsenic results from samples PZ-12-10-052213, SHM-05-42A-052213, and SHL-10-052213 because the detected arsenic results were less than five times the concentration detected in the rinsate blank. The remaining arsenic results for the associated samples were either nondetected or were detected at concentrations greater than five times the concentration detected in the rinsate blank.

August 2, 2013
Region I Data Review Worksheet
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Metals by USEPA Methods 6020A/6010C
Total Alkalinity by SM 2320B
Ammonia, Sulfide and Chloride by SM4500
Nitrate/Nitrite by USEPA Method 353.2
Sulfate by ASTM D516-90
Dissolved Organic Carbon by SM5310B

MC21156

- Accutest performed an MS/MSD analysis on sample SHM-10-13-052313 for metals. Iron recovery was high at 125% in the MSD. The background concentration of the native, unspiked sample at 83.4 mg/L was greater than four times the spike concentration of 2 mg/L and it is not possible to evaluate data usability based on matrix spike recovery for this sample. AMEC removed the qualifications that ADR applied to sample SHM-10-13-052313. Additionally, AMEC removed the qualifications ADR applied to samples DUP-02-052413, DUP-052313, PZ-12-03-052413, PZ-12-04-052413, PZ-12-07-052413, PZ-12-08-052413, SHL-11-052313, SHL-4-052413, SHM-10-06-052313, SHM-10-07-052313, SHM-10-11-052313, SHM-10-12-052313, SHM-10-14-052313, SHP-01-38A-052313, and SHP-01-38B-052313 based on the high matrix spike recovery of sample SHM-10-13-052313.
- The RPD between the detected ammonia concentration from sample SHL-4-052413 (1.4 mg/L) and its field duplicate DUP-02-052413 (8.9 mg/L) was greater than the QAPP-specified maximum of 30%. AMEC J qualified the detected ammonia results from samples SHL-4-052413 and DUP-02-052413 because of the apparent analytical and/or sampling imprecision.
- Arsenic was detected in rinsate blank RB-052413 at 0.50 mg/L. AMEC U qualified the detected arsenic result from sample PZ-12-08-052413 because the detected arsenic result was less than five times the concentration detected in the rinsate blank.

MC21202

- Accutest performed an MS/MSD analysis on sample SHL-9-052813 for metals. Iron recovery was low at 75.5% in the MSD. The background iron concentration in the unspiked native sample, at 9.59 mg/L, was greater than four times the spike concentration of 2 mg/L and it is not possible to evaluate data usability based on matrix spike recovery for this sample. AMEC removed the qualifications that ADR applied to samples DUP-052813, PZ-12-01-052813, PZ-12-06-052413, SHL-22-052813, SHL-9-052813, SHM-10-15-052413, SHM-11-06-052813, SHM-93-22B-052813, SHM-96-5C-052813, RB-052413, SHL-8S-052813, and SHM-07-03-052813 based on the low matrix spike recovery of sample SHL-9-052813.
- The DOC results for sample SHM-10-03-052413 (0.72 mg/L) and its field duplicate DUP-01-052413 (not detected above the LOD of 0.64 mg/L) were within one LOQ, meeting QAPP-specified limits. AMEC removed the qualifications that ADR applied to the DOC results of these samples based on field duplicate imprecision.
- Arsenic was detected in rinsate blank RB-052813 at 0.58 mg/L. AMEC U qualified the detected arsenic results from samples SHM-07-03-052813 and SHL-8S-052813 because the detected arsenic results were less than five times the concentration detected in the rinsate blank.
- Accutest mistakenly entered sample SHL-8S-052813 into the Laboratory Information Management System as SHL-85-052813 resulting in this sample being listed as SHL-85-052813 in the laboratory electronic data deliverable. In AMEC's opinion, data usability is not affected by the mislabeling of this sample.

MC21261

- Accutest performed an MS/MSD analysis on sample SHM-10-01-052913 for metals. Manganese recoveries were high in the MS and MSD at 136% and 152%, respectively. The background manganese concentration in the unspiked native sample, at 5.97 mg/L, was greater than four times the spike concentration of 0.5 mg/L and it is not possible to evaluate data usability based on matrix spike

recovery for this sample. AMEC removed the qualifications that ADR applied to samples SHM-10-01-052913, SHM-10-02-052913, SHM-10-10-052913 and SHM-13-02-052913 based on the high matrix spike recovery of sample SHM-10-01-052913.

MC21832

- AMEC made no adjustments to the ADR qualifications for this SDG.

If you have any questions or comments regarding this report, please contact the undersigned at (503) 639-3400.

Sincerely,

AMEC Environment & Infrastructure, Inc.

PREPARED BY:

Hope Mariska
Environmental Chemist

REVIEWED BY:

Marie Bevier
Environmental Chemist

Data Qualifier Summary

Lab Reporting Batch ID: MC21832 **Laboratory: ACTM**

EDD Filename: MC21832SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: METALS

Method: 6010C **Matrix: Water**

Sample ID: DUPLICATE-061313 **Collected:** 6/13/2013 12:00:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	3580	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: SHM-13-06-061313 **Collected:** 6/13/2013 9:52:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	1440	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	3210	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: SHM-13-08-061313 **Collected:** 6/13/2013 2:10:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	3540	J	200	LOD	5000	LOQ	ug/L	J	TR

Method Category: METALS

Method: 6020A **Matrix: Water**

Sample ID: RINSATE BLANK-061313 **Collected:** 6/13/2013 3:15:00 **Analysis Type:** Initial/DIS **Dilution:** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	0.60	J	0.50	LOD	1.0	LOQ	ug/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC21832 **Laboratory: ACTM**

EDD Filename: MC21832SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Reason Code Legend

Reason Code	*Description*
TR	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Field QC Assignments and Associated Samples

EDD File Name: MC21832
eQapp Name: Shepley's Hill Landfill - Accutest

	Associated Samples	Sample Collection Date
Field QC Sample: DUPLICATE-061313 **QC Type:** Field_Duplicate		
	SHM-13-08-061313	6/13/2013 2:10:00 PM
	SHM-13-08-061313	6/13/2013 2:10:00 PM
Field QC Sample: RINSATE BLANK-061313 **QC Type:** Equipment_Blank		
	SHM-13-06-061313	6/13/2013 9:52:00 AM
	DUPLICATE-061313	6/13/2013
	SHM-13-08-061313	6/13/2013 2:10:00 PM

Data Qualifier Summary

Lab Reporting Batch ID: MC21261 **Laboratory: ACTM**

EDD Filename: MC21261SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: GENCHEM

Method: 353.2 **Matrix: Water**

Sample ID: SHM-10-16-052813 **Collected:** 5/28/2013 11:18:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NITROGEN, NITRATE-NITRITE	0.18		0.075	LOD	0.10	LOQ	mg/L	J	Q

Method Category: GENCHEM

Method: ASTM D516-90 **Matrix: Water**

Sample ID: SHM-10-16-052813 **Collected:** 5/28/2013 11:18:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	4.7	J	4.5	LOD	5.0	LOQ	mg/L	J	TR

Method Category: GENCHEM

Method: SM 5310B **Matrix: Water**

Sample ID: SHM-10-16-052813 **Collected:** 5/28/2013 11:18:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
DISSOLVED ORGANIC CARBON (DOC)	3.8		0.64	LOD	1.0	LOQ	mg/L	J	Q

Method Category: METALS

Method: 6010C **Matrix: Water**

Sample ID: DUP-052913 **Collected:** 5/29/2013 12:00:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
POTASSIUM	3140	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: SHM-10-01-052913 **Collected:** 5/29/2013 9:30:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	1690	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	1770	J	500	LOD	5000	LOQ	ug/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC21261 **Laboratory: ACTM**

EDD Filename: MC21261SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **Water**

Sample ID: **SHM-10-02-052913** ***Collected:*** **5/29/2013 11:15:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
IRON	33.7	J	30	LOD	100	LOQ	ug/L	J	TR
POTASSIUM	4300	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-10-04-052913** ***Collected:*** **5/29/2013 9:30:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
POTASSIUM	3100	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-10-10-052913** ***Collected:*** **5/29/2013 10:40:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
IRON	82.5	J	30	LOD	100	LOQ	ug/L	J	TR
POTASSIUM	3040	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-13-02-052913** ***Collected:*** **5/29/2013 10:57:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	3970	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	3690	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-13-04-052813** ***Collected:*** **5/28/2013 1:45:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	3470	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	4550	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-93-22C-052813** ***Collected:*** **5/28/2013 12:05:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	3970	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	4400	J	500	LOD	5000	LOQ	ug/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC21261 **Laboratory: ACTM**

EDD Filename: MC21261SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: **METALS**

Method: **6020A** ***Matrix:*** **Water**

Sample ID: **DUP-052913** ***Collected:*** **5/29/2013 12:00:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	0.95	J	0.50	LOD	1.0	LOQ	ug/L	U	F

Sample ID: **RB-052813** ***Collected:*** **5/28/2013 1:00:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	0.58	J	0.50	LOD	1.0	LOQ	ug/L	J	TR

Sample ID: **RB-052913** ***Collected:*** **5/29/2013 12:30:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	0.51	J	0.50	LOD	1.0	LOQ	ug/L	J	TR

Sample ID: **SHM-10-01-052913** ***Collected:*** **5/29/2013 9:30:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	1.3		0.50	LOD	1.0	LOQ	ug/L	U	F

Sample ID: **SHM-10-02-052913** ***Collected:*** **5/29/2013 11:15:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	1.5		0.50	LOD	1.0	LOQ	ug/L	U	F

Sample ID: **SHM-10-04-052913** ***Collected:*** **5/29/2013 9:30:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	1.0		0.50	LOD	1.0	LOQ	ug/L	U	F

Sample ID: **SHM-10-10-052913** ***Collected:*** **5/29/2013 10:40:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	1.7		0.50	LOD	1.0	LOQ	ug/L	U	F

Sample ID: **SHM-13-02-052913** ***Collected:*** **5/29/2013 10:57:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	2.5		0.50	LOD	1.0	LOQ	ug/L	U	F

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC21261 **Laboratory: ACTM**

EDD Filename: MC21261SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category:	**METALS**		
Method:	**6020A**	***Matrix:***	**Water**

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC21261 **Laboratory: ACTM**

EDD Filename: MC21261SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Reason Code Legend

Reason Code	*Description*
F	Equipment Blank Contamination
Q	Matrix Spike Lower Estimation
Q	Matrix Spike Upper Estimation
TR	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Field QC Assignments and Associated Samples

EDD File Name: MC21261
eQapp Name: Shepley's Hill Landfill - Accutest

	Associated Samples	Sample Collection Date
Field QC Sample: DUP-052913 **QC Type:** Field_Duplicate		
	SHM-10-04-052913	5/29/2013 9:30:00 AM
	SHM-10-04-052913	5/29/2013 9:30:00 AM
Field QC Sample: RB-052813 **QC Type:** Equipment_Blank		
	SHM-10-16-052813	5/28/2013 11:18:00 AM
	SHM-13-04-052813	5/28/2013 1:45:00 PM
	SHM-13-05-052813	5/28/2013 12:40:00 PM
	SHM-93-22C-052813	5/28/2013 12:05:00 PM
Field QC Sample: RB-052913 **QC Type:** Equipment_Blank		
	SHM-10-10-052913	5/29/2013 10:40:00 AM
	SHM-13-02-052913	5/29/2013 10:57:00 AM
	SHM-10-02-052913	5/29/2013 11:15:00 AM
	SHM-10-04-052913	5/29/2013 9:30:00 AM
	DUP-052913	5/29/2013
	SHM-10-01-052913	5/29/2013 9:30:00 AM
	SHM-13-03-052913	5/29/2013 9:15:00 AM

Data Qualifier Summary

Lab Reporting Batch ID: MC21202 **Laboratory: ACTM**

EDD Filename: MC21202SEDD_2a_1-VALIDATED **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: GENCHEM

Method: SM 4500 NH3 BC **Matrix: Water**

Sample ID: SHL-19-052413 **Collected:** 5/24/2013 12:25:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AMMONIA AS N	0.094	J	0.081	LOD	0.10	LOQ	mg/L	J	TR

Sample ID: SHL-8S-052813 **Collected:** 5/28/2013 9:30:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AMMONIA AS N	0.081	J	0.081	LOD	0.10	LOQ	mg/L	J	TR

Method Category: GENCHEM

Method: SM 5310B **Matrix: Water**

Sample ID: SHM-10-03-052413 **Collected:** 5/24/2013 10:30:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
DISSOLVED ORGANIC CARBON (DOC)	0.72	J	0.64	LOD	1.0	LOQ	mg/L	J	TR

Method Category: METALS

Method: 6010C **Matrix: Water**

Sample ID: DUP-01-052413 **Collected:** 5/24/2013 12:00:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
IRON	131		30	LOD	100	LOQ	ug/L	J	FD
MANGANESE	194		2.5	LOD	15	LOQ	ug/L	J	FD

Sample ID: DUP-052813 **Collected:** 5/28/2013 12:00:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
POTASSIUM	4950	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: PZ-12-01-052813 **Collected:** 5/28/2013 9:50:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
POTASSIUM	4530	J	500	LOD	5000	LOQ	ug/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC21202 **Laboratory: ACTM**

EDD Filename: MC21202SEDD_2a_1-VALIDATED **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **Water**

Sample ID: **SHL-19-052413** ***Collected:*** **5/24/2013 12:25:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	3150	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	2710	J	500	LOD	5000	LOQ	ug/L	J	TR
SODIUM	2930	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHL-8S-052813** ***Collected:*** **5/28/2013 9:30:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	1220	J	200	LOD	5000	LOQ	ug/L	J	TR
MANGANESE	3.4	J	2.5	LOD	15	LOQ	ug/L	J	TR
POTASSIUM	1400	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHL-9-052813** ***Collected:*** **5/28/2013 1:25:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	2710	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	2470	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-07-03-052813** ***Collected:*** **5/28/2013 9:56:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	643	J	200	LOD	5000	LOQ	ug/L	J	TR
MANGANESE	10.6	J	2.5	LOD	15	LOQ	ug/L	J	TR
POTASSIUM	982	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-10-03-052413** ***Collected:*** **5/24/2013 10:30:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
IRON	50.6	J	30	LOD	100	LOQ	ug/L	J	TR, FD
MANGANESE	37.0		2.5	LOD	15	LOQ	ug/L	J	FD

Sample ID: **SHM-10-15-052413** ***Collected:*** **5/24/2013 1:15:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	3220	J	200	LOD	5000	LOQ	ug/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC21202 **Laboratory: ACTM**

EDD Filename: MC21202SEDD_2a_1-VALIDATED **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: **METALS**

Method: **6020A** ***Matrix:*** **Water**

Sample ID: **DUP-01-052413** ***Collected:*** **5/24/2013 12:00:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	1.5		0.50	LOD	1.0	LOQ	ug/L	U	F

Sample ID: **RB-052413** ***Collected:*** **5/24/2013 2:20:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	0.50	J	0.50	LOD	1.0	LOQ	ug/L	J	TR

Sample ID: **SHL-8S-052813** ***Collected:*** **5/28/2013 9:30:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	0.93	J	0.50	LOD	1.0	LOQ	ug/L	U	F

Sample ID: **SHM-07-03-052813** ***Collected:*** **5/28/2013 9:56:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	1.0		0.50	LOD	1.0	LOQ	ug/L	U	F

