



**WHITE SANDS MISSILE RANGE – NEW MEXICO  
ELECTRONIC VALIDATION REVIEW REPORT  
SDGs: 1309204 and 1309209  
CONSTRUCTION LANDFILL  
September 2013**

Analytical data was evaluated in accordance with applicable USEPA SW-846 method requirements, “USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review” (October 1999); “USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review” (July 2002), site-specific requirements defined in *White Sands Missile Range Site-Wide Quality Assurance Project Plan* (ARCADIS, 2009), and any additional evaluation criteria set forth in the area specific Work Plan. The validation presented in this review was performed at the White Sands defined Level II.

The data review summarized in this report includes a review of all sample collection documentation and the electronic data validation of the analytical data housed in the project database. Sample collection documentation included sample collection logs and chains of custody. The electronic data validation was performed utilizing the EQuIS Data Qualification Module (DQM). DQM checks for the following parameters:

- n Holding times and preservation;
- n Blank contamination;
  - Method blanks,
  - Trip blanks,
  - Equipment blanks;
- n Matrix spike and Duplicate sample recovery;
- n Matrix Spike and Matrix Spike Duplicate relative percent differences;
- n Laboratory Control Sample and Duplicate recovery;
- n Laboratory Control Sample and Duplicate relative percent differences;
- n Surrogate recovery (organic analyses only); and
- n Field duplicate relative percent difference.

Manually review was performed on the following items:

- n Sample dilutions;
- n reporting limits and
- n Case Narratives.

Reviewed data was generated by DHL Analytical. Data qualifiers were applied electronically to the database with any additional qualifiers added manually. A summary of the data as amended by data qualifiers is included with the original hard copy reports.

The attached table summarizes the data that were qualified due to QC deficiencies. The table indicates compounds/analytes qualified based on electronic and manual validation. Refer to the associated method section of the validation checklist for a detailed explanation of qualification. All other data in this SDG are considered usable as reported.



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The following list of data qualifiers and definitions were applied in accordance with qualification criteria defined in the greater than guidance documents:

- UB Compound/analyte detected in blank or associated blank, qualified as a non-detect at listed value.
- J The analyte was positively identified, but the associated numerical value is the approximate concentration of the analyte in the sample.
- UJ The analyte was not detected greater than the reporting limit; however, the reported quantitation limit is approximate and may, or may not represent the actual limit of quantitation necessary to accurately and precisely measure analyte in the sample.
- R The sample result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria; and the presence or absence of the analyte cannot be verified.

DQM RUN BY:	Rachelle Borne	10/25/13
REVIEW PERFORMED BY:	Rachelle Borne	10/28/13
SIGNATURE:		10/28/13
PEER REVIEW:	Dennis Capria	10/30/13



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The following samples were included in this SDG:

SDG	Sample ID	Sample Date	Parent Sample
1309204	HLSF-3839-FB-001-0913	09/20/13	
1309204	HLSF-3839-HMW-032-0913	09/20/13	
1309204	HLSF-3839-HMW-032-0913-TB	09/20/13	
1309204	HLSF-3839-HMW-034-0913	09/20/13	
1309204	HLSF-3839-HMW-035-0913	09/20/13	
1309204	HLSF-3839-HMW-035-0913-TB	09/20/13	
1309204	HLSF-3839-HMW-059-0913	09/20/13	
1309204	HLSF-3839-HMW-059-0913-TB	09/20/13	
1309204	HLSF-3839-HMW-135-0913	09/20/13	HLSF-3839-HMW-035-0913
1309209	HLSF-3839-HMW-008-0913	09/23/13	
1309209	HLSF-3839-RB-001-0913	09/23/13	
1309209	HLSF-3839-RB-001-0913-TB	09/23/13	



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ANALYTICAL DATA PACKAGE DOCUMENTATION

**GENERAL INFORMATION**

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample results		X		X	
2. Parameters analyzed		X		X	
3. Methods of analysis		X		X	
4. Reporting limits of analysis		X		X	
5. Master tracking list		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preparation/extraction date		X		X	
9. Sample analysis date		X		X	
10. Copy of chain-of-custody form signed by lab sample custodian		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Laboratory Signature		X		X	

QA – quality assurance

The analytical report was complete with the following exceptions or notations.

Comments:

Note: ICV and CCV recoveries were discussed in the case narrative; however, ICVs and CCVs are not included in a Tier II validation. Therefore, the CCVs and ICVs were not evaluated and qualifications were not applied due to ICV and CCV deviations.



