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NASJRB WILLOW GROVE
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VALIDATED DATA PACKAGE, FA17026, FA17131, FA17132, FA17150, FA17197, FA17229,
NAS WILLOW GROVE PA
1/28/2015
RESOLUTION CONSULTANTS



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Data Validation Report

Project:	NAS JRB Willow Grove, PA	
Laboratory:	Accutest Laboratories	
Job Numbers:	FA17026, FA17131, FA17132, FA17150, FA17197, and FA17229	
Analyses/Method:	PFOS and PFOA by Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS)/ EPA Method 537 modified	
Validation Level:	Limited	
Resolution Consultants	60276503.SI.RP	
Project Number:		
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File Name: Willow Grove FA17026_FA17131_FA17132_FA17150_FA17197_FA17229_PFOA and PFOA_REVISION 2		

SUMMARY

The samples listed below were collected by Resolution Consultants from the NAS JRB Willow Grove, PA site on July 29-31, 2014, and August 1, 4, and 5, 2014.

SDG	Sample ID ¹	Matrix/Sample Type
FA17026	03MW06I_07292014	Groundwater
	03MW06S_07292014	Groundwater
	EB_07292014	Equipment blank
	FB_07292014	Field blank
FA17131	01MW10S_07312014	Groundwater
	11MW23_07312014	Groundwater
	11MW23S_07312014	Groundwater
	EB_07312014	Equipment blank
	FB_07312014	Field blank
	SW-01_07312014	Surface water
FA17132	01MW09S_07302014	Groundwater
	02MW01I_07302014	Groundwater
	02MW01S_07302014	Groundwater
	02MW03I_07302014	Groundwater
	02MW03SI_07302014	Groundwater
	02MW04I_07302014	Groundwater
	02MW04S_07302014	Groundwater
	EB_07302014	Equipment blank

SDG	Sample ID ¹	Matrix/Sample Type
	FB_07302014	Field blank
FA17150	03MW04I_08012014	Groundwater
	03MW04S_08012014	Groundwater
	03MW04SI_08012014	Groundwater
	03MW06I_08012014 The correct sample ID is 03MW06SI.	Groundwater
	03MW07S_08012014	Groundwater
	EB_08012014	Equipment blank
	FIELD BLANK_08012014	Field blank
FA17197	01MW10D_08042014	Groundwater
	03MW03I_08042014	Groundwater
	03MW03S_08042014	Groundwater
	03MW05I_08042014 The correct sample ID is 03MW03SI as per the COC.	Groundwater
	05MW15I_08042014	Groundwater
	05MW15S_08042014	Groundwater
	10MW20_08042014	Groundwater
	10MW25_08042014	Groundwater
	12MW04_08042014	Groundwater
	EB_08042014	Equipment blank
	FB_08042014	Field blank
	NELW-1_08042014	Groundwater
	RR2W-2_08042014	Groundwater
	RR2W-3_08042014	Groundwater
	RR2W-4_08042014	Groundwater
FA17229	05MW11D_08052014	Groundwater
	05MW11I_08052014	Groundwater
	05MW11S_08052014	Groundwater
	EB (080514)	Equipment blank
	FIELD BLANK_08052014	Field blank
	NELW-2_08042014	Groundwater

¹The project database identifies the sample ID as it appears on the chain-of-custody appended with the date of sample collection.

Data validation activities were conducted with reference to:

- Accutest Laboratories SOP: Analysis of Perfluorinated Alkyl Acids by LC/MS/MS; MS 014.1, Rev. Date: 05/14
- USEPA Contract Laboratory Program National Functional Guidelines for Chlorinated Dioxin/Furan Data review (USEPA, September 2011);

- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008);
- Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2 (DoD, October 2010); and
- the project-specific Sampling and Analysis Plan.

In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

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

- ✓ Data completeness (chain-of-custody (COC)/sample integrity)
- ✓ Holding times and sample preservation
- ✓ Initial calibration/initial and continuing calibration verification
- ✓ Laboratory method blanks/equipment blanks
- ✗ Surrogate recoveries
- ✓ Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS) results
- NA Field duplicate results
- ✓ Internal standard 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 (✗) indicates that a 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 qualified as estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness/Sample Integrity

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.