Sample ID: **SHM-10-03-052413** ***Collected:*** **5/24/2013 10:30:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	1.5		0.50	LOD	1.0	LOQ	ug/L	U	F

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC21202 **Laboratory: ACTM**

EDD Filename: MC21202SEDD_2a_1-VALIDATED **eQAPP Name: Shepley's Hill Landfill - Accutest**

Reason Code Legend

Reason Code	*Description*
F	Equipment Blank Contamination
FD	Field Duplicate Precision
Q	Matrix Spike Lower Estimation
TR	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Field QC Assignments and Associated Samples

EDD File Name: MC21202
eQapp Name: Shepley's Hill Landfill - Accutest

	Associated Samples	Sample Collection Date
Field QC Sample: DUP-01-052413 **QC Type:** Field_Duplicate		
	SHM-10-03-052413	5/24/2013 10:30:00 AM
	SHM-10-03-052413	5/24/2013 10:30:00 AM
Field QC Sample: DUP-052813 **QC Type:** Field_Duplicate		
	SHL-22-052813	5/28/2013 9:25:00 AM
	SHL-22-052813	5/28/2013 9:25:00 AM
Field QC Sample: RB-052413 **QC Type:** Equipment_Blank		
	SHM-10-15-052413	5/24/2013 1:15:00 PM
	DUP-01-052413	5/24/2013
	SHM-10-03-052413	5/24/2013 10:30:00 AM
	PZ-12-06-052413	5/24/2013 1:00:00 PM
	SHL-19-052413	5/24/2013 12:25:00 PM
Field QC Sample: RB-052813 **QC Type:** Equipment_Blank		
	SHL-8S-052813	5/28/2013 9:30:00 AM
	SHM-07-03-052813	5/28/2013 9:56:00 AM
	SHM-93-22B-052813	5/28/2013 10:30:00 AM
	SHM-11-06-052813	5/28/2013 11:00:00 AM
	SHL-9-052813	5/28/2013 1:25:00 PM
	SHL-22-052813	5/28/2013 9:25:00 AM
	SHM-96-5C-052813	5/28/2013 11:10:00 AM
	DUP-052813	5/28/2013
	PZ-12-01-052813	5/28/2013 9:50:00 AM

Data Qualifier Summary

Lab Reporting Batch ID: MC21156 **Laboratory: ACTM**

EDD Filename: MC21156SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: GENCHEM

Method: 353.2 **Matrix: Water**

Sample ID: SHM-10-13-052313 **Collected:** 5/23/2013 12:30:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NITROGEN, NITRATE-NITRITE	0.14		0.075	LOD	0.10	LOQ	mg/L	J	Q

Method Category: GENCHEM

Method: SM 4500 NH3 BC **Matrix: Water**

Sample ID: DUP-02-052413 **Collected:** 5/24/2013 12:00:00 **Analysis Type:** Initial/TOT **Dilution:** 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AMMONIA AS N	8.9		0.41	LOD	0.50	LOQ	mg/L	J	FD

Sample ID: PZ-12-08-052413 **Collected:** 5/24/2013 9:25:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AMMONIA AS N	0.087	J	0.081	LOD	0.10	LOQ	mg/L	J	TR

Sample ID: SHL-4-052413 **Collected:** 5/24/2013 9:33:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AMMONIA AS N	1.4		0.081	LOD	0.10	LOQ	mg/L	J	FD

Method Category: METALS

Method: 6010C **Matrix: Water**

Sample ID: DUP-02-052413 **Collected:** 5/24/2013 12:00:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
IRON	59.6	J	30	LOD	100	LOQ	ug/L	J	TR
MAGNESIUM	4300	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	4440	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: DUP-052313 **Collected:** 5/23/2013 12:00:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	2990	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	4730	J	500	LOD	5000	LOQ	ug/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC21156 **Laboratory: ACTM**

EDD Filename: MC21156SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **Water**

Sample ID: **PZ-12-07-052413** ***Collected:*** **5/24/2013 11:25:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	2980	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	3300	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **PZ-12-08-052413** ***Collected:*** **5/24/2013 9:25:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	2570	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	2810	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHL-4-052413** ***Collected:*** **5/24/2013 9:33:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
IRON	57.8	J	30	LOD	100	LOQ	ug/L	J	TR
MAGNESIUM	4300	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	4460	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-10-11-052313** ***Collected:*** **5/23/2013 9:50:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	3160	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	4820	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-10-12-052313** ***Collected:*** **5/23/2013 2:20:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	2720	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	3630	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-10-14-052313** ***Collected:*** **5/23/2013 10:05:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	3420	J	200	LOD	5000	LOQ	ug/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC21156 **Laboratory: ACTM**

EDD Filename: MC21156SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: METALS

Method: 6010C **Matrix: Water**

Sample ID: SHP-01-38A-052313 **Collected:** 5/23/2013 12:08:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	1260	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	4390	J	500	LOD	5000	LOQ	ug/L	J	TR

Method Category: METALS

Method: 6020A **Matrix: Water**

Sample ID: PZ-12-08-052413 **Collected:** 5/24/2013 9:25:00 **Analysis Type:** Initial/DIS **Dilution:** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	1.9		0.50	LOD	1.0	LOQ	ug/L	U	F

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC21156 **Laboratory: ACTM**

EDD Filename: MC21156SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Reason Code Legend

Reason Code	*Description*
F	Equipment Blank Contamination
FD	Field Duplicate Precision
Q	Matrix Spike Lower Estimation
Q	Matrix Spike Upper Estimation
TR	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Field QC Assignments and Associated Samples

EDD File Name: MC21156

eQapp Name: Shepley's Hill Landfill - Accutest

	Associated Samples	Sample Collection Date

Data Qualifier Summary

Lab Reporting Batch ID: MC21083 **Laboratory: ACTM**

EDD Filename: MC21083SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: GENCHEM
Method: 353.2 **Matrix:** Water

Sample ID: PZ-12-10-052213 **Collected:** 5/22/2013 9:35:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NITROGEN, NITRATE-NITRITE	0.19		0.075	LOD	0.10	LOQ	mg/L	J	Q

Sample ID: SHL-8D-052113 **Collected:** 5/21/2013 10:45:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NITROGEN, NITRATE-NITRITE	0.089	J	0.075	LOD	0.10	LOQ	mg/L	J	TR

Method Category: GENCHEM
Method: ASTM D516-90 **Matrix:** Water

Sample ID: SHL-10-052213 **Collected:** 5/22/2013 12:05:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	4.6	J	4.5	LOD	5.0	LOQ	mg/L	J	TR

Method Category: GENCHEM
Method: SM 5310B **Matrix:** Water

Sample ID: DUP-052213 **Collected:** 5/22/2013 12:00:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
DISSOLVED ORGANIC CARBON (DOC)	0.69	J	0.64	LOD	1.0	LOQ	mg/L	J	TR

Sample ID: SHM-05-42A-052213 **Collected:** 5/22/2013 9:40:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
DISSOLVED ORGANIC CARBON (DOC)	0.65	J	0.64	LOD	1.0	LOQ	mg/L	J	TR

Sample ID: SHM-10-05A-052213 **Collected:** 5/22/2013 10:05:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
DISSOLVED ORGANIC CARBON (DOC)	0.79	J	0.64	LOD	1.0	LOQ	mg/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC21083 **Laboratory: ACTM**

EDD Filename: MC21083SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **Water**

Sample ID: **DUP-052213** ***Collected:*** **5/22/2013 12:00:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	1720	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	1580	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **PZ-12-09-052113** ***Collected:*** **5/21/2013 12:40:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	2550	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	2460	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **PZ-12-10-052213** ***Collected:*** **5/22/2013 9:35:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	845	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	1490	J	500	LOD	5000	LOQ	ug/L	J	TR
SODIUM	1060	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHL-10-052213** ***Collected:*** **5/22/2013 12:05:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
IRON	30.0	J	30	LOD	100	LOQ	ug/L	J	TR
MAGNESIUM	887	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	1320	J	500	LOD	5000	LOQ	ug/L	J	TR
SODIUM	1220	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHL-10-06A-052213** ***Collected:*** **5/22/2013 1:20:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	1700	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	3060	J	500	LOD	5000	LOQ	ug/L	J	TR
SODIUM	3860	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHL-20-052213** ***Collected:*** **5/22/2013 1:00:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	3890	J	200	LOD	5000	LOQ	ug/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC21083 **Laboratory: ACTM**

EDD Filename: MC21083SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **Water**

Sample ID: **SHL-5-052113** ***Collected:*** **5/21/2013 1:20:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	1500	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	1390	J	500	LOD	5000	LOQ	ug/L	J	TR
SODIUM	3140	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHL-8D-052113** ***Collected:*** **5/21/2013 10:45:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	1490	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	1070	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-05-41A-052213** ***Collected:*** **5/22/2013 11:30:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	1440	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	1630	J	500	LOD	5000	LOQ	ug/L	J	TR
SODIUM	2610	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-05-41B-052213** ***Collected:*** **5/22/2013 9:55:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	3450	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-05-41C-052113** ***Collected:*** **5/21/2013 1:15:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
POTASSIUM	3490	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-05-42A-052213** ***Collected:*** **5/22/2013 9:40:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	981	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	2060	J	500	LOD	5000	LOQ	ug/L	J	TR
SODIUM	2350	J	200	LOD	5000	LOQ	ug/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC21083 **Laboratory: ACTM**

EDD Filename: MC21083SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: METALS

Method: 6010C **Matrix: Water**

Sample ID: SHM-10-05A-052213 **Collected:** 5/22/2013 10:05:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	1720	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	1610	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: SHM-10-08-052113 **Collected:** 5/21/2013 1:35:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
IRON	42.8	J	30	LOD	100	LOQ	ug/L	J	TR
POTASSIUM	4800	J	500	LOD	5000	LOQ	ug/L	J	TR

Method Category: METALS

Method: 6020A **Matrix: Water**

Sample ID: PZ-12-09-052113 **Collected:** 5/21/2013 12:40:00 **Analysis Type:** Initial/DIS **Dilution:** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	1.1		0.50	LOD	1.0	LOQ	ug/L	U	F

Sample ID: PZ-12-10-052213 **Collected:** 5/22/2013 9:35:00 **Analysis Type:** Initial/DIS **Dilution:** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	0.69	J	0.50	LOD	1.0	LOQ	ug/L	U	F

Sample ID: RB-052113 **Collected:** 5/21/2013 1:30:00 **Analysis Type:** Initial/DIS **Dilution:** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	0.58	J	0.50	LOD	1.0	LOQ	ug/L	J	TR

Sample ID: RB-052213 **Collected:** 5/22/2013 2:00:00 **Analysis Type:** Initial/DIS **Dilution:** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	0.52	J	0.50	LOD	1.0	LOQ	ug/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC21083 **Laboratory: ACTM**

EDD Filename: MC21083SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: **METALS**

Method: **6020A** ***Matrix:*** **Water**

Sample ID: **SHL-10-052213** ***Collected:*** **5/22/2013 12:05:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	1.2		0.50	LOD	1.0	LOQ	ug/L	U	F

Sample ID: **SHL-8D-052113** ***Collected:*** **5/21/2013 10:45:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	0.72	J	0.50	LOD	1.0	LOQ	ug/L	U	F

Sample ID: **SHM-05-42A-052213** ***Collected:*** **5/22/2013 9:40:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	0.89	J	0.50	LOD	1.0	LOQ	ug/L	U	F

Sample ID: **SHM-10-08-052113** ***Collected:*** **5/21/2013 1:35:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	1.9		0.50	LOD	1.0	LOQ	ug/L	U	F

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC21083 **Laboratory: ACTM**

EDD Filename: MC21083SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Reason Code Legend

Reason Code	*Description*
F	Equipment Blank Contamination
Ld	Laboratory Duplicate Precision
Q	Matrix Spike Upper Estimation
TR	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Field QC Assignments and Associated Samples

EDD File Name: MC21083

eQapp Name: Shepley's Hill Landfill - Accutest

	Associated Samples	Sample Collection Date

July 18, 2013
Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP, USEPA Region I Tier II Guidance, and DoD QSM

Total Metals by USEPA Methods 6020A and 6010C
Nitrate by USEPA Method 353.2
Chloride and Sulfate by USEPA Method 300.0

INTRODUCTION

This data validation report covers three water samples collected on June 3, 2013 from the Shepley's Hill Landfill at the former Fort Devens Site, in Ayer, Massachusetts. The samples were submitted to Alpha Analytical Laboratories in Westborough, MA (Alpha) by Sovereign Consulting, Inc. (Sovereign) on June 3, 2013. Alpha assigned the samples to sample delivery group (SDG) L1309967. The effluent sample was analyzed for total arsenic by United States Environmental Protection Agency (USEPA) Method 6020A; beryllium, manganese and magnesium by USEPA Method 6010C; nitrate by USEPA Method 353.2; and chloride and sulfate by USEPA Method 300.0. The remaining two water samples were analyzed for total arsenic by USEPA Method 6020A and iron and manganese by USEPA Method 6010C.

Sample receipt status is presented in Table 1. The field sample identification (ID) and associated Alpha sample ID is presented in Table 2.

Data validation was performed using the ADR.net (Automated Data Review) software and an AMEC Environment & Infrastructure, Inc. (AMEC) chemist reviewed the ADR results. The ADR output was adjusted by AMEC based on professional judgment to complete the validation process. The laboratory's analytical data packages were reviewed to assess adherence to acceptable laboratory practices and the data validation requirements specified in the Department of Defense Quality Systems Manual (QSM) for Environmental Laboratories and the applicable analytical methods described above. The level of data validation specified in Table 1 was performed with reference to the Site Specific Quality Assurance Project Plan for Shelpley's Hill Landfill Supplemental Investigations, Long-Term Monitoring and Treatment System O & M Services for the Former Fort Devens Army Installation (April 2013) and EPA Region I Tier II Guidance. For Tier II data review, data quality objectives are assessed by review of the Contract Laboratory Program-like summary forms, with no review of the associated raw data.

Table 1. Sample Status

Data Validation Level	Matrix	Preservation	Temperature Sample Receipt	Laboratory	SDG Number
Tier II	Aqueous	Method specified	The cooler was received by the laboratory at 2.2 ºC	Alpha Analytical Laboratories, Eight Walkup Drive, Westborough, MA 01581	L1309967

Table 2. Field Sample List

Lab Sample Number	Field ID	Sample Date	Comments
L1309967-01	EFF-060313	6/3/2013	Effluent Sample
L1309967-02	EW1-060313	6/3/2013	
L1309967-03	EW4-060313	6/3/2013	

July 18, 2013
Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

Total Metals by USEPA Methods 6020A and 6010C
Nitrate by USEPA Method 353.2
Chloride and Sulfate by USEPA Method 300.0

ADR Output Summary

The ADR.net software made the following qualifications to the data set.

- ADR J qualified the detected nitrate result from sample EFF-060313 because the detected concentration was between the limit of detection (LOD) and the limit of quantitation (LOQ).
- ADR also J qualified the detected nitrate result from sample EFF-060313 because the time between sampling and analysis exceeded the method-recommended analytical hold time.

