



**WHITE SANDS MISSILE RANGE – NEW MEXICO  
ELECTRONIC VALIDATION REVIEW REPORT  
SDGs: 1208256 and 1209014  
CONSTRUCTION LANDFILL  
August and September 2012**

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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ELECTRONIC VALIDATION REVIEW REPORT  
SDGs: 1208256 and 1209014  
CONSTRUCTION LANDFILL  
August and September 2012**

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	11/07/12
REVIEW PERFORMED BY:	Rachelle Borne	11/07/12
SIGNATURE:		11/07/12
PEER REVIEW:	Dennis Capria	11/09/12



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CONSTRUCTION LANDFILL  
August and September 2012**

**The following samples were included in this SDG:**

<b>SDG</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>Parent Sample</b>
1208256	HLSF-3839-HMW-008-0812-20120828	8/28/2012	
1208256	HLSF-3839-HMW-008-0812-TB-20120828	8/28/2012	
1208256	HLSF-3839-HMW-034-0812-20120828	8/28/2012	
1208256	HLSF-3839-HMW-035-0812-20120828	8/28/2012	
1208256	HLSF-3839-HMW-135-0812-TB-20120828	8/28/2012	
1208256	HLSF-3839-HMW-135-0812-20120828	8/28/2012	HLSF-3839-HMW-035-0812-20120828
1209014	HLSF-3839-FB-001-0912-20120904	9/4/2012	
1209014	HLSF-3839-HMW-032-0912-20120904	9/4/2012	
1209014	HLSF-3839-HMW-032-0912-TB-20120904	9/4/2012	
1209014	HLSF-3839-HMW-059-0912-20120904	9/4/2012	
1209014	HLSF-3839-RB-001-0912-20120904	9/4/2012	
1209014	HLSF-3839-RB-001-0912-TB-20120904	9/4/2012	



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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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CONSTRUCTION LANDFILL  
August and September 2012**

**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. SDG (1209014) Acetone was detected in the field and rinsate blanks. The associated field samples were qualified as non-detect for this compound if the sample concentrations were less than ten times the blank values.

3C. SDGs (1208256 and 1209014) Acetone was detected in the trip blanks. The associated field samples were qualified as non-detect for this compound if the sample concentrations were less than ten times the blank values.

7. SDG (1208256) Sample HLSF-3839-HMW-135-0912 was collected as a field duplicate of HLSF-3839-HMW-035-0912. The RPDs were acceptable at less than 40%.



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SDGs: 1208256 and 1209014  
CONSTRUCTION LANDFILL  
August and September 2012**

**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		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. 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.

- 3B. SDG (1209014) Acetophenone and benzoic acid were detected in the rinsate blank. The associated field samples were qualified as non-detect for these compounds if the sample concentrations were less than five times the blank value.
  
- 5. SDG (1208256) The recovery of dimethylphenethylamine was below the control limit in the LCS and the LCSD. The associated field samples were qualified as estimated for this compound. The recovery of benzidine was less than 10% in the LCS and the RPD between the LCS/LCSD pair was above the control limit. The associated non-detect sample results were qualified as rejected for benzidine.
 

SDG (1209014) The recoveries of dimethylphenethylamine and benzidine were below the control limit in the LCS. The associated field samples were qualified as estimated for these compounds.
  
- 6. SDG (1209014) Sample HLSF-3839-HMW-032-0912 was used as the MS/MSD. The recovery of benzidine was less than 10% in the MSD and the RPD was above the control limit. The parent sample is qualified as rejected for this compound. The recovery of dimethylphenethylamine was below the control limit in the MSD and the RPD was also above the control limit. The parent sample was qualified as estimated for this compound.
  
- 7. SDG (1208256) Sample HLSF-3839-HMW-135-0912 was collected as a field duplicate of HLSF-3839-HMW-035-0912. The RPDs were acceptable at less than 40%.



**WHITE SANDS MISSILE RANGE – NEW MEXICO  
ELECTRONIC VALIDATION REVIEW REPORT  
SDGs: 1208256 and 1209014  
CONSTRUCTION LANDFILL  
August and September 2012**

**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	DQM		DQM	
C. LCS/LCSD RPD	DQM		DQM	
6. Matrix spike (MS)	DQM		DQM	
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 (1209014) DRO was detected in the rinsate blank. The associated field samples were non-detect for this fraction. No qualification is necessary.
  
- 7.        SDG (1208256) Sample HLSF-3839-HMW-135-0912 was collected as a field duplicate of HLSF-3839-HMW-035-0912. The RPDs were acceptable at less than 40%.

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ELECTRONIC VALIDATION REVIEW REPORT  
SDGs: 1208256 and 1209014  
CONSTRUCTION LANDFILL  
August and September 2012**

**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.

6.      SDG (1208256) Sample HLSF-3839-HMW-008-0812 was used as the MS/MSD. The recovery of dissolved selenium was below the control limit in the MS and the MSD. All field samples were qualified as estimated for dissolved selenium.  
  