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**VOLATILE ORGANIC COMPOUNDS**

Items Reviewed	DQM Deficiency		Qualification Applied	
	No	Yes	No	Yes
1. Holding times/Preservation	DQM		DQM	
2. Reporting limits	M		M	
3. Blanks				
A. Method blanks	DQM		DQM	
B. Equipment/Field blanks		DQM	DQM	
C. Trip blanks		DQM	DQM	
4. Surrogate spike recoveries	DQM		DQM	
5. Laboratory control sample (LCS)				
A. LCS %R	DQM		DQM	
B. LCS duplicate (LCSD) %R	NA		NA	
C. LCS/LCSD RPD	NA		NA	
6. Matrix spike (MS)				
A. MS %R	DQM		DQM	
B. MS duplicate (MSD) %R	DQM		DQM	
C. MS/MSD precision (RPD)	DQM		DQM	
7. Field Duplicate precision (RPD)	DQM		DQM	

M – Manual Review      %R - percent recovery      RPD - relative percent difference  
DQM – Data Qualification Module

Comments:

This section presents a discussion of any additions or changes to the electronic data validation for compounds analyzed by Method 8260C.

- Note: 2-Chloroethyl vinyl ether degrades in the presence of acid. Since the samples were preserved with acid to a pH of less than 2, all sample results for 2-chloroethyl vinyl ether are rejected.
- 3B. SDGs (1309204 and 1309209) Acetone was detected in the field blank. The associated field samples were non-detect for this compound; therefore, qualification of the data was not warranted.
- 3C. SDGs (1309204 and 1309209) Acetone was detected in the trip blanks. The associated field samples were non-detect for this compound; therefore, qualification of the data was not warranted.
6. SDG (1309204) Sample HLSF-3839-HMW-032-0913 was used as the MS/MSD. The recoveries and RPDs were acceptable.
7. SDG (1309204) Sample HLSF-3839-HMW-135-0913 was collected as a field duplicate of HLSF-3839-HMW-035-0913. The RPDs were acceptable at non-detect.



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**SEMIVOLATILE ORGANIC COMPOUNDS - SVOCs**

Items Reviewed	DQM Deficiency		Qualification Applied	
	No	Yes	No	Yes
1. Holding times/Preservation	DQM		DQM	
2. Reporting limits	M		M	
3. Blanks				
A. Method blanks		DQM	DQM	
B. Equipment blanks	DQM		DQM	
4. Surrogate spike recoveries	DQM		DQM	
5. Laboratory control sample (LCS)				
A. LCS %R		DQM		DQM
B. LCS duplicate (LCSD) %R	NA		NA	
C. LCS/LCSD RPD	NA		NA	
6. Matrix spike (MS)				
A. MS %R		DQM		DQM
B. MS duplicate (MSD) %R		DQM		DQM
C. MS/MSD precision (RPD)	DQM		DQM	
7. Field Duplicate precision (RPD)	DQM		DQM	

M – Manual Review      %R - percent recovery      RPD - relative percent difference

DQM – Data Qualification Module

Comments:

This section presents a discussion of any additions or changes to the electronic data validation for compounds analyzed by Method 8270C.

- 3A. SDGs (1309204 and 1309209) Bis (2-ethylhexyl) phthalate was detected in the method blank. The associated field samples were non-detect for this compound; therefore, qualification of the data was not warranted.
- 5. SDGs (1309204 and 1309209) The recovery of dimethylphenethylamine was less than ten percent in the LCS. The associated field samples were non-detect for this compound and therefore qualified as rejected.
- 6. SDG (1309204) Sample HLSF-3839-HMW-032-0913 was used as the MS/MSD. The recovery of dimethylphenethylamine was less than ten percent in the MS and the MSD. The parent sample was qualified as rejected for this compound.
- 7. SDG (1309204) Sample HLSF-3839-HMW-135-0913 was collected as a field duplicate of HLSF-3839-HMW-035-0913. The RPDs were acceptable at less than 40%.