ADR Output Adjustment

AMEC reviewed the Automated Data Review outputs for this set of data for accuracy and conformance with applicable data validation procedures. Based on review of the associated laboratory data package, AMEC made no changes to the ADR output and has maintained the qualification applied to the nitrate result from sample EFF-060313.

If you have any questions or comments regarding this report, please contact the undersigned at (503) 639-3400.

Sincerely,

AMEC Environment & Infrastructure, Inc.

PREPARED BY:

Hope Mariska
Environmental Chemist

REVIEWED BY:

Marie Bevier
Environmental Chemist

Data Qualifier Summary

Lab Reporting Batch ID: L1309967 **Laboratory: AAL**

EDD Filename: L1309967_2a-VAL **eQAPP Name: Shepley's Hill Landfill - Alpha Analytical**

Method Category: **GENCHEM**

Method: **353.2** ***Matrix:*** **WATER**

Sample ID: **EFF-060313** ***Collected:*** **6/3/2013 10:43:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1.0**

Analyte	*Lab Result*	*Lab Qual*	*DL*	*DL Type*	*RL*	*RL Type*	*Units*	*Data Review Qual*	*Reason Code*
NITRATE	0.081	J	0.015	MDL	0.1	RDL	mg/l	J	TR, StoA

* denotes a non-reportable result

Project Name and Number: AC001-02F-01 - SHEPLEYS HILL ATP

Data Qualifier Summary

Lab Reporting Batch ID: L1309967 **Laboratory: AAL**

EDD Filename: L1309967_2a-VAL **eQAPP Name: Shepley's Hill Landfill - Alpha Analytical**

Reason Code Legend

Reason Code	*Description*
B	Method Blank Contamination
StoA	Sampling to Analysis Estimation
TR	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: AC001-02F-01 - SHEPLEYS HILL ATP

Field QC Assignments and Associated Samples

EDD File Name: L1309967

eQapp Name: Shepley's Hill Landfill - Alpha Analytical

	Associated Samples	Sample Collection Date

August 27, 2013

Total Arsenic by USEPA Methods 6020A

Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

INTRODUCTION

This data validation report covers one water sample collected on July 8, 2013 from the Shepley's Hill Landfill at the former Fort Devens Site, in Ayer, Massachusetts. The sample was submitted to Alpha Analytical Laboratories in Westborough, MA (Alpha) by Sovereign Consulting, Inc. (Sovereign) on July 8, 2013. Alpha assigned the sample to sample delivery group (SDG) L1312625. The effluent sample was analyzed for total arsenic by United States Environmental Protection Agency (USEPA) SW-846 Method 6020A.

Sample receipt status is presented in Table 1. The field sample identification (ID) and associated Alpha sample ID is presented in Table 2.

Data validation was performed using the ADR.net (Automated Data Review) software and an AMEC Environment & Infrastructure, Inc. (AMEC) chemist reviewed the ADR results. The ADR output was adjusted by AMEC based on professional judgment to complete the validation process. The laboratory's analytical data packages were reviewed to assess adherence to acceptable laboratory practices and the data validation requirements specified in the Department of Defense Quality Systems Manual (QSM) for Environmental Laboratories and the applicable analytical methods described above. The level of data validation specified in Table 1 was performed with reference to the Site Specific Quality Assurance Project Plan for Shepley's Hill Landfill Supplemental Investigations, Long-Term Monitoring and Treatment System O & M Services for the Former Fort Devens Army Installation (April 2013) and EPA Region I Tier II Guidance. For Tier II data review, data quality objectives are assessed by review of the Contract Laboratory Program-like summary forms, with no review of the associated raw data.

Table 1. Sample Status

Data Validation Level	Matrix	Preservation	Temperature Sample Receipt	Laboratory	SDG Number
Tier II	Aqueous	Method specified	The cooler was received by the laboratory at 13.9 ºC	Alpha Analytical Laboratories, Eight Walkup Drive, Westborough, MA 01581	L1312625

Table 2. Field Sample List

Lab Sample Number	Field ID	Sample Date	Comments
L1312625-01	EFF-070813	7/8/2013	

ADR Output Summary

The ADR.net software did not apply any qualifications to the data set.

August 27, 2013

Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

ADR Output Adjustment

AMEC reviewed the Automated Data Review outputs for this set of data for accuracy and conformance with applicable data validation procedures. Based on review of the associated laboratory data package, AMEC made no changes to the ADR output and the sample result was not qualified as a result of this validation.

If you have any questions or comments regarding this report, please contact the undersigned at (503) 639-3400.

Sincerely,

AMEC Environment & Infrastructure, Inc.

PREPARED BY:

Hope Mariska
Environmental Chemist

REVIEWED BY:

Marie Bevier
Environmental Chemist

Data Qualifier Summary

Lab Reporting Batch ID: L1312625 **Laboratory: AAL**

EDD Filename: L1312625_2a **eQAPP Name: Shepley's Hill Landfill - Alpha Analytical**

No Data Review Qualifiers Applied.

Field QC Assignments and Associated Samples

EDD File Name: L1312625

eQapp Name: Shepley's Hill Landfill - Alpha Analytical

	Associated Samples	Sample Collection Date

August 27, 2013

Total Arsenic by USEPA Methods 6020A

Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

INTRODUCTION

This data validation report covers one water sample collected on August 5, 2013 from the Shepley's Hill Landfill at the former Fort Devens Site, in Ayer, Massachusetts. The sample was submitted to Alpha Analytical Laboratories in Westborough, MA (Alpha) by Sovereign Consulting, Inc. (Sovereign) on August 5, 2013. Alpha assigned the sample to sample delivery group (SDG) L1314838. The effluent sample was analyzed for total arsenic by United States Environmental Protection Agency (USEPA) SW-846 Method 6020A.

Sample receipt status is presented in Table 1. The field sample identification (ID) and associated Alpha sample ID is presented in Table 2.

Data validation was performed using the ADR.net (Automated Data Review) software and an AMEC Environment & Infrastructure, Inc. (AMEC) chemist reviewed the ADR results. The ADR output was adjusted by AMEC based on professional judgment to complete the validation process. The laboratory's analytical data packages were reviewed to assess adherence to acceptable laboratory practices and the data validation requirements specified in the Department of Defense Quality Systems Manual (QSM) for Environmental Laboratories and the applicable analytical methods described above. The level of data validation specified in Table 1 was performed with reference to the Site Specific Quality Assurance Project Plan for Shepley's Hill Landfill Supplemental Investigations, Long-Term Monitoring and Treatment System O & M Services for the Former Fort Devens Army Installation (April 2013) and EPA Region I Tier II Guidance. For Tier II data review, data quality objectives are assessed by review of the Contract Laboratory Program-like summary forms, with no review of the associated raw data.

Table 1. Sample Status

Data Validation Level	Matrix	Preservation	Temperature Sample Receipt	Laboratory	SDG Number
Tier II	Aqueous	Method specified	The cooler was received by the laboratory at 15.1 ºC	Alpha Analytical Laboratories, Eight Walkup Drive, Westborough, MA 01581	L1314838

Table 2. Field Sample List

Lab Sample Number	Field ID	Sample Date	Comments
L1314838-01	EFF-080513	8/5/2013	

ADR Output Summary

The ADR.net software did not apply any qualifications to the data set.

August 27, 2013

Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

ADR Output Adjustment

AMEC reviewed the Automated Data Review outputs for this set of data for accuracy and conformance with applicable data validation procedures. Based on review of the associated laboratory data package, AMEC made no changes to the ADR output and the sample result was not qualified as a result of this validation.

If you have any questions or comments regarding this report, please contact the undersigned at (503) 639-3400.

Sincerely,

AMEC Environment & Infrastructure, Inc.

PREPARED BY:

Hope Mariska
Environmental Chemist

REVIEWED BY:

Marie Bevier
Environmental Chemist

Data Qualifier Summary

Lab Reporting Batch ID: L1314838 **Laboratory: AAL**

EDD Filename: L1314838_2a **eQAPP Name: Shepley's Hill Landfill - Alpha Analytical**

No Data Review Qualifiers Applied.

Field QC Assignments and Associated Samples

EDD File Name: L1314838

eQapp Name: Shepley's Hill Landfill - Alpha Analytical

	Associated Samples	Sample Collection Date

October 17, 2013
Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP, USEPA Region I Tier II Guidance, and DoD QSM

Total Metals by USEPA Methods 6020A/6010C/7470
Nitrate by USEPA Method 353.2
Sulfate by USEPA Method 300.0
Volatile Organic Compounds by USEPA Methods 624/8260C
Semi-volatile Organic Compounds by USEPA Method 625
Polychlorinated biphenyls and Pesticides by USEPA Method 608
Total Petroleum Hydrocarbons by USEPA Method 1664
Dissolved Methane and Ethane by USEPA Method RSK175
Chloride by Standard Method 4500C

INTRODUCTION

This data validation report covers three water samples collected on September 10, 2013 from the Shepley's Hill Landfill at the former Fort Devens Site, in Ayer, Massachusetts. The samples were submitted to Alpha Analytical Laboratories in Westborough, MA (Alpha) by Sovereign Consulting, Inc. (Sovereign) on September 10, 2013. Alpha assigned the samples to sample delivery group (SDG) L1317687. The effluent sample was analyzed for total metals by United States Environmental Protection Agency (USEPA) Methods 6020A, 6010C and 7470; nitrate by USEPA Method 353.2; chloride by Standard Methods (SM) 4500C; sulfate by USEPA Method 300.0; volatile organic compounds (VOCs) by USEPA Method 624; semi-volatile organic compounds (SVOCs) by USEPA Method 625; polychlorinated biphenyls (PCBs) and pesticides by USEPA Method 608; and total petroleum hydrocarbons (TPH) by USEPA Method 1664. The remaining two water samples were analyzed for total arsenic by USEPA Method 6020A, iron and manganese by USEPA Method 6010C, VOCs by USEPA Method 8260C, and dissolved methane and ethane by USEPA Method RSK175.

Sample receipt status is presented in Table 1. The field sample identification (ID) and associated Alpha sample ID is presented in Table 2.

Data validation was performed using the ADR.net (Automated Data Review) software and an AMEC Environment & Infrastructure, Inc. (AMEC) chemist reviewed the ADR results. The ADR output was adjusted by AMEC based on professional judgment to complete the validation process. The laboratory's analytical data packages were reviewed to assess adherence to acceptable laboratory practices and the data validation requirements specified in the Department of Defense Quality Systems Manual (QSM) for Environmental Laboratories and the applicable analytical methods described above. The level of data validation specified in Table 1 was performed with reference to the Site Specific Quality Assurance Project Plan for Shelpley's Hill Landfill Supplemental Investigations, Long-Term Monitoring and Treatment System O & M Services for the Former Fort Devens Army Installation (April 2013) and EPA Region I Tier II Guidance. For Tier II data review, data quality objectives are assessed by review of the Contract Laboratory Program-like summary forms, with no review of the associated raw data.

October 17, 2013
Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP, USEPA Region I Tier II Guidance, and DoD QSM

Total Metals by USEPA Methods 6020A/6010C/7470
Nitrate by USEPA Method 353.2
Sulfate by USEPA Method 300.0
Volatile Organic Compounds by USEPA Methods 624/8260C
Semi-volatile Organic Compounds by USEPA Method 625
Polychlorinated biphenyls and Pesticides by USEPA Method 608
Total Petroleum Hydrocarbons by USEPA Method 1664
Dissolved Methane and Ethane by USEPA Method RSK175
Chloride by Standard Method 4500C

Table 1. Sample Status

Data Validation Level	Matrix	Preservation	Temperature Sample Receipt	Laboratory	SDG Number
Tier II	Aqueous	Method specified	The cooler was received by the laboratory at 3.0 ºC	Alpha Analytical Laboratories, Eight Walkup Drive, Westborough, MA 01581	L1317687

Table 2. Field Sample List

Lab Sample Number	Field ID	Sample Date	Comments
L1317687-01	EFFLUENT	9/10/2013	Effluent Sample
L1317687-02	EW-01	9/10/2013	
L1317687-03	EW-04	9/10/2013	

ADR Output Summary

The ADR.net software made the following qualifications to the data set.

- ADR J qualified the detected results from the following samples because the detected concentrations were between the limit of detection (LOD) and the limit of quantitation (LOQ):
  - EFFLUENT: chromium, copper, benzene, chlorobenzene, chloroform, p/m-xylene, and xylenes (total).
  - EW-01: 1,1-dichloroethane, chlorobenzene, chloroethane, isopropylbenzene, p/m-xylene, sec-butylbenzene, tetrahydrofuran, and vinyl chloride
  - EW-04: 1,4-dichlorobenzene, benzene, chlorobenzene, chloroethane, cis-1,2-dichloroethene, and vinyl chloride
- ADR UJ qualified the nondetected 3,3'-dichlorobenzidine and n-nitrosodiphenylamine results from sample EFFLUENT because of low matrix spike recovery.
- ADR R qualified as rejected the nondetected benzidine result from sample EFFLUENT because of low matrix spike recovery.
- ADR UJ qualified the nondetected bromomethane result from sample EFFLUENT because of low matrix spike recovery.
- ADR UJ qualified the nondetected 2-butanone results from samples EW-01 and EW-04 because of a high relative percent difference (RPD) between the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD).

October 17, 2013
Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP, USEPA Region I Tier II Guidance, and DoD QSM

Total Metals by USEPA Methods 6020A/6010C/7470
Nitrate by USEPA Method 353.2
Sulfate by USEPA Method 300.0
Volatile Organic Compounds by USEPA Methods 624/8260C
Semi-volatile Organic Compounds by USEPA Method 625
Polychlorinated biphenyls and Pesticides by USEPA Method 608
Total Petroleum Hydrocarbons by USEPA Method 1664
Dissolved Methane and Ethane by USEPA Method RSK175
Chloride by Standard Method 4500C

ADR Output Adjustment

AMEC reviewed the Automated Data Review outputs for this set of data for accuracy and conformance with applicable data validation procedures. Based on review of the associated laboratory data package, AMEC made the following changes to the ADR output:

- The RPD for 2-butanone was high between the LCS and LCSD associated with the VOC analysis of samples EW-01 and EW-04. ADR UJ qualified the nondetected 2-butanone results for these samples because of analytical imprecision. However, imprecision of LCSs is only anticipated to have an impact on the certainty of detected concentrations. Qualification is not required when the analyte of concern was not detected in the associated samples. Therefore, AMEC has removed the qualifications made by ADR for the nondetected 2-butanone results from samples EW-01 and EW-04.
- The percent difference for 1,2-dibromo-3-chloropropane in the continuing calibration verification associated with sample EW-01 and EW-04 exceeded the QAPP-specified criteria of ±20% at -21%. AMEC UJ qualified the nondetected 1,2-dibromo-3-chloropropane results for these samples because of the potential low analytical bias.
- The percent differences for all pesticides analyzed by EPA Method 608 in the continuing calibration verification associated with sample EFFLUENT exceeded the QAPP-specified criteria of ±15% at values ranging from -22% to -62%. AMEC UJ qualified the nondetected pesticide results for sample EFFLUENT because of the potential low analytical bias.

If you have any questions or comments regarding this report, please contact the undersigned at (503) 639-3400.

Sincerely,

AMEC Environment & Infrastructure, Inc.