SDG (1209014) Sample HLSF-3839-032-0912 was used the MS/MSD. The recovery of total selenium was above the control limit in the MSD. All detections of selenium in the associated field samples were qualified as estimated. The recoveries of dissolved cadmium and chromium were below the control limit in the MS and the MSD. All field samples were qualified as estimated for these compounds.
7.      SDG (1209014) Sample HLSF-3839-032-0912 was used for the post digestion spike. The recoveries of total magnesium and sodium were above the control limit. All detections of these metals in the associated field samples were qualified as estimated. The recovery of dissolved cadmium was below the control limit. All field samples were qualified as estimated for dissolved cadmium.
8.      SDG (1208256) Sample HLSF-3839-HMW-135-0912 was collected as a field duplicate of HLSF-3839-HMW-035-0912. The RPDs were acceptable at less than 40%.
9.      The dissolved selenium results were greater than the total selenium results for samples HLSF-3839-HMW-008-0812 and HLSF-3839-HMW-035-0812. The %D was greater than 10%. Both samples were qualified as estimated for total and dissolved selenium.



**WHITE SANDS MISSILE RANGE – NEW MEXICO  
ELECTRONIC VALIDATION REVIEW REPORT  
SDGs: 1208256 and 1209014  
CONSTRUCTION LANDFILL  
August and September 2012**

**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.

6.       SDG (1208256) Sample HLSF-3839-HMW-135-0912 was collected as a field duplicate of HLSF-3839-HMW-035-0912. The RPDs were acceptable at less than 40%.

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SDG	Sample ID	Method	Analyte	Result	Units	Qualifier
1208256	HLSF-3839-HMW-008-0812-20120828	SW6020	Selenium	0.0654	mg/l	J
1208256	HLSF-3839-HMW-008-0812-20120828	SW6020	Selenium, Dissolved	0.0778	mg/l	J
1208256	HLSF-3839-HMW-008-0812-20120828	SW8260	2-Chloroethyl Vinyl Ether	<0.015	mg/l	R
1208256	HLSF-3839-HMW-008-0812-20120828	SW8260	Acetone	0.0131	mg/l	UB
1208256	HLSF-3839-HMW-008-0812-20120828	SW8270C	a,a-Dimethylphenethylamine	<0.006	mg/l	UJ
1208256	HLSF-3839-HMW-008-0812-20120828	SW8270C	Benzidine	<0.006	mg/l	R
1208256	HLSF-3839-HMW-008-0812-TB-20120828	SW8260	2-Chloroethyl Vinyl Ether	<0.015	mg/l	R
1208256	HLSF-3839-HMW-034-0812-20120828	SW6020	Selenium, Dissolved	0.0154	mg/l	J
1208256	HLSF-3839-HMW-034-0812-20120828	SW8260	2-Chloroethyl Vinyl Ether	<0.015	mg/l	R
1208256	HLSF-3839-HMW-034-0812-20120828	SW8260	Acetone	0.0109	mg/l	UB
1208256	HLSF-3839-HMW-034-0812-20120828	SW8270C	a,a-Dimethylphenethylamine	<0.006	mg/l	UJ
1208256	HLSF-3839-HMW-034-0812-20120828	SW8270C	Benzidine	<0.006	mg/l	R
1208256	HLSF-3839-HMW-035-0812-20120828	SW6020	Selenium, Dissolved	0.271	mg/l	J
1208256	HLSF-3839-HMW-035-0812-20120828	SW6020	Selenium	0.24	mg/l	J
1208256	HLSF-3839-HMW-035-0812-20120828	SW8260	Acetone	0.012	mg/l	UB
1208256	HLSF-3839-HMW-035-0812-20120828	SW8260	2-Chloroethyl Vinyl Ether	<0.015	mg/l	R
1208256	HLSF-3839-HMW-035-0812-20120828	SW8270C	Benzidine	<0.006	mg/l	R
1208256	HLSF-3839-HMW-035-0812-20120828	SW8270C	a,a-Dimethylphenethylamine	<0.006	mg/l	UJ
1208256	HLSF-3839-HMW-135-0812-20120828	SW6020	Selenium, Dissolved	0.258	mg/l	J
1208256	HLSF-3839-HMW-135-0812-20120828	SW8260	Acetone	0.0157	mg/l	UB
1208256	HLSF-3839-HMW-135-0812-20120828	SW8260	2-Chloroethyl Vinyl Ether	<0.015	mg/l	R
1208256	HLSF-3839-HMW-135-0812-20120828	SW8270C	Benzidine	<0.006	mg/l	R