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**TPH – DIESEL RANGE ORGANICS and GASOLINE RANGE ORGANICS**

Items Reviewed	DQM Deficiency		Qualification Applied	
	No	Yes	No	Yes
1. Holding times/Preservation	DQM		DQM	
2. Reporting limits	M		M	
3. Blanks				
A. Method blanks	DQM		DQM	
B. Equipment blanks		DQM		DQM
4. Surrogate spike recoveries	DQM		DQM	
5. Laboratory control sample (LCS)				
A. LCS %R	DQM		DQM	
B. LCS duplicate (LCSD) %R	NA		NA	
C. LCS/LCSD RPD	NA		NA	
6. Matrix spike (MS)				
A. MS %R	DQM		DQM	
B. MS duplicate (MSD) %R	DQM		DQM	
C. MS/MSD precision (RPD)	DQM		DQM	
7. Field Duplicate precision (RPD)	DQM		DQM	

M – Manual Review      %R - percent recovery      RPD - relative percent difference

DQM – Data Qualification Module

Comments:

This section presents a discussion of any additions or changes to the electronic data validation for compounds analyzed by Method M8015D.

- 3B. SDG (1309209) DRO was detected in the field blank. The associated field samples were qualified as non-detect for the DRO fraction if the sample concentration was less than five times the blank value.
- 6. SDG (1309204) Sample HLSF-3839-HMW-032-0913 was used as the MS/MSD. The recoveries and RPDs were acceptable.
- 7. SDG (1309204) Sample HLSF-3839-HMW-135-0913 was collected as a field duplicate of HLSF-3839-HMW-035-0913. The RPDs were acceptable at less than 40%.

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**METALS**

Items Reviewed	DQM Deficiency		Qualification Applied	
	No	Yes	No	Yes
1. Holding times/Preservation	DQM		DQM	
2. Reporting limits	M		M	
3. Blanks				
A. Method blanks	DQM		DQM	
B. Equipment blanks		DQM	DQM	
4. Serial Dilutions		M		M
5. Laboratory control sample (LCS)				
A. LCS %R	DQM		DQM	
B. LCS duplicate (LCSD) %R	DQM		DQM	
C. LCS/LCSD RPD	DQM		DQM	
6. Matrix spike (MS)				
A. MS %R		DQM		DQM
B. MS duplicate (MSD) %R		DQM		DQM
C. MS/MSD precision (RPD)	DQM		DQM	
7. Post Digestion Spikes	M		M	
8. Field Duplicate precision (RPD)	DQM		DQM	
9. Total vs. Dissolved	M		M	

M – Manual Review      %R - percent recovery      RPD - relative percent difference  
DQM – Data Qualification Module

Comments:

This section presents a discussion of any additions or changes to the electronic data validation for compounds analyzed by Methods 6020 and 7470A.

- 3B.      SDG (1309209) Total and dissolved calcium and sodium were detected in the field blank. The associated field sample was greater than five times the blank value for these metals. No qualification is warranted.
  
- 4.      SDG (1309204) Sample HLSF-3839-HMW-032-0913 was used as the serial dilution. The %Ds for calcium, magnesium, sodium and selenium were above the control limit. The %Ds for dissolved potassium and selenium were above the control limit. All field samples were qualified as estimated for calcium, magnesium, sodium, selenium and dissolved potassium and selenium.
  
- 6.      SDG (1309204) Sample HLSF-3839-HMW-032-0913 was used as the MS/MSD. The recovery of calcium was below the control limit in the MS and the MSD. All field samples were qualified as estimated for calcium.
  
- 8.      SDG (1309204) Sample HLSF-3839-HMW-135-0913 was collected as a field duplicate of HLSF-3839-HMW-035-0913. The RPDs were acceptable at less than 40%.

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**GENERAL CHEMISTRY**

Items Reviewed	DQM Deficiency		Qualification Applied	
	No	Yes	No	Yes
1. Holding times/Preservation	DQM		DQM	
2. Reporting limits	M		M	
3. Blanks				
A. Method blanks	DQM		DQM	
B. Equipment blanks		DQM	DQM	
4. Laboratory control sample (LCS)				
A. LCS %R	DQM		DQM	
B. LCS duplicate (LCSD) %R	DQM		DQM	
C. LCS/LCSD RPD	DQM		DQM	
5. Matrix spike (MS)				
A. MS %R		DQM		DQM
B. MS duplicate (MSD) %R		DQM		DQM
C. MS/MSD precision (RPD)	DQM		DQM	
6. Field Duplicate precision (RPD)	DQM		DQM	

M – Manual Review      %R - percent recovery      RPD - relative percent difference  
DQM – Data Qualification Module

Comments:

This section presents a discussion of any additions or changes to the electronic data validation for compounds analyzed by Methods 300.0, 2320B and 5310C.

- 3B. SDG (1309209) Chloride and TOC were detected in the field blank. The associated field sample was non-detect for TOC and greater than five times the blank value for chloride. No qualification is warranted.
  