PREPARED BY:

Hope Mariska
Environmental Chemist

REVIEWED BY:

Marie Bevier
Environmental Chemist

Data Qualifier Summary

Lab Reporting Batch ID: L1317687 **Laboratory: AAL**

EDD Filename: L1317687_2a_rev **eQAPP Name: Shepley's Hill Landfill - Alpha Analytical**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **WATER**

Sample ID: **EFFLUENT** ***Collected:*** **9/10/2013 6:30:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1.0**

Analyte	*Lab Result*	*Lab Qual*	*DL*	*DL Type*	*RL*	*RL Type*	*Units*	*Data Review Qual*	*Reason Code*
CHROMIUM	0.002	J	0.002	MDL	0.01	RDL	mg/l	J	TR
COPPER	0.003	J	0.002	MDL	0.01	RDL	mg/l	J	TR

Method Category: **SVOA**

Method: **608-PEST** ***Matrix:*** **WATER**

Sample ID: **EFFLUENT** ***Collected:*** **9/10/2013 6:30:00** ***Analysis Type:*** **Initial/TOT-** ***Dilution:*** **1.0**

Analyte	*Lab Result*	*Lab Qual*	*DL*	*DL Type*	*RL*	*RL Type*	*Units*	*Data Review Qual*	*Reason Code*
4,4'-DDD	0.04	U	0.005	MDL	0.04	RDL	ug/l	UJ	CCV
4,4'-DDE	0.04	U	0.004	MDL	0.04	RDL	ug/l	UJ	CCV
4,4'-DDT	0.04	U	0.005	MDL	0.04	RDL	ug/l	UJ	CCV
ALDRIN	0.02	U	0.003	MDL	0.02	RDL	ug/l	UJ	CCV
ALPHA-BHC	0.02	U	0.004	MDL	0.02	RDL	ug/l	UJ	CCV
BETA-BHC	0.02	U	0.006	MDL	0.02	RDL	ug/l	UJ	CCV
Chlordane	0.2	U	0.042	MDL	0.2	RDL	ug/l	UJ	CCV
CIS-CHLORDANE	0.02	U	0.004	MDL	0.02	RDL	ug/l	UJ	CCV
DELTA-BHC	0.02	U	0.003	MDL	0.02	RDL	ug/l	UJ	CCV
DIELDRIN	0.04	U	0.003	MDL	0.04	RDL	ug/l	UJ	CCV
ENDOSULFAN I	0.02	U	0.006	MDL	0.02	RDL	ug/l	UJ	CCV
ENDOSULFAN II	0.04	U	0.004	MDL	0.04	RDL	ug/l	UJ	CCV
ENDOSULFAN SULFATE	0.04	U	0.005	MDL	0.04	RDL	ug/l	UJ	CCV
ENDRIN	0.04	U	0.004	MDL	0.04	RDL	ug/l	UJ	CCV
ENDRIN ALDEHYDE	0.04	U	0.003	MDL	0.04	RDL	ug/l	UJ	CCV
ENDRIN KETONE	0.04	U	0.005	MDL	0.04	RDL	ug/l	UJ	CCV
gamma-BHC (Lindane)	0.02	U	0.003	MDL	0.02	RDL	ug/l	UJ	CCV
HEPTACHLOR	0.02	U	0.004	MDL	0.02	RDL	ug/l	UJ	CCV
HEPTACHLOR EPOXIDE	0.02	U	0.006	MDL	0.02	RDL	ug/l	UJ	CCV
METHOXYCHLOR	0.1	U	0.006	MDL	0.1	RDL	ug/l	UJ	CCV
TOXAPHENE	0.4	U	0.126	MDL	0.4	RDL	ug/l	UJ	CCV
TRANS-CHLORDANE	0.02	U	0.008	MDL	0.02	RDL	ug/l	UJ	CCV

* denotes a non-reportable result

Project Name and Number: AC001.02E - SHEPLEY'S HILL ATP

Data Qualifier Summary

Lab Reporting Batch ID: L1317687 **Laboratory: AAL**

EDD Filename: L1317687_2a_rev **eQAPP Name: Shepley's Hill Landfill - Alpha Analytical**

Method Category: SVOA

Method: 625 **Matrix: WATER**

Sample ID: EFFLUENT **Collected:** 9/10/2013 6:30:00 **Analysis Type:** Initial/TOT- **Dilution:** 1.0

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
3,3'-DICHLOROBENZIDINE	5	U	0.85	MDL	5	RDL	ug/l	UJ	Q
BENZIDINE	20	U	0.26	MDL	20	RDL	ug/l	R	Q
N-NITROSODIPHENYLAMINE	2	U	0.70	MDL	2	RDL	ug/l	UJ	Q

Method Category: VOA

Method: 624 **Matrix: WATER**

Sample ID: EFFLUENT **Collected:** 9/10/2013 6:30:00 **Analysis Type:** Initial/TOT **Dilution:** 1.0

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZENE	0.80	J	0.31	MDL	1	RDL	ug/l	J	TR
BROMOMETHANE	5	U	1.3	MDL	5	RDL	ug/l	UJ	Q
CHLOROBENZENE	0.68	J	0.32	MDL	3.5	RDL	ug/l	J	TR
CHLOROFORM	1.1	J	0.29	MDL	1.5	RDL	ug/l	J	TR
P/M-XYLENE	0.72	J	0.66	MDL	2	RDL	ug/l	J	TR
XYLENES (TOTAL)	0.72	J	0.66	MDL	2	RDL	ug/l	J	TR

Method Category: VOA

Method: 8260C **Matrix: WATER**

Sample ID: EW-01 **Collected:** 9/10/2013 6:30:00 **Analysis Type:** Initial/TOT **Dilution:** 1.0

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHANE	0.40	J	0.15	MDL	1	RDL	ug/l	J	TR
1,2-DIBROMO-3-CHLOROPROPANE	2	U	0.33	MDL	2	RDL	ug/l	UJ	CCV
CHLOROBENZENE	0.87	J	0.18	MDL	1	RDL	ug/l	J	TR
CHLOROETHANE	0.55	J	0.13	MDL	2	RDL	ug/l	J	TR
ISOPROPYLBENZENE	0.26	J	0.19	MDL	2	RDL	ug/l	J	TR
P/M-XYLENE	1.5	J	0.33	MDL	2	RDL	ug/l	J	TR
SEC-BUTYLBENZENE	0.22	J	0.18	MDL	2	RDL	ug/l	J	TR
TETRAHYDROFURAN	1.4	J	0.52	MDL	2	RDL	ug/l	J	TR
VINYL CHLORIDE	0.30	J	0.14	MDL	1	RDL	ug/l	J	TR

* denotes a non-reportable result

Project Name and Number: AC001.02E - SHEPLEY'S HILL ATP

Data Qualifier Summary

Lab Reporting Batch ID: L1317687 **Laboratory: AAL**

EDD Filename: L1317687_2a_rev **eQAPP Name: Shepley's Hill Landfill - Alpha Analytical**

Method Category: **VOA**

Method: **8260C** ***Matrix:*** **WATER**

Sample ID: **EW-04** ***Collected:*** **9/10/2013 6:30:00** ***Analysis Type:*** **Initial/TOT-** ***Dilution:*** **1.0**

Analyte	*Lab Result*	*Lab Qual*	*DL*	*DL Type*	*RL*	*RL Type*	*Units*	*Data Review Qual*	*Reason Code*
1,2-DIBROMO-3-CHLOROPROPANE	2	U	0.33	MDL	2	RDL	ug/l	UJ	CCV
1,4-DICHLOROBENZENE	0.45	J	0.19	MDL	1	RDL	ug/l	J	TR
BENZENE	0.40	J	0.16	MDL	0.5	RDL	ug/l	J	TR
CHLOROBENZENE	0.53	J	0.18	MDL	1	RDL	ug/l	J	TR
CHLOROETHANE	0.34	J	0.13	MDL	2	RDL	ug/l	J	TR
CIS-1,2-DICHLOROETHENE	0.21	J	0.19	MDL	1	RDL	ug/l	J	TR
VINYL CHLORIDE	0.14	J	0.14	MDL	1	RDL	ug/l	J	TR

* denotes a non-reportable result

Project Name and Number: AC001.02E - SHEPLEY'S HILL ATP

Data Qualifier Summary

Lab Reporting Batch ID: L1317687 **Laboratory: AAL**

EDD Filename: L1317687_2a_rev **eQAPP Name: Shepley's Hill Landfill - Alpha Analytical**

Reason Code Legend

Reason Code	*Description*
B	Method Blank Contamination
CCV	Continuing Calibration Verification Percent Recovery Lower Estimation
L	Laboratory Control Precision
L	Laboratory Control Spike Upper Estimation
Q	Matrix Spike Lower Estimation
Q	Matrix Spike Lower Rejection
Q	Matrix Spike Upper Estimation
TR	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: AC001.02E - SHEPLEY'S HILL ATP

Field QC Assignments and Associated Samples

EDD File Name: L1317687

eQapp Name: Shepley's Hill Landfill - Alpha Analytical

	Associated Samples	Sample Collection Date

December 19, 2013 **Total Arsenic by USEPA Method 6020A**
Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

INTRODUCTION

This data validation report covers one water sample collected on October 2, 2013 from the Shepley's Hill Landfill at the former Fort Devens Site, in Ayer, Massachusetts. The sample was submitted to Alpha Analytical Laboratories in Westborough, MA (Alpha) by Sovereign Consulting, Inc. (Sovereign) on October 3, 2013. Alpha assigned the sample to sample delivery group (SDG) L1319676. The sample was analyzed for total arsenic by United States Environmental Protection Agency (USEPA) Method 6020A.

Sample receipt status is presented in Table 1. The field sample identification (ID) and associated Alpha sample ID is presented in Table 2.

Data validation was performed using the ADR.net (Automated Data Review) software and an AMEC Environment & Infrastructure, Inc. (AMEC) chemist reviewed the ADR results. The ADR output was adjusted by AMEC based on professional judgment to complete the validation process. The laboratory's analytical data package was reviewed to assess adherence to acceptable laboratory practices and the data validation requirements specified in the Department of Defense Quality Systems Manual (QSM) for Environmental Laboratories and the applicable analytical methods described above. The level of data validation specified in Table 1 was performed with reference to the Site Specific Quality Assurance Project Plan for Shepley's Hill Landfill Supplemental Investigations, Long-Term Monitoring and Treatment System O & M Services for the Former Fort Devens Army Installation (April 2013) and EPA Region I Tier II Guidance. For Tier II data review, data quality objectives are assessed by review of the Contract Laboratory Program-like summary forms, with no review of the associated raw data.

Table 1. Sample Status

Data Validation Level	Matrix	Preservation	Temperature Sample Receipt	Laboratory	SDG Number
Tier II	Aqueous	Method specified	The cooler was received by the laboratory at 3.1 ºC	Alpha Analytical Laboratories, Eight Walkup Drive, Westborough, MA 01581	L1319676

Table 2. Field Sample List

Lab Sample Number	Field ID	Sample Date	Comments
L1319676-01	EFF-100213	10/02/2013	

ADR Output Summary

The ADR.net software did not apply any qualifications to the data set.

December 19, 2013
Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

ADR Output Adjustment

AMEC reviewed the Automated Data Review outputs for this set of data for accuracy and conformance with applicable data validation procedures. Based on review of the associated laboratory data package, AMEC made no changes to the ADR output and the sample result was not qualified as a result of this validation.

If you have any questions or comments regarding this report, please contact the undersigned at (503) 639-3400.

Sincerely,

AMEC Environment & Infrastructure, Inc.

PREPARED BY:

Hope Mariska
Environmental Chemist

REVIEWED BY:

Marie Bevier
Environmental Chemist

Data Qualifier Summary

Lab Reporting Batch ID: L1319676 **Laboratory: AAL**

EDD Filename: L1319676_2a_VAL **eQAPP Name: Shepley's Hill Landfill - Alpha Analytical**

No Data Review Qualifiers Applied.

Field QC Assignments and Associated Samples

EDD File Name: L1319676

eQapp Name: Shepley's Hill Landfill - Alpha Analytical

	Associated Samples	Sample Collection Date

December 10, 2013
Region I Data Review Worksheet
Project: SHL, Fort Devens, LTMMP and NIA
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

Metals by USEPA Methods 6020A/6010C
Total Alkalinity by SM 2320B
Chloride by SM4500
Nitrate/Nitrite by USEPA Method 353.2
Sulfate by USEPA Method 300

INTRODUCTION

This data validation report covers thirty five (35) water samples, including 3 rinsate blanks and 3 field duplicates, collected between October 22 and 24, 2013 from the Shepley's Hill Landfill at the former Fort Devens Site North Impact Area (NIA), in Ayer, Massachusetts. The samples were submitted to Accutest Laboratories in Marlborough, MA (Accutest) by Sovereign Consulting, Inc. (Sovereign) between October 22 and 24, 2013. Accutest assigned the samples to sample delivery groups (SDGs) MC25522, MC25568, and MC25594. The samples were analyzed for dissolved metals by United States Environmental Protection Agency (USEPA) Methods 6010C and 6020A; total alkalinity by Standard Method (SM) 2320B; chloride by SM 4500; sulfate by USEPA Method 300; and nitrate/nitrite by USEPA Method 353.2. Rinsate blanks were analyzed for dissolved metals only.

Sample receipt status is presented in Table 1. The field sample identification (ID) and associated Accutest sample ID is presented in Table 2.

Data validation was performed using the ADR.net (Automated Data Review) software and an AMEC Environment & Infrastructure, Inc. (AMEC) chemist reviewed the ADR results. The ADR output was adjusted by AMEC based on professional judgment to complete the validation process. The laboratory's analytical data packages were reviewed to assess adherence to acceptable laboratory practices and the data validation requirements specified in the Department of Defense Quality Systems Manual (QSM) for Environmental Laboratories and the applicable analytical methods described above. The level of data validation specified in Table 1 was performed with reference to the Site Specific Quality Assurance Project Plan for Shelpley's Hill Landfill Supplemental Investigations, Long-Term Monitoring and Treatment System O & M Services for the Former Fort Devens Army Installation (April 2013) and EPA Region I Tier II Guidance. For Tier II data review, data quality objectives are assessed by review of the Contract Laboratory Program-like summary forms, with no review of the associated raw data.