The laboratory was asked to revise the reports for FA17150 and FA17197 to include the undiluted results for PFOA for the following samples: 03MW04S (FA17150-2), 03MW04SI (FA17150-3), 05MW15S (FA17197-5) and NELW-1 (FA17197-11). These samples were originally reported as nondetects with elevated reporting limits for PFOA because of the required dilutions necessary to report the PFOS results within the calibration range.

In SDG FA17197, the laboratory logged in sample 03MW03SI as 03MW05I. The correct sample ID is 03MW03SI and this correction has been made in the project database. In SDG FA17150, sample 03MW06I was correctly logged in by the laboratory according to the COC. However, this sample should be identified as 03MW06SI. This correction has been made in the project database.

Holding Times/Sample Preservation

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

Initial Calibration/Initial and Continuing Calibration Verification

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

- the initial calibration (ICAL) percent relative standard deviation (%RSD) or correlation coefficient (r)/coefficient of determination (r²) method acceptance criteria were met;
- the initial calibration verification standard (ICV) percent recovery acceptance criteria were met; and
- the continuing calibration verification standard (CCV) frequency and method percent recovery criteria were met.

The QC acceptance criteria were met.

Laboratory Method Blanks/Equipment Blanks

Laboratory method blanks and equipment rinse blanks are evaluated as to whether there are contaminants detected above the method detection limit (DL).

Target compounds were not detected in the laboratory method blanks or in the field and equipment blanks except as noted below.

SDG FA17150

The field blank (FIELD BLANK_08012014) associated with the groundwater samples in this data set contained PFOS at a concentration (0.0147 µg/L) greater than the method detection limit (DL) but less than the limit of quantitation (LOQ).

Samples were qualified as follows:

Actions: (Based on NFG 2011)

Blank Result	Sample Result	Actions
>DL	Not detected	No qualification
	< Blank Result	Qualify sample result as U
	<5x Blank Result	J ¹
	> 5x Blank Result	No qualification ¹

Gross contamination	Positive	R
¹ The following guidance is provided in E.2.b: In cases where minimal contamination may exist, but it is significantly exceeded by the response in the samples, the reviewer may apply no qualification to the data. For example, sample results may be qualified as non-detects up to a value of 2-5x the amount present in the highest associated blank to discount possible contamination, but not qualified above that. Use of either approach requires careful professional judgment in the evaluation of the effects of contamination to avoid reporting false negatives.		

Since the concentrations of PFOS in all associated groundwater samples were greater than 5x the amount detected in the field blank, no data validation actions were required.

Surrogate Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria. The surrogates were diluted out of multiple samples. No data validation actions were taken on this basis. All QC acceptance criteria were met or no data validation actions were required except as noted below.

SDG FA17131

Nonconformances requiring qualification are summarized in Attachment A in Table A-1. Data qualification with respect to surrogate recovery nonconformances was as follows:

Actions: (Based on NFG 2008)

Criteria	Action	
	Detected Compounds	Nondetected Compounds
%R > UL	J	No qualification
10% ≤ %R < LL*	J	UJ
%R < 10%*	J	R
* NFG 2008 does not list a minimum limit. Based on Resolution Consultants professional judgment, a minimum limit of 10% was used.		

Qualified sample results are shown in Table 1.

MS/MSD Results

MS/MSD analyses were performed on samples 03MW06S (SDG FA17026) and EB_08012014 (SDG FA17150).

The MS/MSD %Rs and relative percent differences (RPDs) were reviewed for conformance with the QC acceptance criteria. All QC acceptance criteria were met or qualification of the data was not required.

LCS Results

The LCS %Rs were reviewed for conformance. All QC acceptance criteria were met.

Field Duplicate Results

Field duplicate samples were not submitted with any of the data sets. No data validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) results were reviewed for conformance with the QC acceptance criteria. All QC acceptance criteria were met.

Sample Results/Reporting Issues

If applicable, compounds detected at concentrations less than the limit of quantitation (LOQ) but greater than the 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
SW-01	WS	Perfluorooctanesulfonic acid	0.493	0.091	0.11	µg/L	J	s

Attachment A**Nonconformance Summary Tables****Table A-1 – Surrogate Recovery**

Sample ID	Surrogate	% Recovery	Lower Limit	Upper Limit
SW-01	13C2-PFDA	158	70	130

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 or OPR 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