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NASJRB WILLOW GROVE
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VALIDATED DATA PACKAGE, PC15016, NAS WILLOW GROVE PA
11/24/2014
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Data Validation Report

Project: NAS JRB Willow Grove, PA
Laboratory: Shealy Environmental, Inc.
Service Request: PC15016
Analyses/Method: EPA SW-846 Method 6010C (ICP-AES) / 6010C
Validation Level: Limited
Resolution Consultants
Project Number: 60276503PP.QS
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Reviewed by: Kristin Rutherford/Resolution Consultants File Name: PC15016_6010C

SUMMARY

The samples listed below were collected by Resolution Consultants from the NAS JRB Willow Grove, PA site on March 12, 2014.

Sample ID	Matrix/Sample Type
FB(031214)	Field blank
63A-S-08D-031214*	Field Duplicate of 63A-S-08-031214
112-S-08G-031214	Soil
112-S-09G-031214	Soil
113-S-01-031214	Soil
113-S-02-031214	Soil
113-S-03-031214	Soil
113-S-04-031214	Soil
113-S-05-031214	Soil
113-S-06-031214	Soil
113-S-07G-031214	Soil
113-S-08G-031214	Soil
63A-S-01-031214*	Soil
63A-S-02-031214*	Soil
63A-S-03-031214*	Soil
63A-S-04-031214*	Soil
63A-S-05-031214*	Soil
63A-S-06-031214*	Soil
63A-S-07-031214*	Soil
63A-S-08-031214*	Soil

*These samples were originally submitted with "114" prefix.

Data validation activities were conducted with reference to

- *DoD Quality Systems Manual (QSM) for Environmental Laboratories, version 4.2 (10/2010)* (October 2010);
- *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 6010C, Inductively Coupled Plasma-Atomic Emission Spectrometry* (USEPA, 1996);
- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (January 2010);
- the project-specific Sampling and Analysis Plan; and
- laboratory quality control (QC) limits, as applicable.

REVIEW ELEMENTS

The data were evaluated based on the following parameters (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC)/sample integrity)
- ✓ Holding times and sample preservation
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/equipment blanks
- ✓ ICP interference check standards
- X Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- ✓ Field duplicates
- X ICP serial dilution results
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a quality control (QC) nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.

- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria. The QC acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- all criteria were met for the calibration curves
- the initial calibration verification (ICV) percent recovery (%R) criteria were met;
- the continuing calibration verification standard (CCV) method percent difference (%Ds) were met; and
- the low level check standards (CRI or CRA) %R criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks

Laboratory method blanks and equipment rinsate blanks were evaluated as to whether there were contaminants detected above the detection limit (DL). Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method and equipment rinsate results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

Lead was detected in the method blank associated with the soil samples in this SDG at 0.12 mg/kg. Since the associated sample results were much higher than the blank contamination, professional judgment was used to not qualify the data.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

ICP Interference Check Standards

The ICP interference check standards (ICSA, ICSAB) were reviewed for conformance. All criteria were met for the ICSA and ICSAB.

MS Results

The MS and/or MSD %Rs and/or RPDs were reviewed for conformance with the QC acceptance criteria.

Nonconformances are summarized in Attachment A in Table A-1. Since the %R was acceptable for the MS analysis performed on sample 63A-S-08D-031214, the samples collected from Building 63A were not qualified based on other MS/MSD nonconformances. Data qualification on the basis of MS and/or MSD nonconformances was as follows:

Qualify Results	%R < 30	80 > %R ≥ 30	%R >120	RPD>20
Detected results	J-	J-	J+	J
Nondetects	R	UJ	Accept	UJ

Notes: MS actions apply to all samples of the same matrix. This qualification will also be applied to the results of all samples within a given area of the site, if deemed appropriate.

1. If the sample result (SR) > 4x the spike concentration (S), no action is taken.
2. If either the MS or MSD does not meet %R criteria, qualify all associated samples.

Qualified sample results are shown in Table 1.

LCS/LCSD Results

The LCS/LCSD %Rs and/or RPDs were reviewed for conformance with the QC acceptance criteria. The LCS and LCSD %Rs and RPDs were within the QC acceptance criteria.

Field Duplicate Results

Field duplicate RPDs were reviewed for conformance with the Resolution Consultants QC acceptance criterion of ≤50% for solid matrices. This criterion applies if both results were greater than 5 times the limit of quantitation (LOQ). All field duplicate precision criteria were met.

ICP Serial Dilution Results

The serial dilution percent differences (%Ds) were reviewed for conformance with the QC acceptance criteria. The %D was 47.6% for the serial dilution analysis performed on sample 113-S-01-031214.

Nonconformances are summarized in Attachment A in Table A-2. Data qualification on the basis of serial dilution %Ds was as follows:

%D	Qualify Results
>10%	Estimate (J) detected results

Apply actions to all samples in the same preparation batch if sample results are >50X LOQ.

Qualified sample results are shown in Table 1.

Sample Results/Reporting Issues

All analytes detected at concentrations less than the limit of quantitation (LOQ) but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOD	LOQ	Units	Validation Qualifiers	Validation Reason
112-S-08G-031214	SO	LEAD	160	0.32	0.63	MG/KG	J	m,y
112-S-09G-031214	SO	LEAD	240	0.34	0.67	MG/KG	J	m,y
113-S-01-031214	SO	LEAD	290	0.38	0.76	MG/KG	J	m,y
113-S-02-031214	SO	LEAD	1100	0.39	0.77	MG/KG	J	m,y
113-S-03-031214	SO	LEAD	460	0.30	0.59	MG/KG	J	m,y
113-S-04-031214	SO	LEAD	5800	1.6	3.2	MG/KG	J	m,y
113-S-05-031214	SO	LEAD	570	0.35	0.70	MG/KG	J	m,y
113-S-06-031214	SO	LEAD	160	0.32	0.64	MG/KG	J	m,y
113-S-07G-031214	SO	LEAD	130	0.34	0.67	MG/KG	J	m,y
113-S-08G-031214	SO	LEAD	150	0.35	0.70	MG/KG	J	m,y
63A-S-01-031214	SO	LEAD	630	0.30	0.59	MG/KG	J	y
63A-S-02-031214	SO	LEAD	630	0.32	0.63	MG/KG	J	y
63A-S-03-031214	SO	LEAD	290	0.29	0.58	MG/KG	J	y
63A-S-04-031214	SO	LEAD	2100	0.70	1.4	MG/KG	J	y
63A-S-05-031214	SO	LEAD	710	0.33	0.66	MG/KG	J	y
63A-S-06-031214	SO	LEAD	1200	0.38	0.75	MG/KG	J	y
63A-S-07-031214	SO	LEAD	860	0.33	0.66	MG/KG	J	y
63A-S-08-031214	SO	LEAD	630	0.33	0.66	MG/KG	J	y
63A-S-08D-031214	SO	LEAD	680	0.33	0.66	MG/KG	J	y

Attachment A**Nonconformance Summary Tables****Table A-1 - Matrix Spikes**

Sample ID	Compound	MS % Recovery	MSD % Recovery	Lower Limit	Upper Limit	RPD	RPD Limit
113-S-01-031214	LEAD	127	126	80	120	0.67	20

Table A-2 Serial Dilution

Sample ID	Compound	Sample Result	Qual	Duplicate Result	Qual	LOQ	Units	%D
113-S-01-031214	LEAD	3.849		5.680		0.010	MG/L	47.6

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual quantitation limit necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results