December 10, 2013
Region I Data Review Worksheet
Project: SHL, Fort Devens, LTMMP and NIA
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

Metals by USEPA Methods 6020A/6010C
Total Alkalinity by SM 2320B
Chloride by SM4500
Nitrate/Nitrite by USEPA Method 353.2
Sulfate by USEPA Method 300

Table 1. Sample Status

Data Validation Level	Matrix	Preservation	Temperature Sample Receipt	Laboratory	SDG Numbers
90% Tier I/ 10% Tier II	Aqueous	Method specified	The coolers were received by the laboratory at the following temperatures: MC25522 – 0.6 Degrees Celsius (ºC) MC25568 – 0.2 ºC MC25594 – 0.5 ºC	Accutest Laboratories, 496 Tech Center West, Building 1, Marlborough, MA 01752	MC25522 MC25568 MC25594

Table 2. Field Sample List

Lab Sample Number	Field ID	Sample Date	Comments
MC25522-1	SHL-20-102213	10/22/2013	
MC25522-2	DUP-102213	10/22/2013	Field Duplicate of Sample SHL-20-102213
MC25522-3	SHM-96-5B-102213	10/22/2013	
MC25522-4	N5-P1-102213	10/22/2013	
MC25522-5	SHL-13-102213	10/22/2013	
MC25522-6	SHL-8S-102213	10/22/2013	Matrix Spike(MS)/Matrix Spike Duplicate(MSD)
MC25522-7	SHM-96-5C-102213	10/22/2013	
MC25522-8	SHL-11-102213	10/22/2013	
MC25522-9	N5-P2-102213	10/22/2013	
MC25522-10	SHL-5-102213	10/22/2013	
MC25522-11	SHL-8D-102213	10/22/2013	
MC25522-12	RB-102213	10/22/2013	Rinsate Blank
MC25522-13	SHL-15-102213	10/22/2013	
MC25522-14	SHP-99-29X-102213	10/22/2013	
MC25568-1	SHM-93-22N-102313	10/23/2013	
MC25568-2	SHP-99-31A-102313	10/23/2013	
MC25568-3	DUP01-102313	10/23/2013	Field Duplicate of Sample SHP-99-31A-102313
MC25568-4	SHM-05-41B-102313	10/23/2013	
MC25568-5	SHM-05-42A-102313	10/23/2013	
MC25568-6	SHL-22-102313	10/23/2013	
MC25568-7	DUP02-102313	10/23/2013	Field Duplicate of Sample SHL-22-102313
MC25568-8	SHP-99-31B-102313	10/23/2013	
MC25568-9	SHM-05-41A-102313	10/23/2013	
MC25568-10	SHP-99-31C-102313	10/23/2013	
MC25568-11	SHM-05-42B-102313	10/23/2013	MS/MSD
MC25568-12	SHM-93-22C-102313	10/23/2013	
MC25568-13	SHM-05-41C-102313	10/23/2013	
MC25568-14	RB-102313	10/23/2013	Rinsate Blank
MC25568-15	SHL-9-102313	10/23/2013	
MC25568-16	SHM-99-32X-102313	10/23/2013	
MC25594-1	SHM-05-39B-102413	10/24/2013	MS/MSD

Lab Sample Number	Field ID	Sample Date	Comments
MC25594-2	SHL-19-102413	10/24/2013	
MC25594-3	SHM-05-39A-102413	10/24/2013	
MC25594-4	SHM-05-40X-102413	10/24/2013	
MC25594-5	RB-102413	10/24/2013	Rinsate Blank

ADR Output Summary

The ADR.net software made the following qualifications to the data set:

MC25522

- ADR J qualified the detected results from the following samples because the detected concentrations were between the limit of detection (LOD) and the limit of quantitation (LOQ):
  - Nitrate/nitrite: SHL-8D-102213.
  - Magnesium: DUP-102213, SHL-13-102213, SHL-15-102213, SHL-20-102213, SHL-5-102213, SHL-8D-102213, SHL-8S-102213, and SHP-99-29X-102213.
  - Potassium: N5-P1-102213, SHL-13-102213, SHL-5-102213, SHL-8D-102213, SHL-8S-102213, and SHP-99-29X-102213.
  - Iron: SHL-13-102213.
  - Sodium: SHL-5-102213 and SHP-99-29X-102213
  - Sulfate: N5-P2-102213, SHL-13-102213, SHL-5-102213, SHL-8D-102213, SHL-8S-102213, SHM-96-5B-102213, SHM-96-5C-102213, and SHP-99-29X-102213.

MC25568

- ADR J qualified the detected results from the following samples because the detected concentrations were between the LOD and the LOQ:
  - Magnesium: DUP01-102313, SHL-9-102313, SHM-05-41A-102313, SHM-05-41B-102313, SHM-05-42A-102313, SHM-93-22C-102313, SHP-99-31A-102313, and SHP-99-31B-102313
  - Potassium: DUP02-102313, SHL-22-102313, SHL-9-102313, SHM-05-41A-102313, SHM-05-41C-102313, SHM-05-42A-102313, SHM-93-22C-102313, and SHP-99-31B-102313
  - Sodium: SHM-05-41A-102313, SHM-05-41B-102313, SHM-05-42A-102313, and SHP-99-31B-102313
  - Sulfate: DUP01-102313, DUP02-102313, SHL-22-102313, SHL-9-102313, SHM-05-41A-102313, SHM-05-41B-102313, SHM-05-41C-102313, SHM-05-42A-102313, SHM-05-42B-102313, SHM-93-22B-102313, SHM-93-22C-102313, SHM-99-32X-102313, SHP-99-31A-102313, SHP-99-31B-102313, and SHP-99-31C-102313.

MC25594

- ADR J qualified the detected results from the following samples because the detected concentrations were between the LOD and the LOQ:
  - Magnesium: SHL-19-102413, SHM-05-39A-102413, and SHM-05-39B-102413.
  - Potassium: SHL-19-102413 and SHM-05-39B-102413.
  - Sodium: SHL-19-102413.
  - Sulfate: SHM-05-39A-102413, SHM-05-39B-102413, and SHM-05-40X-102413.

December 10, 2013
Region I Data Review Worksheet
Project: SHL, Fort Devens, LTMMP and NIA
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

Metals by USEPA Methods 6020A/6010C
Total Alkalinity by SM 2320B
Chloride by SM4500
Nitrate/Nitrite by USEPA Method 353.2
Sulfate by USEPA Method 300

ADR Output Adjustment

AMEC reviewed the Automated Data Review outputs for this set of data for accuracy and conformance with applicable data validation procedures. Based on review of the associated laboratory data package, AMEC made no adjustments to the ADR qualifications for the samples covered in this report.

If you have any questions or comments regarding this report, please contact the undersigned at (503) 639-3400.

Sincerely,

AMEC Environment & Infrastructure, Inc.

PREPARED BY:

Hope Mariska
Environmental Chemist

REVIEWED BY:

Marie Bevier
Environmental Chemist

Field QC Assignments and Associated Samples

EDD File Name: MC25522
eQapp Name: Shepley's Hill Landfill - Accutest

	Associated Samples	Sample Collection Date
Field QC Sample: DUP-102213 **QC Type:** Field_Duplicate		
	SHL-20-102213	10/22/2013 10:00:00 AM
	SHL-20-102213	10/22/2013 10:00:00 AM
Field QC Sample: RB-102213 **QC Type:** Equipment_Blank		
	SHM-96-5B-102213	10/22/2013 10:06:00 AM
	SHL-5-102213	10/22/2013 1:28:00 PM
	SHL-15-102213	10/22/2013 2:00:00 PM
	N5-P1-102213	10/22/2013 10:10:00 AM
	SHL-8S-102213	10/22/2013 11:20:00 AM
	DUP-102213	10/22/2013
	SHP-99-29X-102213	10/22/2013 2:19:00 PM
	N5-P2-102213	10/22/2013 12:18:00 PM
	SHL-20-102213	10/22/2013 10:00:00 AM
	SHL-13-102213	10/22/2013 10:10:00 AM
	SHM-96-5C-102213	10/22/2013 11:25:00 AM
	SHL-11-102213	10/22/2013 12:05:00 PM
	SHL-8D-102213	10/22/2013 1:30:00 PM

Data Qualifier Summary

Lab Reporting Batch ID: MC25522 **Laboratory: ACTM**

EDD Filename: MC25522SEDD_2a_1 MA-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: GENCHEM

Method: 353.2 **Matrix: Water**

Sample ID: SHL-8D-102213 **Collected:** 10/22/2013 1:30:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NITROGEN, NITRATE-NITRITE	0.087	J	0.054	LOD	0.10	LOQ	mg/L	J	TR

Method Category: METALS

Method: 6010C **Matrix: Water**

Sample ID: DUP-102213 **Collected:** 10/22/2013 12:00:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	2510	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: N5-P1-102213 **Collected:** 10/22/2013 10:10:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
POTASSIUM	4330	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: SHL-13-102213 **Collected:** 10/22/2013 10:10:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
IRON	43.3	J	30	LOD	100	LOQ	ug/L	J	TR
MAGNESIUM	2290	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	1360	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: SHL-15-102213 **Collected:** 10/22/2013 2:00:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	3340	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: SHL-20-102213 **Collected:** 10/22/2013 10:00:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	2530	J	200	LOD	5000	LOQ	ug/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC25522 **Laboratory: ACTM**

EDD Filename: MC25522SEDD_2a_1 MA-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **Water**

Sample ID: **SHL-5-102213** ***Collected:*** **10/22/2013 1:28:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	1650	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	1780	J	500	LOD	5000	LOQ	ug/L	J	TR
SODIUM	3590	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHL-8D-102213** ***Collected:*** **10/22/2013 1:30:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	1260	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	759	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHL-8S-102213** ***Collected:*** **10/22/2013 11:20:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	1180	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	1330	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHP-99-29X-102213** ***Collected:*** **10/22/2013 2:19:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	889	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	638	J	500	LOD	5000	LOQ	ug/L	J	TR
SODIUM	2500	J	200	LOD	5000	LOQ	ug/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC25522 **Laboratory: ACTM**

EDD Filename: MC25522SEDD_2a_1 MA-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Reason Code Legend

Reason Code	*Description*
TR	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Field QC Assignments and Associated Samples

EDD File Name: MC25522
eQapp Name: Shepley's Hill Landfill - Accutest

	Associated Samples	Sample Collection Date
Field QC Sample: DUP-102213 **QC Type:** Field_Duplicate		
	SHL-20-102213	10/22/2013 10:00:00 AM

Data Qualifier Summary

Lab Reporting Batch ID: MC25522 **Laboratory: ACTD**

EDD Filename: MC25522SEDD_2a_1 NJ-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: GENCHEM

Method: 300.0 ***Matrix:*** Water

Sample ID: N5-P2-102213 ***Collected:*** 10/22/2013 12:18:00 ***Analysis Type:*** Initial/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	0.67	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: SHL-13-102213 ***Collected:*** 10/22/2013 10:10:00 ***Analysis Type:*** Initial/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	8.0	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: SHL-5-102213 ***Collected:*** 10/22/2013 1:28:00 ***Analysis Type:*** Initial/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	0.87	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: SHL-8D-102213 ***Collected:*** 10/22/2013 1:30:00 ***Analysis Type:*** Initial/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	7.5	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: SHL-8S-102213 ***Collected:*** 10/22/2013 11:20:00 ***Analysis Type:*** Initial/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	6.4	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: SHM-96-5B-102213 ***Collected:*** 10/22/2013 10:06:00 ***Analysis Type:*** Initial/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	5.0	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: SHM-96-5C-102213 ***Collected:*** 10/22/2013 11:25:00 ***Analysis Type:*** Initial/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	3.4	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: SHP-99-29X-102213 ***Collected:*** 10/22/2013 2:19:00 ***Analysis Type:*** Initial/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	5.6	J	0.50	LOD	10	LOQ	mg/L	J	TR

* denotes a non-reportable result

Project Name and Number: - SCMAW: Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC25522 **Laboratory: ACTD**

EDD Filename: MC25522SEDD_2a_1 NJ-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category:	**GENCHEM**		
Method:	**300.0**	***Matrix:***	**Water**

* denotes a non-reportable result

Project Name and Number: - SCMAW: Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC25522 **Laboratory: ACTD**

EDD Filename: MC25522SEDD_2a_1 NJ-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Reason Code Legend

Reason Code	*Description*
TR	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: - SCMAW: Shepley's Hill (SHL), Devens, MA

Field QC Assignments and Associated Samples

EDD File Name: MC25568
eQapp Name: Shepley's Hill Landfill - Accutest

	Associated Samples	Sample Collection Date
Field QC Sample: DUP01-102313 **QC Type:** Field_Duplicate		
	SHP-99-31A-102313	10/23/2013 9:15:00 AM
	SHP-99-31A-102313	10/23/2013 9:15:00 AM
Field QC Sample: DUP02-102313 **QC Type:** Field_Duplicate		
	SHL-22-102313	10/23/2013 10:25:00 AM
	SHL-22-102313	10/23/2013 10:25:00 AM
Field QC Sample: RB-102313 **QC Type:** Equipment_Blank		
	SHM-05-42A-102313	10/23/2013 10:20:00 AM
	SHL-9-102313	10/23/2013 1:40:00 PM
	DUP01-102313	10/23/2013
	SHM-05-41A-102313	10/23/2013 11:10:00 AM
	SHP-99-31A-102313	10/23/2013 9:15:00 AM
	SHP-99-31B-102313	10/23/2013 10:49:00 AM
	SHP-99-31C-102313	10/23/2013 12:12:00 PM
	SHM-05-41B-102313	10/23/2013 9:52:00 AM
	SHM-93-22B-102313	10/23/2013 9:20:00 AM
	SHM-99-32X-102313	10/23/2013 1:45:00 PM
	DUP02-102313	10/23/2013
	SHM-05-42B-102313	10/23/2013 11:45:00 AM
	SHM-05-41C-102313	10/23/2013 12:41:00 PM
	SHL-22-102313	10/23/2013 10:25:00 AM
	SHM-93-22C-102313	10/23/2013 12:30:00 PM

Data Qualifier Summary

Lab Reporting Batch ID: MC25568 **Laboratory: ACTM**

EDD Filename: MC25568SEDD_2a_1 MA-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **Water**

Sample ID: **DUP01-102313** ***Collected:*** **10/23/2013 12:00:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	960	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **DUP02-102313** ***Collected:*** **10/23/2013 12:00:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
POTASSIUM	4830	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHL-22-102313** ***Collected:*** **10/23/2013 10:25:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
POTASSIUM	4790	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHL-9-102313** ***Collected:*** **10/23/2013 1:40:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	2520	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	2550	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-05-41A-102313** ***Collected:*** **10/23/2013 11:10:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	1390	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	1660	J	500	LOD	5000	LOQ	ug/L	J	TR
SODIUM	2680	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-05-41B-102313** ***Collected:*** **10/23/2013 9:52:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	2430	J	200	LOD	5000	LOQ	ug/L	J	TR
SODIUM	3780	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-05-41C-102313** ***Collected:*** **10/23/2013 12:41:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
POTASSIUM	3580	J	500	LOD	5000	LOQ	ug/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC25568 **Laboratory: ACTM**

EDD Filename: MC25568SEDD_2a_1 MA-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **Water**

Sample ID: **SHM-05-42A-102313** ***Collected:*** **10/23/2013 10:20:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	976	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	1880	J	500	LOD	5000	LOQ	ug/L	J	TR
SODIUM	2420	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-93-22C-102313** ***Collected:*** **10/23/2013 12:30:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	3920	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	4170	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHP-99-31A-102313** ***Collected:*** **10/23/2013 9:15:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	971	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHP-99-31B-102313** ***Collected:*** **10/23/2013 10:49:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	1880	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	3030	J	500	LOD	5000	LOQ	ug/L	J	TR
SODIUM	3510	J	200	LOD	5000	LOQ	ug/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC25568 **Laboratory: ACTM**

EDD Filename: MC25568SEDD_2a_1 MA-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Reason Code Legend

Reason Code	*Description*
TR	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Field QC Assignments and Associated Samples

EDD File Name: MC25568
eQapp Name: Shepley's Hill Landfill - Accutest

	Associated Samples	Sample Collection Date
Field QC Sample: DUP01-102313 **QC Type:** Field_Duplicate		
	SHP-99-31A-102313	10/23/2013 9:15:00 AM
Field QC Sample: DUP02-102313 **QC Type:** Field_Duplicate		
	SHL-22-102313	10/23/2013 10:25:00 AM