- 5. SDG (1309204) Sample HLSF-3839-HMW-032-0913 was used as the MS/MSD. The recovery of chloride was below the control limit in the MS and the MSD. The recovery of sulfate was below the control limit in the MSD. The parent sample was qualified as estimated for chloride and sulfate.  
  
SDG (1309209) Sample HLSF-3839-HMW-008-0913 was used as the MS/MSD. The recovery of chloride was below the control limit in the MS and the MSD. The recovery of sulfate was above the control limit in the MS and the MSD. The parent sample was qualified as estimated for chloride and sulfate.
  
- 6. SDG (1309204) Sample HLSF-3839-HMW-135-0913 was collected as a field duplicate of HLSF-3839-HMW-035-0913. The RPDs were acceptable at less than 40%.

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Qualification Summary

SDG	Sample ID	Method	Analyte	Result	Units	Qualifier	Reason	Dilution
1309204	HLSF-3839-FB-001-0913	SW8260	2-Chloroethyl Vinyl Ether	<0.0150	mg/l	R	Compound degrades in acid surrogate	1
1309204	HLSF-3839-HMW-032-0913	E300	Sulfate	4800	mg/l	J	MSD Recovery	100
1309204	HLSF-3839-HMW-032-0913	E300	Chloride (Cl)	1480	mg/l	J	MS/MSD Recovery	100
1309204	HLSF-3839-HMW-032-0913	SW6020A	Selenium	0.0638	mg/l	J	Serial Dilution %D	1
1309204	HLSF-3839-HMW-032-0913	SW6020A	Magnesium	267	mg/l	J	Serial Dilution %D	100
1309204	HLSF-3839-HMW-032-0913	SW6020A	Sodium	2350	mg/l	J	Serial Dilution %D	100
1309204	HLSF-3839-HMW-032-0913	SW6020A	Calcium Metal	444	mg/l	J	Serial Dilution %D and MS/MSD Recovery	100
1309204	HLSF-3839-HMW-032-0913	SW6020A	Selenium	0.0643	mg/l	J	Serial Dilution %D	1
1309204	HLSF-3839-HMW-032-0913	SW6020A	Potassium	46.3	mg/l	J	Serial Dilution %D	100
1309204	HLSF-3839-HMW-032-0913	SW8260	2-Chloroethyl Vinyl Ether	<0.0150	mg/l	R	Compound degrades in acid surrogate	1
1309204	HLSF-3839-HMW-032-0913	SW8270D	a,a-Dimethylphenethylamine	<0.00600	mg/l	R	LCS Recovery and MS/MSD Recovery	1
1309204	HLSF-3839-HMW-032-0913-TB	SW8260	2-Chloroethyl Vinyl Ether	<0.0150	mg/l	R	Compound degrades in acid surrogate	1
1309204	HLSF-3839-HMW-034-0913	SW6020A	Potassium	49.8	mg/l	J	Serial Dilution %D	100
1309204	HLSF-3839-HMW-034-0913	SW6020A	Selenium	0.00827	mg/l	J	Serial Dilution %D	1
1309204	HLSF-3839-HMW-034-0913	SW6020A	Calcium Metal	406	mg/l	J	Serial Dilution %D and MS/MSD Recovery	100
1309204	HLSF-3839-HMW-034-0913	SW6020A	Sodium	2210	mg/l	J	Serial Dilution %D	100
1309204	HLSF-3839-HMW-034-0913	SW6020A	Selenium	0.0101	mg/l	J	Serial Dilution %D	1
1309204	HLSF-3839-HMW-034-0913	SW6020A	Magnesium	491	mg/l	J	Serial Dilution %D	100
1309204	HLSF-3839-HMW-034-0913	SW8260	2-Chloroethyl Vinyl Ether	<0.0150	mg/l	R	Compound degrades in acid surrogate	1
1309204	HLSF-3839-HMW-034-0913	SW8270D	a,a-Dimethylphenethylamine	<0.00600	mg/l	R	LCS Recovery	1
1309204	HLSF-3839-HMW-035-0913	SW6020A	Potassium	44.8	mg/l	J	Serial Dilution %D	100
1309204	HLSF-3839-HMW-035-0913	SW6020A	Selenium	0.257	mg/l	J	Serial Dilution %D	1
1309204	HLSF-3839-HMW-035-0913	SW6020A	Magnesium	559	mg/l	J	Serial Dilution %D	100