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SDG	Sample ID	Method	Analyte	Result	Units	Qualifier
1208256	HLSF-3839-HMW-135-0812-20120828	SW8270C	a,a-Dimethylphenethylamine	<0.006	mg/l	UJ
1208256	HLSF-3839-HMW-135-0812-TB-20120828	SW8260	2-Chloroethyl Vinyl Ether	<0.015	mg/l	R
1209014	HLSF-3839-FB-001-0912-20120904	SW8260	2-Chloroethyl Vinyl Ether	<0.015	mg/l	R
1209014	HLSF-3839-HMW-032-0912-20120904	SW6020	Chromium, Dissolved	0.0339	mg/l	J
1209014	HLSF-3839-HMW-032-0912-20120904	SW6020	Selenium	0.0658	mg/l	J
1209014	HLSF-3839-HMW-032-0912-20120904	SW6020	Cadmium, Dissolved	<0.001	mg/l	UJ
1209014	HLSF-3839-HMW-032-0912-20120904	SW6020	Sodium	2250	mg/l	J
1209014	HLSF-3839-HMW-032-0912-20120904	SW6020	Magnesium	247	mg/l	J
1209014	HLSF-3839-HMW-032-0912-20120904	SW8260	Acetone	0.0128	mg/l	UB
1209014	HLSF-3839-HMW-032-0912-20120904	SW8260	2-Chloroethyl Vinyl Ether	<0.015	mg/l	R
1209014	HLSF-3839-HMW-032-0912-20120904	SW8270D	Benzoic Acid	0.0067	mg/l	UB
1209014	HLSF-3839-HMW-032-0912-20120904	SW8270D	Benzidine	<0.006	mg/l	R
1209014	HLSF-3839-HMW-032-0912-20120904	SW8270D	a,a-Dimethylphenethylamine	<0.006	mg/l	UJ
1209014	HLSF-3839-HMW-032-0912-TB-20120904	SW8260	2-Chloroethyl Vinyl Ether	<0.015	mg/l	R
1209014	HLSF-3839-HMW-059-0912-20120904	SW6020	Sodium	2200	mg/l	J
1209014	HLSF-3839-HMW-059-0912-20120904	SW6020	Cadmium, Dissolved	<0.001	mg/l	UJ
1209014	HLSF-3839-HMW-059-0912-20120904	SW6020	Magnesium	506	mg/l	J
1209014	HLSF-3839-HMW-059-0912-20120904	SW6020	Selenium	0.0298	mg/l	J
1209014	HLSF-3839-HMW-059-0912-20120904	SW6020	Chromium, Dissolved	<0.006	mg/l	UJ
1209014	HLSF-3839-HMW-059-0912-20120904	SW8260	Acetone	0.00956	mg/l	UB
1209014	HLSF-3839-HMW-059-0912-20120904	SW8260	2-Chloroethyl Vinyl Ether	<0.015	mg/l	R
1209014	HLSF-3839-HMW-059-0912-20120904	SW8270D	Benzidine	<0.006	mg/l	UJ

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SDG	Sample ID	Method	Analyte	Result	Units	Qualifier
1209014	HLSF-3839-HMW-059-0912-20120904	SW8270D	a,a-Dimethylphenethylamine	<0.006	mg/l	UJ
1209014	HLSF-3839-RB-001-0912-20120904	SW6020	Cadmium, Dissolved	<0.001	mg/l	UJ
1209014	HLSF-3839-RB-001-0912-20120904	SW6020	Chromium, Dissolved	<0.006	mg/l	UJ
1209014	HLSF-3839-RB-001-0912-20120904	SW8260	2-Chloroethyl Vinyl Ether	<0.015	mg/l	R
1209014	HLSF-3839-RB-001-0912-20120904	SW8270D	Benzidine	<0.006	mg/l	UJ
1209014	HLSF-3839-RB-001-0912-20120904	SW8270D	a,a-Dimethylphenethylamine	<0.006	mg/l	UJ
1209014	HLSF-3839-RB-001-0912-TB-20120904	SW8260	2-Chloroethyl Vinyl Ether	<0.015	mg/l	R

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Reason	Dilution
T vs D	1
MS/MSD Recovery and T vs D	1
Compound dissolves in acid preservative	1
Blank Contamination	1
LCS/LCSD Recovery	1
LCS Recovery	1
Compound dissolves in acid preservative	1
MS/MSD Recovery	1
Compound dissolves in acid preservative	1
Blank Contamination	1
LCS/LCSD Recovery	1
LCS Recovery	1
MS/MSD Recovery and T vs D	1
T vs D	1
Blank Contamination	1
Compound dissolves in acid preservative	1
LCS Recovery	1
LCS/LCSD Recovery	1
MS/MSD Recovery	1
Blank Contamination	1
Compound dissolves in acid preservative	1
LCS Recovery	1

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Reason	Dilution
LCS/LCSD Recovery	1
Compound dissolves in acid preservative	1
Compound dissolves in acid preservative	1
MS/MSD Recovery	1
MSD Recovery	1
PDS Recovery and MS/MSD Recovery	1
PDS Recovery	100
PDS Recovery	100
Blank Contamination	1
Compound dissolves in acid preservative	1
Blank Contamination	1
MSD Recovery	1
MSD Recovery, MS/MSD RPD and MSD Recovery	1
Compound dissolves in acid preservative	1
PDS Recovery	100
PDS Recovery and MS/MSD Recovery	1
PDS Recovery	100
MSD Recovery	1
MS/MSD Recovery	1
Blank Contamination	1
Compound dissolves in acid preservative	1
LCS Recovery	1

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Reason	Dilution
LCS Recovery	1
PDS Recovery and MS/MSD Recovery	1
MS/MSD Recovery	1
Compound dissolves in acid preservative	1
LCS Recovery	1
LCS Recovery	1
Compound dissolves in acid preservative	1