Data Qualifier Summary

Lab Reporting Batch ID: MC25568 **Laboratory: ACTD**

EDD Filename: MC25568SEDD_2a_1 NJ-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: GENCHEM

Method: 300.0 ***Matrix:*** Water

Sample ID: **DUP01-102313** ***Collected:*** **10/23/2013 12:00:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	9.7	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: **DUP02-102313** ***Collected:*** **10/23/2013 12:00:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	6.6	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: **SHL-22-102313** ***Collected:*** **10/23/2013 10:25:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	6.6	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: **SHL-9-102313** ***Collected:*** **10/23/2013 1:40:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	2.1	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: **SHM-05-41A-102313** ***Collected:*** **10/23/2013 11:10:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	5.8	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: **SHM-05-41B-102313** ***Collected:*** **10/23/2013 9:52:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	4.7	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: **SHM-05-41C-102313** ***Collected:*** **10/23/2013 12:41:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	1.4	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: **SHM-05-42A-102313** ***Collected:*** **10/23/2013 10:20:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	6.3	J	0.50	LOD	10	LOQ	mg/L	J	TR

* denotes a non-reportable result

Project Name and Number: - SCMAW: Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC25568 **Laboratory: ACTD**

EDD Filename: MC25568SEDD_2a_1 NJ-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: GENCHEM

Method: 300.0 ***Matrix:*** Water

Sample ID: SHM-05-42B-102313 ***Collected:*** 10/23/2013 11:45:00 ***Analysis Type:*** Initial/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	3.3	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: SHM-93-22B-102313 ***Collected:*** 10/23/2013 9:20:00 ***Analysis Type:*** Initial/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	4.4	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: SHM-93-22C-102313 ***Collected:*** 10/23/2013 12:30:00 ***Analysis Type:*** Initial/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	7.0	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: SHM-99-32X-102313 ***Collected:*** 10/23/2013 1:45:00 ***Analysis Type:*** Initial/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	2.9	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: SHP-99-31A-102313 ***Collected:*** 10/23/2013 9:15:00 ***Analysis Type:*** Initial/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	9.7	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: SHP-99-31B-102313 ***Collected:*** 10/23/2013 10:49:00 ***Analysis Type:*** Initial/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	7.6	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: SHP-99-31C-102313 ***Collected:*** 10/23/2013 12:12:00 ***Analysis Type:*** Initial/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	5.7	J	0.50	LOD	10	LOQ	mg/L	J	TR

* denotes a non-reportable result

Project Name and Number: - SCMAW: Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC25568 **Laboratory: ACTD**

EDD Filename: MC25568SEDD_2a_1 NJ-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Reason Code Legend

Reason Code	*Description*
TR	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: - SCMAW: Shepley's Hill (SHL), Devens, MA

Field QC Assignments and Associated Samples

EDD File Name: MC25594
eQapp Name: Shepley's Hill Landfill - Accutest

	Associated Samples	Sample Collection Date
Field QC Sample: RB-102413 **QC Type:** Equipment_Blank		
	SHM-05-39A-102413	10/24/2013 10:40:00 AM
	SHM-05-39B-102413	10/24/2013 9:05:00 AM
	SHL-19-102413	10/24/2013 9:50:00 AM
	SHM-05-40X-102413	10/24/2013 11:50:00 AM

Data Qualifier Summary

Lab Reporting Batch ID: MC25594 **Laboratory: ACTM**

EDD Filename: MC25594SEDD_2a_1 MA-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **Water**

Sample ID: **SHL-19-102413** ***Collected:*** **10/24/2013 9:50:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	3670	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	3260	J	500	LOD	5000	LOQ	ug/L	J	TR
SODIUM	2970	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-05-39A-102413** ***Collected:*** **10/24/2013 10:40:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	1770	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-05-39B-102413** ***Collected:*** **10/24/2013 9:05:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	1660	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	3040	J	500	LOD	5000	LOQ	ug/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC25594 **Laboratory: ACTM**

EDD Filename: MC25594SEDD_2a_1 MA-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Reason Code Legend

Reason Code	*Description*
TR	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Field QC Assignments and Associated Samples

EDD File Name: MC25594

eQapp Name: Shepley's Hill Landfill - Accutest

	Associated Samples	Sample Collection Date

Data Qualifier Summary

Lab Reporting Batch ID: MC25594 **Laboratory: ACTD**

EDD Filename: MC25594SEDD_2a_1 NJ-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: **GENCHEM**

Method: **300.0** ***Matrix:*** **Water**

Sample ID: **SHM-05-39A-102413** ***Collected:*** **10/24/2013 10:40:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	4.0	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: **SHM-05-39B-102413** ***Collected:*** **10/24/2013 9:05:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	3.8	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: **SHM-05-40X-102413** ***Collected:*** **10/24/2013 11:50:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	4.8	J	0.50	LOD	10	LOQ	mg/L	J	TR

* denotes a non-reportable result

Project Name and Number: - SCMAW: Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC25594 **Laboratory: ACTD**

EDD Filename: MC25594SEDD_2a_1 NJ-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Reason Code Legend

Reason Code	*Description*
TR	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: - SCMAW: Shepley's Hill (SHL), Devens, MA

December 19, 2013 **Total Arsenic by USEPA Method 6020A**
Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

INTRODUCTION

This data validation report covers one water sample collected on November 12, 2013 from the Shepley's Hill Landfill at the former Fort Devens Site, in Ayer, Massachusetts. The sample was submitted to Alpha Analytical Laboratories in Westborough, MA (Alpha) by Sovereign Consulting, Inc. (Sovereign) on November 12, 2013. Alpha assigned the sample to sample delivery group (SDG) L1322950. The sample was analyzed for total arsenic by United States Environmental Protection Agency (USEPA) Method 6020A.

Sample receipt status is presented in Table 1. The field sample identification (ID) and associated Alpha sample ID is presented in Table 2.

Data validation was performed using the ADR.net (Automated Data Review) software and an AMEC Environment & Infrastructure, Inc. (AMEC) chemist reviewed the ADR results. The ADR output was adjusted by AMEC based on professional judgment to complete the validation process. The laboratory's analytical data package was reviewed to assess adherence to acceptable laboratory practices and the data validation requirements specified in the Department of Defense Quality Systems Manual (QSM) for Environmental Laboratories and the applicable analytical methods described above. The level of data validation specified in Table 1 was performed with reference to the Site Specific Quality Assurance Project Plan for Shelpley's Hill Landfill Supplemental Investigations, Long-Term Monitoring and Treatment System O & M Services for the Former Fort Devens Army Installation (April 2013) and EPA Region I Tier II Guidance. For Tier II data review, data quality objectives are assessed by review of the Contract Laboratory Program-like summary forms, with no review of the associated raw data.

Table 1. Sample Status

Data Validation Level	Matrix	Preservation	Temperature Sample Receipt	Laboratory	SDG Number
Tier II	Aqueous	Method specified	The cooler was received by the laboratory at 3.9 ºC	Alpha Analytical Laboratories, Eight Walkup Drive, Westborough, MA 01581	L1322950

Table 2. Field Sample List

Lab Sample Number	Field ID	Sample Date	Comments
L1322950-01	EFF-111213	11/12/2013	

ADR Output Summary

The ADR.net software did not apply any qualifications to the data set.

December 19, 2013 **Total Arsenic by USEPA Method 6020A**
Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

ADR Output Adjustment

AMEC reviewed the Automated Data Review outputs for this set of data for accuracy and conformance with applicable data validation procedures. Based on review of the associated laboratory data package, AMEC made the following changes to the ADR output.

- Percent recovery of the interference check sample associated with sample EFF-111213 was high at 522% for arsenic. AMEC J qualified the detected arsenic result for sample EFF-111213 because of the potential high analytical bias.

If you have any questions or comments regarding this report, please contact the undersigned at (503) 639-3400.

Sincerely,

AMEC Environment & Infrastructure, Inc.

PREPARED BY:

Hope Mariska
Environmental Chemist

REVIEWED BY:

Marie Bevier
Environmental Chemist

Data Qualifier Summary

Lab Reporting Batch ID: L1322950 **Laboratory: AAL**

EDD Filename: L1322950_2a_VAL **eQAPP Name: Shepley's Hill Landfill - Alpha Analytical**

Method Category: **METALS**

Method: **6020A** ***Matrix:*** **WATER**

Sample ID: **EFF-111213** ***Collected:*** **11/12/2013 7:43:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1.0**

Analyte	*Lab Result*	*Lab Qual*	*DL*	*DL Type*	*RL*	*RL Type*	*Units*	*Data Review Qual*	*Reason Code*
ARSENIC	0.0192		0.0005	MDL	0.0005	RDL	mg/l	J	ICS

* denotes a non-reportable result

Project Name and Number: AC001.02E - SHEPLEY'S HILL ATP

Data Qualifier Summary

Lab Reporting Batch ID: L1322950 **Laboratory: AAL**

EDD Filename: L1322950_2a_VAL **eQAPP Name: Shepley's Hill Landfill - Alpha Analytical**

Reason Code Legend

Reason Code	*Description*
ICS	Initial Calibration Verification Percent Recovery Upper Estimation

* denotes a non-reportable result

Project Name and Number: AC001.02E - SHEPLEY'S HILL ATP

Field QC Assignments and Associated Samples

EDD File Name: L1322950

eQapp Name: Shepley's Hill Landfill - Alpha Analytical

	Associated Samples	Sample Collection Date

January 16, 2014
Region I Data Review Worksheet
Project: SHL, Fort Devens, LTMMP and NIA
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

Metals by USEPA Methods 6020A/6010C
Total Alkalinity by SM 2320B
Ammonia, Sulfide and Chloride by SM4500
Nitrate/Nitrite by USEPA Method 353.2
Sulfate by USEPA Method 300.0
Dissolved Organic Carbon by SM5310B

INTRODUCTION

This data validation report covers twenty four (24) water samples, including 3 rinsate blanks and 2 field duplicates, collected between November 19 and 21, 2013 from the Shepley's Hill Landfill at the former Fort Devens Site North Impact Area (NIA), in Ayer, Massachusetts. The samples were submitted to Accutest Laboratories in Marlborough, MA (Accutest) by Sovereign Consulting, Inc. (Sovereign) between November 19 and 21, 2013. Accutest assigned the samples to sample delivery groups (SDGs) MC26418 and MC26484. The samples were analyzed for dissolved metals by United States Environmental Protection Agency (USEPA) methods 6010C and 6020A; total alkalinity by Standard Method (SM) 2320B; ammonia, sulfide, and chloride by SM 4500; sulfate by USEPA Method 300.0; nitrate/nitrite by USEPA Method 353.2; and dissolved organic carbon (DOC) by SM 5310B. Rinsate blanks were analyzed for dissolved arsenic by USEPA Method 6020A only.

Sample receipt status is presented in Table 1. The field sample identification (ID) and associated Accutest sample ID is presented in Table 2.

Data validation was performed using the ADR.net (Automated Data Review) software and an AMEC Environment & Infrastructure, Inc. (AMEC) chemist reviewed the ADR results. The ADR output was adjusted by AMEC based on professional judgment to complete the validation process. The laboratory's analytical data packages were reviewed to assess adherence to acceptable laboratory practices and the data validation requirements specified in the Department of Defense Quality Systems Manual (QSM) for Environmental Laboratories and the applicable analytical methods described above. The level of data validation specified in Table 1 was performed with reference to the Site Specific Quality Assurance Project Plan for Shelpley's Hill Landfill Supplemental Investigations, Long-Term Monitoring and Treatment System O & M Services for the Former Fort Devens Army Installation (April 2013) and EPA Region I Tier II Guidance. For Tier II data review, data quality objectives are assessed by review of the Contract Laboratory Program-like summary forms, with no review of the associated raw data.

Table 1. Sample Status

Data Validation Level	Matrix	Preservation	Temperature Sample Receipt	Laboratory	SDG Numbers
90% Tier I/ 10% Tier II	Aqueous	Method specified	The coolers were received by the laboratory at the following temperatures: MC26418 – 0.2 Degrees Celsius (ºC) MC26484 – 0.6 ºC	Accutest Laboratories, 496 Tech Center West, Building 1, Marlborough, MA 01752	MC26418 MC26484

Table 2. Field Sample List

Lab Sample Number	Field ID	Sample Date	Comments
MC26418-1	SHL-4-111913	11/19/2013	Matrix Spike (MS)/MS Duplicate (MSD)
MC26418-2	SHM-10-11-111913	11/19/2013	
MC26418-3	DUPLICATE-111913	11/19/2013	Field Duplicate of Sample SHM-10-11-111913
MC26418-4	SHP-01-38A-111913	11/19/2013	
MC26418-5	SHM-10-12-111913	11/19/2013	
MC26418-6	SHP-01-37X-111913	11/19/2013	
MC26418-7	RB-111913	11/19/2013	Rinsate Blank
MC26418-8	SHP-01-36X-111913	11/19/2013	
MC26418-9	SHM-11-06-112013	11/20/2013	
MC26418-10	SHM-10-15-112013	11/20/2013	
MC26418-11	SHM-10-16-112013	11/20/2013	
MC26418-12	SHM-11-02-112013	11/20/2013	
MC26418-13	SHM-10-10-112013	11/20/2013	
MC26418-14	RB-112013	11/20/2013	Rinsate Blank
MC26418-15	SHM-13-03-112013	11/20/2013	
MC26418-16	SHM-10-06A-112013	11/20/2013	
MC26484-1	SHM-13-02-112113	11/21/2013	
MC26484-2	SHM-13-01-112113	11/21/2013	
MC26484-3	DUPLICATE-112113	11/21/2013	Field Duplicate of Sample SHM-13-01-112113
MC26484-4	SHM-13-06-112113	11/21/2013	MS/MSD
MC26484-5	SHM-13-05-112113	11/21/2013	
MC26484-6	SHM-13-07-112113	11/21/2013	
MC26484-7	SHM-13-08-112113	11/21/2013	MS/MSD
MC26484-8	RB-112113	11/21/2013	Rinsate Blank

ADR Output Summary

The ADR.net software made the following qualifications to the data set:

MC26418

- ADR J qualified the detected nitrate/nitrite result from sample SHL-4-111913 because of high matrix spike recovery.
- ADR J qualified the detected results from the following samples because the detected concentrations were between the limit of detection (LOD) and the limit of quantitation (LOQ):
    - Alkalinity: SHP-01-37X-111913.
    - Ammonia: SHP-01-36X-111913.
    - Arsenic: SHM-10-10-112013 and SHM-11-02-112013.
    - Iron: SHM-10-10-112013 and SHP-01-36X-111913.
    - Magnesium: DUPLICATE-111913, SHL-4-111913, SHM-10-06A-112013, SHM-10-11-111913, SHM-10-12-111913, SHM-11-02-112013, SHP-01-36X-111913, SHP-01-37X-111913 and SHP-01-38A-111913.
    - Nitrate/nitrite: SHM-10-10-112013, SHM-10-11-111913, and SHP-01-36X-111913.

- Potassium: DUPLICATE-111913, SHM-10-06A-112013, SHM-10-10-112013, SHM-10-11-111913, SHM-10-12-111913, SHP-01-36X-111913 and SHP-01-37X-111913.
- Sodium: SHM-10-06A-112013 and SHM-10-12-111913.
- Sulfate: SHM-10-06A-112013, SHM-10-10-112013, SHM-10-12-111913, SHM-10-16-112013, SHM-11-02-112013, SHM-11-06-112013, and SHM-13-03-112013.