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Qualification Summary

SDG	Sample ID	Method	Analyte	Result	Units	Qualifier	Reason	Dilution
1309204	HLSF-3839-HMW-035-0913	SW6020A	Sodium	2120	mg/l	J	Serial Dilution %D	100
1309204	HLSF-3839-HMW-035-0913	SW6020A	Calcium Metal	454	mg/l	J	Serial Dilution %D and MS/MSD Recovery	100
1309204	HLSF-3839-HMW-035-0913	SW6020A	Selenium	0.271	mg/l	J	Serial Dilution %D	1
1309204	HLSF-3839-HMW-035-0913	SW8260	2-Chloroethyl Vinyl Ether		mg/l	R	Compound degrades in acid surrogate	1
1309204	HLSF-3839-HMW-035-0913	SW8270D	a,a-Dimethylphenethylamine	<0.00600	mg/l	R	LCS Recovery	1
1309204	HLSF-3839-HMW-035-0913-TB	SW8260	2-Chloroethyl Vinyl Ether	<0.0150	mg/l	R	Compound degrades in acid surrogate	1
1309204	HLSF-3839-HMW-059-0913	SW6020A	Calcium Metal	434	mg/l	J	Serial Dilution %D and MS/MSD Recovery	100
1309204	HLSF-3839-HMW-059-0913	SW6020A	Selenium	0.0339	mg/l	J	Serial Dilution %D	1
1309204	HLSF-3839-HMW-059-0913	SW6020A	Sodium	2350	mg/l	J	Serial Dilution %D	100
1309204	HLSF-3839-HMW-059-0913	SW6020A	Magnesium	540	mg/l	J	Serial Dilution %D	100
1309204	HLSF-3839-HMW-059-0913	SW6020A	Selenium	0.0344	mg/l	J	Serial Dilution %D	1
1309204	HLSF-3839-HMW-059-0913	SW6020A	Potassium	49.4	mg/l	J	Serial Dilution %D	100
1309204	HLSF-3839-HMW-059-0913	SW8260	2-Chloroethyl Vinyl Ether	<0.0150	mg/l	R	Compound degrades in acid surrogate	1
1309204	HLSF-3839-HMW-059-0913	SW8270D	a,a-Dimethylphenethylamine	<0.00600	mg/l	R	LCS Recovery	1
1309204	HLSF-3839-HMW-059-0913-TB	SW8260	2-Chloroethyl Vinyl Ether	<0.0150	mg/l	R	Compound degrades in acid surrogate	1
1309204	HLSF-3839-HMW-135-0913	SW6020A	Calcium Metal	463	mg/l	J	Serial Dilution %D and MS/MSD Recovery	100
1309204	HLSF-3839-HMW-135-0913	SW6020A	Selenium	0.276	mg/l	J	Serial Dilution %D	1
1309204	HLSF-3839-HMW-135-0913	SW6020A	Potassium	41.7	mg/l	J	Serial Dilution %D	100
1309204	HLSF-3839-HMW-135-0913	SW6020A	Sodium	2110	mg/l	J	Serial Dilution %D	100
1309204	HLSF-3839-HMW-135-0913	SW6020A	Selenium	0.26	mg/l	J	Serial Dilution %D	1
1309204	HLSF-3839-HMW-135-0913	SW6020A	Magnesium	554	mg/l	J	Serial Dilution %D	100

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SDG	Sample ID	Method	Analyte	Result	Units	Qualifier	Reason	Dilution
1309204	HLSF-3839-HMW-135-0913	SW8260	2-Chloroethyl Vinyl Ether	<0.0150	mg/l	R	Compound degrades in acid surrogate	1
1309204	HLSF-3839-HMW-135-0913	SW8270D	a,a-Dimethylphenethylamine	<0.00600	mg/l	R	LCS Recovery	1
1309209	HLSF-3839-HMW-008-0913	E300	Sulfate	6940	mg/l	J	MS/MSD Recovery	100
1309209	HLSF-3839-HMW-008-0913	E300	Chloride (Cl)	1330	mg/l	J	MS/MSD Recovery	100
1309209	HLSF-3839-HMW-008-0913	M8015D	Diesel Range Organics	0.0773	mg/l	UB	Blank Contamination	1
1309209	HLSF-3839-HMW-008-0913	SW8270D	a,a-Dimethylphenethylamine	<0.00600	mg/l	R	LCS Recovery	1
1309209	HLSF-3839-RB-001-0913	SW8270D	a,a-Dimethylphenethylamine	<0.00600	mg/l	R	LCS Recovery	1