MC26484

- ADR J qualified the detected nitrate/nitrite result from sample SHM-13-08-112113 because of low matrix spike recovery.
- ADR J qualified the detected iron results from samples SHM-13-02-112113, SHM-13-05-112113, SHM-13-06-112113, SHM-13-07-112113, and SHM-13-08-112113 because of high matrix spike recovery.
- ADR J qualified the detected results from the following samples because the detected concentrations were between the LOD and the LOQ:
  - Ammonia: SHM-13-05-112113.
  - Arsenic: DUPLICATE-112113, SHM-13-01-112113, SHM-13-02-1112113
  - Calcium: DUPLICATE-112113, SHM-13-01-112113
  - Dissolved Organic Carbon (DOC): DUPLICATE-112113 and SHM-13-01-112113
  - Magnesium: DUPLICATE-112113, SHM-13-01-112113, SHM-13-02-112113, SHM-13-06-112113, SHM-13-07-112113, SHM-13-08-112113
  - Manganese: DUPLICATE-112113, SHM-13-01-112113
  - Potassium: DUPLICATE-112113, SHM-13-01-112113, SHM-13-02-112113, SHM-13-06-112113
  - Sulfate: SHM-13-02-112113 and SHM-13-08-112113

ADR Output Adjustment

AMEC reviewed the Automated Data Review outputs for this set of data for accuracy and conformance with applicable data validation procedures. Based on review of the associated laboratory data package, AMEC made the following changes to the ADR output.

MC26418

- DOC was detected in the method blank (0.50 milligrams per liter [mg/L]), continuing calibration blank (CCB)1 (0.56 mg/L), CCB2 (0.57 mg/L), and CCB3 (0.58 mg/L) associated with the analysis of samples SHL-4-111913, SHM-10-11-111913, DUPLICATE-111913, SHP-01-38A-111913, SHM-10-12-111913, SHP-01-37X-111913, SHP-01-36X-111913, SHM-11-06-112013, SHM-10-15-112013, SHM-10-16-112013, SHM-11-02-112013, SHM-10-10-112013, SHM-13-03-112013, and SHM-10-06A-112013. AMEC U qualified the detected DOC results from samples SHM-10-11-111913, DUPLICATE-111913, SHP-01-38A-111913, SHP-01-37X-111913, SHP-01-36X-111913, SHM-10-15-112013, and SHM-10-06A-112013 because the concentrations detected in the samples were less than five times the concentrations detected in the associated CCBs. The remaining DOC results from the associated samples were detections at concentrations greater than five times the concentrations detected in the associated CCBs.

January 16, 2014
Region I Data Review Worksheet
Project: SHL, Fort Devens, LTMMP and NIA
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

Metals by USEPA Methods 6020A/6010C
Total Alkalinity by SM 2320B
Ammonia, Sulfide and Chloride by SM4500
Nitrate/Nitrite by USEPA Method 353.2
Sulfate by USEPA Method 300.0
Dissolved Organic Carbon by SM5310B

MC26484

- Accutest performed an MS/MSD analysis on sample SHM-13-06-112113 for metals. Iron recovery was high at 125% in the MS and 145% in the MSD. The background concentration of the native, unspiked sample at 39.9 mg/L was greater than four times the spike concentration of 2 mg/L and it is not possible to evaluate data usability based on matrix spike recovery for this sample. AMEC removed the qualifications that ADR applied to the iron result of sample SHM-13-06-112113. Additionally, AMEC removed the qualifications ADR applied to samples SHM-13-02-112113, SHM-13-05-112113, SHM-13-07-112113, and SHM-13-08-112113 based on the high matrix spike recovery in sample SHM-13-06-112113.
- DOC was detected in CCB1 (0.59 mg/L), CCB2 (0.55 mg/L), and CCB3 (0.54 mg/L) associated with the analysis of samples SHM-13-02-112113, SHM-13-01-112113, DUPLICATE-112113, SHM-13-06-112113, SHM-13-05-112113, SHM-13-07-112113, and SHM-13-08-112113. AMEC U qualified the detected DOC results from samples SHM-13-02-112113, SHM-13-01-112113, DUPLICATE-112113, SHM-13-06-112113, and SHM-13-07-112113 because the concentrations detected in the samples were less than five times the concentrations detected in the associated CCBs. The remaining DOC results from the associated samples were detections at concentrations greater than five times the concentrations detected in the associated CCBs.

If you have any questions or comments regarding this report, please contact the undersigned at (503) 639-3400.

Sincerely,

AMEC Environment & Infrastructure, Inc.

PREPARED BY:

Hope Mariska
Environmental Chemist

REVIEWED BY:

Marie Bevier
Environmental Chemist

Data Qualifier Summary

Lab Reporting Batch ID: MC26484 **Laboratory: ACTM**

EDD Filename: MC26484SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: GENCHEM

Method: 353.2 **Matrix: Water**

Sample ID: SHM-13-08-112113 **Collected:** 11/21/2013 11:45:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NITROGEN, NITRATE-NITRITE	0.15		0.054	LOD	0.10	LOQ	mg/L	J	Q

Method Category: GENCHEM

Method: SM 4500 NH3 BC **Matrix: Water**

Sample ID: SHM-13-05-112113 **Collected:** 11/21/2013 10:40:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AMMONIA AS N	0.095	J	0.087	LOD	0.10	LOQ	mg/L	J	TR

Method Category: GENCHEM

Method: SM 5310B **Matrix: Water**

Sample ID: DUPLICATE-112113 **Collected:** 11/21/2013 12:00:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
DISSOLVED ORGANIC CARBON (DOC)	0.75	J	0.69	LOD	1.0	LOQ	mg/L	U	C

Sample ID: SHM-13-01-112113 **Collected:** 11/21/2013 9:00:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
DISSOLVED ORGANIC CARBON (DOC)	0.82	J	0.69	LOD	1.0	LOQ	mg/L	U	C

Sample ID: SHM-13-02-112113 **Collected:** 11/21/2013 8:50:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
DISSOLVED ORGANIC CARBON (DOC)	1.9		0.69	LOD	1.0	LOQ	mg/L	U	C

Sample ID: SHM-13-06-112113 **Collected:** 11/21/2013 9:36:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
DISSOLVED ORGANIC CARBON (DOC)	1.5		0.69	LOD	1.0	LOQ	mg/L	U	C

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC26484 **Laboratory: ACTM**

EDD Filename: MC26484SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: GENCHEM

Method: SM 5310B **Matrix: Water**

Sample ID: SHM-13-07-112113 **Collected:** 11/21/2013 11:22:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
DISSOLVED ORGANIC CARBON (DOC)	1.6		0.69	LOD	1.0	LOQ	mg/L	U	C

Method Category: METALS

Method: 6010C **Matrix: Water**

Sample ID: DUPLICATE-112113 **Collected:** 11/21/2013 12:00:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
CALCIUM	3810	J	150	LOD	5000	LOQ	ug/L	J	TR
MAGNESIUM	402	J	200	LOD	5000	LOQ	ug/L	J	TR
MANGANESE	7.6	J	2.5	LOD	15.0	LOQ	ug/L	J	TR
POTASSIUM	818	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: SHM-13-01-112113 **Collected:** 11/21/2013 9:00:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
CALCIUM	3750	J	150	LOD	5000	LOQ	ug/L	J	TR
MAGNESIUM	415	J	200	LOD	5000	LOQ	ug/L	J	TR
MANGANESE	7.4	J	2.5	LOD	15.0	LOQ	ug/L	J	TR
POTASSIUM	801	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: SHM-13-02-112113 **Collected:** 11/21/2013 8:50:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	3740	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	2390	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: SHM-13-06-112113 **Collected:** 11/21/2013 9:36:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	1910	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	3920	J	500	LOD	5000	LOQ	ug/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC26484 **Laboratory: ACTM**

EDD Filename: MC26484SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: METALS

Method: 6010C **Matrix: Water**

Sample ID: SHM-13-07-112113 **Collected:** 11/21/2013 11:22:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	2720	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: SHM-13-08-112113 **Collected:** 11/21/2013 11:45:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	4080	J	200	LOD	5000	LOQ	ug/L	J	TR

Method Category: METALS

Method: 6020A **Matrix: Water**

Sample ID: DUPLICATE-112113 **Collected:** 11/21/2013 12:00:00 **Analysis Type:** Initial/DIS **Dilution:** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	2.2	J	2.0	LOD	4.0	LOQ	ug/L	J	TR

Sample ID: SHM-13-01-112113 **Collected:** 11/21/2013 9:00:00 **Analysis Type:** Initial/DIS **Dilution:** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	2.2	J	2.0	LOD	4.0	LOQ	ug/L	J	TR

Sample ID: SHM-13-02-112113 **Collected:** 11/21/2013 8:50:00 **Analysis Type:** Initial/DIS **Dilution:** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	2.7	J	2.0	LOD	4.0	LOQ	ug/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC26484 **Laboratory: ACTM**

EDD Filename: MC26484SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Reason Code Legend

Reason Code	*Description*
C	Calibration Blank Contamination
Q	Matrix Spike Lower Estimation
Q	Matrix Spike Upper Estimation
TR	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Field QC Assignments and Associated Samples

EDD File Name: MC26484
eQapp Name: Shepley's Hill Landfill - Accutest

	Associated Samples	Sample Collection Date
Field QC Sample: DUPLICATE-112113 **QC Type:** Field_Duplicate		
	SHM-13-01-112113	11/21/2013 9:00:00 AM
	SHM-13-01-112113	11/21/2013 9:00:00 AM
Field QC Sample: RB-112113 **QC Type:** Equipment_Blank		
	SHM-13-07-112113	11/21/2013 11:22:00 AM
	SHM-13-01-112113	11/21/2013 9:00:00 AM
	SHM-13-05-112113	11/21/2013 10:40:00 AM
	DUPLICATE-112113	11/21/2013
	SHM-13-02-112113	11/21/2013 8:50:00 AM
	SHM-13-08-112113	11/21/2013 11:45:00 AM
	SHM-13-06-112113	11/21/2013 9:36:00 AM

Data Qualifier Summary

Lab Reporting Batch ID: MC26484 **Laboratory: ACTD**

EDD Filename: MC26484SEDD_2a_1(nj)-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: **GENCHEM**

Method: **300.0** ***Matrix:*** **Water**

Sample ID: **SHM-13-02-112113** ***Collected:*** **11/21/2013 8:50:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	5.7	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: **SHM-13-08-112113** ***Collected:*** **11/21/2013 11:45:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	3.7	J	0.50	LOD	10	LOQ	mg/L	J	TR

* denotes a non-reportable result

Project Name and Number: - SCMAW: Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC26484 **Laboratory: ACTD**

EDD Filename: MC26484SEDD_2a_1(nj)-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Reason Code Legend

Reason Code	*Description*
TR	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: - SCMAW: Shepley's Hill (SHL), Devens, MA

Field QC Assignments and Associated Samples

EDD File Name: MC26484
eQapp Name: Shepley's Hill Landfill - Accutest

	Associated Samples	Sample Collection Date
Field QC Sample: DUPLICATE-112113 **QC Type:** Field_Duplicate		
	SHM-13-01-112113	11/21/2013 9:00:00 AM

Data Qualifier Summary

Lab Reporting Batch ID: MC26418 **Laboratory: ACTM**

EDD Filename: MC26418SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: GENCHEM

Method: 353.2 **Matrix: Water**

Sample ID: SHL-4-111913 **Collected:** 11/19/2013 9:20:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NITROGEN, NITRATE-NITRITE	0.24		0.054	LOD	0.10	LOQ	mg/L	J	Q

Sample ID: SHM-10-10-112013 **Collected:** 11/20/2013 12:50:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NITROGEN, NITRATE-NITRITE	0.060	J	0.054	LOD	0.10	LOQ	mg/L	J	TR

Sample ID: SHM-10-11-111913 **Collected:** 11/19/2013 10:13:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NITROGEN, NITRATE-NITRITE	0.091	J	0.054	LOD	0.10	LOQ	mg/L	J	TR

Sample ID: SHP-01-36X-111913 **Collected:** 11/19/2013 2:35:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NITROGEN, NITRATE-NITRITE	0.064	J	0.054	LOD	0.10	LOQ	mg/L	J	TR

Method Category: GENCHEM

Method: SM 2320B **Matrix: Water**

Sample ID: SHP-01-37X-111913 **Collected:** 11/19/2013 1:20:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ALKALINITY, TOTAL	4.4	J	3.0	LOD	5.0	LOQ	mg/L	J	TR

Method Category: GENCHEM

Method: SM 4500 NH3 BC **Matrix: Water**

Sample ID: SHP-01-36X-111913 **Collected:** 11/19/2013 2:35:00 **Analysis Type:** Initial/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AMMONIA AS N	0.093	J	0.087	LOD	0.10	LOQ	mg/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC26418 **Laboratory: ACTM**

EDD Filename: MC26418SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: **GENCHEM**

Method: **SM 5310B** ***Matrix:*** **Water**

Sample ID: **DUPLICATE-111913** ***Collected:*** **11/19/2013 12:00:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
DISSOLVED ORGANIC CARBON (DOC)	2.7		0.69	LOD	1.0	LOQ	mg/L	U	C

Sample ID: **SHM-10-06A-112013** ***Collected:*** **11/20/2013 2:09:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
DISSOLVED ORGANIC CARBON (DOC)	1.8		0.69	LOD	1.0	LOQ	mg/L	U	C

Sample ID: **SHM-10-11-111913** ***Collected:*** **11/19/2013 10:13:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
DISSOLVED ORGANIC CARBON (DOC)	2.7		0.69	LOD	1.0	LOQ	mg/L	U	C

Sample ID: **SHM-10-15-112013** ***Collected:*** **11/20/2013 9:16:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
DISSOLVED ORGANIC CARBON (DOC)	2.8		0.69	LOD	1.0	LOQ	mg/L	U	C

Sample ID: **SHP-01-36X-111913** ***Collected:*** **11/19/2013 2:35:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
DISSOLVED ORGANIC CARBON (DOC)	2.8		0.69	LOD	1.0	LOQ	mg/L	U	C

Sample ID: **SHP-01-37X-111913** ***Collected:*** **11/19/2013 1:20:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
DISSOLVED ORGANIC CARBON (DOC)	2.2		0.69	LOD	1.0	LOQ	mg/L	U	C

Sample ID: **SHP-01-38A-111913** ***Collected:*** **11/19/2013 11:25:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
DISSOLVED ORGANIC CARBON (DOC)	2.2		0.69	LOD	1.0	LOQ	mg/L	U	C

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC26418 **Laboratory: ACTM**

EDD Filename: MC26418SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **Water**

Sample ID: **DUPLICATE-111913** ***Collected:*** **11/19/2013 12:00:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	2690	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	4990	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHL-4-111913** ***Collected:*** **11/19/2013 9:20:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	3860	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-10-06A-112013** ***Collected:*** **11/20/2013 2:09:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	933	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	3430	J	500	LOD	5000	LOQ	ug/L	J	TR
SODIUM	2940	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-10-10-112013** ***Collected:*** **11/20/2013 12:50:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
IRON	48.7	J	30.0	LOD	100	LOQ	ug/L	J	TR
POTASSIUM	3050	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-10-11-111913** ***Collected:*** **11/19/2013 10:13:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	2630	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	4880	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: **SHM-10-12-111913** ***Collected:*** **11/19/2013 1:17:00** ***Analysis Type:*** **Initial/DIS** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	2090	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	4390	J	500	LOD	5000	LOQ	ug/L	J	TR
SODIUM	4090	J	200	LOD	5000	LOQ	ug/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC26418 **Laboratory: ACTM**

EDD Filename: MC26418SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: METALS

Method: 6010C **Matrix: Water**

Sample ID: SHM-11-02-112013 **Collected:** 11/20/2013 12:02:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	2960	J	200	LOD	5000	LOQ	ug/L	J	TR

Sample ID: SHP-01-36X-111913 **Collected:** 11/19/2013 2:35:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
IRON	75.2	J	30.0	LOD	100	LOQ	ug/L	J	TR
MAGNESIUM	2540	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	2230	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: SHP-01-37X-111913 **Collected:** 11/19/2013 1:20:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	2840	J	200	LOD	5000	LOQ	ug/L	J	TR
POTASSIUM	3970	J	500	LOD	5000	LOQ	ug/L	J	TR

Sample ID: SHP-01-38A-111913 **Collected:** 11/19/2013 11:25:00 **Analysis Type:** Initial/DIS **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MAGNESIUM	2450	J	200	LOD	5000	LOQ	ug/L	J	TR

Method Category: METALS

Method: 6020A **Matrix: Water**

Sample ID: SHM-10-10-112013 **Collected:** 11/20/2013 12:50:00 **Analysis Type:** Initial/DIS **Dilution:** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	2.0	J	2.0	LOD	4.0	LOQ	ug/L	J	TR

Sample ID: SHM-11-02-112013 **Collected:** 11/20/2013 12:02:00 **Analysis Type:** Initial/DIS **Dilution:** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	3.2	J	2.0	LOD	4.0	LOQ	ug/L	J	TR

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC26418 **Laboratory: ACTM**

EDD Filename: MC26418SEDD_2a_1-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Reason Code Legend

Reason Code	*Description*
C	Calibration Blank Contamination
Q	Matrix Spike Upper Estimation
TR	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: - Shepley's Hill (SHL), Devens, MA

Field QC Assignments and Associated Samples

EDD File Name: MC26418
eQapp Name: Shepley's Hill Landfill - Accutest

	Associated Samples	Sample Collection Date
Field QC Sample: DUPLICATE-111913 **QC Type:** Field_Duplicate		
	SHM-10-11-111913	11/19/2013 10:13:00 AM
	SHM-10-11-111913	11/19/2013 10:13:00 AM
Field QC Sample: RB-111913 **QC Type:** Equipment_Blank		
	SHM-10-11-111913	11/19/2013 10:13:00 AM
	SHP-01-38A-111913	11/19/2013 11:25:00 AM
	SHP-01-37X-111913	11/19/2013 1:20:00 PM
	SHL-4-111913	11/19/2013 9:20:00 AM
	DUPLICATE-111913	11/19/2013
	SHM-10-12-111913	11/19/2013 1:17:00 PM
	SHP-01-36X-111913	11/19/2013 2:35:00 PM
Field QC Sample: RB-112013 **QC Type:** Equipment_Blank		
	SHM-10-10-112013	11/20/2013 12:50:00 PM
	SHM-10-06A-112013	11/20/2013 2:09:00 PM
	SHM-11-02-112013	11/20/2013 12:02:00 PM
	SHM-10-16-112013	11/20/2013 10:17:00 AM
	SHM-11-06-112013	11/20/2013 8:45:00 AM
	SHM-10-15-112013	11/20/2013 9:16:00 AM
	SHM-13-03-112013	11/20/2013 2:05:00 PM

Data Qualifier Summary

Lab Reporting Batch ID: MC26418 **Laboratory: ACTD**

EDD Filename: MC26418SEDD_2a_1(nj)-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Method Category: GENCHEM

Method: 300.0 ***Matrix:*** Water

Sample ID: **SHM-10-06A-112013** ***Collected:*** **11/20/2013 2:09:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	2.1	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: **SHM-10-10-112013** ***Collected:*** **11/20/2013 12:50:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	2.9	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: **SHM-10-12-111913** ***Collected:*** **11/19/2013 1:17:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	3.8	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: **SHM-10-16-112013** ***Collected:*** **11/20/2013 10:17:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	2.9	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: **SHM-11-02-112013** ***Collected:*** **11/20/2013 12:02:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	9.9	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: **SHM-11-06-112013** ***Collected:*** **11/20/2013 8:45:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	6.8	J	0.50	LOD	10	LOQ	mg/L	J	TR

Sample ID: **SHM-13-03-112013** ***Collected:*** **11/20/2013 2:05:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SULFATE AS SO4	5.0	J	0.50	LOD	10	LOQ	mg/L	J	TR

* denotes a non-reportable result

Project Name and Number: - SCMAW: Shepley's Hill (SHL), Devens, MA

Data Qualifier Summary

Lab Reporting Batch ID: MC26418 **Laboratory: ACTD**

EDD Filename: MC26418SEDD_2a_1(nj)-VAL **eQAPP Name: Shepley's Hill Landfill - Accutest**

Reason Code Legend

Reason Code	*Description*
TR	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: - SCMAW: Shepley's Hill (SHL), Devens, MA

Field QC Assignments and Associated Samples

EDD File Name: MC26418
eQapp Name: Shepley's Hill Landfill - Accutest

	Associated Samples	Sample Collection Date
Field QC Sample: DUPLICATE-111913 **QC Type:** Field_Duplicate		
	SHM-10-11-111913	11/19/2013 10:13:00 AM

January 7, 2014
Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP, USEPA Region I Tier II Guidance, and DoD QSM

Total Metals by USEPA Methods 6020A/6010C
Nitrate by USEPA Method 353.2
Sulfate by USEPA Method 300.0
Chloride by Standard Method 4500CL-E

INTRODUCTION

This data validation report covers three water samples collected on December 9, 2013 from the Shepley's Hill Landfill at the former Fort Devens Site, in Ayer, Massachusetts. The samples were submitted to Alpha Analytical Laboratories in Westborough, MA (Alpha) by Sovereign Consulting, Inc. (Sovereign) on December 9, 2013. Alpha assigned the samples to sample delivery group (SDG) L1324976. The effluent sample was analyzed for total metals by United States Environmental Protection Agency (USEPA) Methods 6020A and 6010C; nitrate by USEPA Method 353.2; chloride by Standard Methods (SM) 4500CL-E; and sulfate by USEPA Method 300.0. The remaining two water samples were analyzed for total arsenic by USEPA Method 6020A and iron and manganese by USEPA Method 6010C.

Sample receipt status is presented in Table 1. The field sample identification (ID) and associated Alpha sample ID is presented in Table 2.

Data validation was performed using the ADR.net (Automated Data Review) software and an AMEC Environment & Infrastructure, Inc. (AMEC) chemist reviewed the ADR results. The ADR output was adjusted by AMEC based on professional judgment to complete the validation process. The laboratory's analytical data packages were reviewed to assess adherence to acceptable laboratory practices and the data validation requirements specified in the Department of Defense Quality Systems Manual (QSM) for Environmental Laboratories and the applicable analytical methods described above. The level of data validation specified in Table 1 was performed with reference to the Site Specific Quality Assurance Project Plan for Shelpley's Hill Landfill Supplemental Investigations, Long-Term Monitoring and Treatment System O & M Services for the Former Fort Devens Army Installation (April 2013) and EPA Region I Tier II Guidance. For Tier II data review, data quality objectives are assessed by review of the Contract Laboratory Program-like summary forms, with no review of the associated raw data.

Table 1. Sample Status

Data Validation Level	Matrix	Preservation	Temperature Sample Receipt	Laboratory	SDG Number
Tier II	Aqueous	Method specified	The cooler was received by the laboratory at 4.1 ºC	Alpha Analytical Laboratories, Eight Walkup Drive, Westborough, MA 01581	L1324976

January 7, 2014
Region I Data Review Worksheet
Project: SHL, Fort Devens
Review Criteria: Fort Devens QAPP,
USEPA Region I Tier II Guidance, and DoD QSM

Total Metals by USEPA Methods 6020A/6010C
Nitrate by USEPA Method 353.2
Sulfate by USEPA Method 300.0
Chloride by Standard Method 4500CL-E

Table 2. Field Sample List

Lab Sample Number	Field ID	Sample Date	Comments
L1324976-01	EFFLUENT	12/9/2013	Effluent Sample
L1324976-02	EW-01	12/9/2013	
L1324976-03	EW-04	12/9/2013	

ADR Output Summary

The ADR.net software made the following qualifications to the data set:

- ADR J qualified the detected nitrate result from the EFFLUENT sample because the detected concentration was between the method detection limit (MDL) and the limit of quantitation (LOQ).

ADR Output Adjustment

AMEC reviewed the Automated Data Review outputs for this set of data for accuracy and conformance with applicable data validation procedures. Based on review of the associated laboratory data package, AMEC made no changes to the ADR output.

If you have any questions or comments regarding this report, please contact the undersigned at (503) 639-3400.

Sincerely,

AMEC Environment & Infrastructure, Inc.

PREPARED BY:

Hope Mariska
Environmental Chemist

REVIEWED BY:

Marie Bevier
Environmental Chemist

Data Qualifier Summary

Lab Reporting Batch ID: L1324976 **Laboratory: AAL**

EDD Filename: L1324976_2a-VAL **eQAPP Name: Shepley's Hill Landfill - Alpha Analytical**

Method Category: **GENCHEM**

Method: **353.2** ***Matrix:*** **WATER**

Sample ID: **EFFLUENT** ***Collected:*** **12/9/2013 11:15:00** ***Analysis Type:*** **Initial/TOT** ***Dilution:*** **1.0**

Analyte	*Lab Result*	*Lab Qual*	*DL*	*DL Type*	*RL*	*RL Type*	*Units*	*Data Review Qual*	*Reason Code*
NITRATE	0.054	J	0.015	MDL	0.1	RDL	mg/l	J	TR

* denotes a non-reportable result

Project Name and Number: AC001.02E - SHEPLEY'S HILL ATP

Data Qualifier Summary

Lab Reporting Batch ID: L1324976 **Laboratory: AAL**

EDD Filename: L1324976_2a-VAL **eQAPP Name: Shepley's Hill Landfill - Alpha Analytical**

Reason Code Legend

Reason Code	*Description*
B	Method Blank Contamination
C	Calibration Blank Contamination
C	Initial Calibration Correlation Coefficient
C	Initial Calibration Percent Relative Standard Deviation
C	Initial Calibration Relative Response Factor
C	Initial Calibration Verification Relative Response Factor
CCV	Continuing Calibration Verification Percent Difference Lower Estimation
CCV	Continuing Calibration Verification Percent Difference Lower Rejection
CCV	Continuing Calibration Verification Percent Difference Upper Estimation
CCV	Continuing Calibration Verification Percent Difference Upper Rejection
CCV	Continuing Calibration Verification Percent Recovery Lower Estimation
CCV	Continuing Calibration Verification Percent Recovery Lower Rejection
CCV	Continuing Calibration Verification Percent Recovery Upper Estimation
CCV	Continuing Calibration Verification Percent Recovery Upper Rejection
CcvCC	Continuing Calibration Verification Correlation Coefficient
CCVRRF	Continuing Calibration Verification Relative Response Factor
ContTune	Continuing Tune
Dup=0	Duplicate Sample Count = 0
Dup>1	Duplicate Sample Count > 1
EtoA	Extraction to Analysis Estimation
EtoA	Extraction to Analysis Rejection
F	Equipment Blank Contamination
F	Field Blank Contamination
FD	Field Duplicate Precision
Ft	Field Triplicate Precision
IC	Resolution Check Mixture
ICS	Initial Calibration Verification Percent Difference Lower Estimation
ICS	Initial Calibration Verification Percent Difference Lower Rejection
ICS	Initial Calibration Verification Percent Difference Upper Estimation
ICS	Initial Calibration Verification Percent Difference Upper Rejection

* denotes a non-reportable result

Project Name and Number: AC001.02E - SHEPLEY'S HILL ATP

Data Qualifier Summary

Lab Reporting Batch ID: L1324976 **Laboratory: AAL**

EDD Filename: L1324976_2a-VAL **eQAPP Name: Shepley's Hill Landfill - Alpha Analytical**

ICS	Initial Calibration Verification Percent Recovery Lower Estimation
ICS	Initial Calibration Verification Percent Recovery Lower Rejection
ICS	Initial Calibration Verification Percent Recovery Upper Estimation
ICS	Initial Calibration Verification Percent Recovery Upper Rejection
IcvCC	Initial Calibration Verification Correlation Coefficient
IllogicalFraction	Illogical Fraction
InitTune	Initial Tune
Is	Internal Standard Estimation
Is	Internal Standard Rejection
L	Laboratory Control Precision
L	Laboratory Control Spike Lower Estimation
L	Laboratory Control Spike Lower Rejection
L	Laboratory Control Spike Upper Estimation
L	Laboratory Control Spike Upper Rejection
Lcs=0	Laboratory Control Sample Count = 0
Lcs>1	Laboratory Control Sample Count > 1
Ld	Laboratory Duplicate Precision
Lt	Laboratory Triplicate Precision
Mb=0	Method Blank Sample Count = 0
Mb>1	Method Blank Sample Count > 1
Moist	Percent Moisture
Ms=0	Matrix Spike Sample Count = 0
Ms>1	Matrix Spike Sample Count > 1
PDS	Matrix Spike Sample Count > 1
PEM	Performance Evaluation Mixture
PJ	Professional Judgment
Preservation	Preservation
Q	Matrix Spike Lower Estimation
Q	Matrix Spike Lower Rejection
Q	Matrix Spike Precision
Q	Matrix Spike Upper Estimation
Q	Matrix Spike Upper Rejection

* denotes a non-reportable result

Project Name and Number: AC001.02E - SHEPLEY'S HILL ATP

Data Qualifier Summary

Lab Reporting Batch ID: L1324976 **Laboratory: AAL**

EDD Filename: L1324976_2a-VAL **eQAPP Name: Shepley's Hill Landfill - Alpha Analytical**

REM	Resolution Check Mixture
RI	Reporting Limit
RI	Reporting Limit > Project Maximum Contamination Limit
S	Surrogate/Tracer Recovery Lower Estimation
S	Surrogate/Tracer Recovery Lower Rejection
S	Surrogate/Tracer Recovery Upper Estimation
S	Surrogate/Tracer Recovery Upper Rejection
SD	Professional Judgment
StoA	Sampling to Analysis Estimation
StoA	Sampling to Analysis Rejection
StoE	Sampling to Extraction Estimation
StoE	Sampling to Extraction Rejection
StoL	Sampling to Leaching Estimation
StoL	Sampling to Leaching Rejection
Tb	Trip Blank Contamination
TempEst	Temperature Estimation
TempRej	Temperature Rejection
TR	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: AC001.02E - SHEPLEY'S HILL ATP

Field QC Assignments and Associated Samples

EDD File Name: L1324976

eQapp Name: Shepley's Hill Landfill - Alpha Analytical

	Associated Samples	Sample Collection Date