SCIENCE APPLICATIONS INTERNATIONAL CORPORATION
Organic Data Review Checklist - Standard Validation

Project: Harley-Davidson

SDG No: 180-48309-1

Analysis: See attached

Method: See attached

Laboratory: TestAmerica Pittsburgh

Matrix: Water

The above data package has been reviewed and the analytical quality control/quality assurance performance data have been summarized. The general criteria used to assess the analytical integrityof the data were based on an examination of the following:

Case Narrative
Analytical Holding Times
Sample Preservation

Project Blanks

Project Specific QA/QC or contract requirements may take priority over validation criteria in this procedure.

Overall Remarks: Qualifier issues

Definition of Qualifiers:

"U", not detected at the associated level
"UJ", not detected and associated value estimated
"J", associated value estimated
"R", associated value unusable or analyte identity unfounded
"=", compound properly identified and value positive

Reviewed by: Alan G Miller Jr Date: 11/9/15

QA Reviewed by: [signature] Date: 12-1-16

FR Agm 12/2/15

I. Case Narrative

Verify direct statements made within the Laboratory Case Narrative (note discrepancies).

Remarks: No major issues

II. Re-analysis and Secondary Dilutions

Verify that re-analysis and secondary dilutions were performed and reported as necessary. Determine appropriate results to report.

Remarks:

III. Holding Times

VOC - Waters - unpreserved: aromatic within 7 days, non-aromatic within 14 days of sample collection
VOC - Waters - preserved: aromatic and non-aromatic within 14 days of sample collection
VOC - Soils - preserve or analyze within 48 hours of sample collection; analyze within 14 days of preservation

SVOC, Pest., PCB - Waters - extract within 7 days of sample collection, analyze within 40 days of extraction
SVOC, Pest., PCB - Soils - extract within 14 days of sample collection, analyze within 40 days of extraction

Deviations:

Sample #	VOC		SVOC			Pest/PCB		
	Date Collected	Date Analyzed	Date Collected	Date Extracted	Date Analyzed	Date Collected	Date Extracted	Date Analyzed

Actions:
1. If holding times are exceeded, all results are qualified as estimated (J/UJ)
2. If holding times are exceeded by more than 2X, reviewer may qualify non-detected results as unusable (R)

Remarks: No issues

VI. Blanks

All blanks were reported per matrix per concentration level for each 12 hour period on each GC/MS system used to analyze VOCs and SVOCs Yes ☐ No ☐

Review associated laboratory and project blank samples. List documented contamination below:

Laboratory Method Blanks:

Date:	Lab ID #	Fraction	Compound	Conc. (ppb)

Associated Project Blanks (e.g., equipment rinsates, trip blanks, etc.)

Date	Lab ID #	Fraction	Compound	Conc. (ppb)

Remarks: None

VI. Blanks (continued)

Calculate action levels based on 10X the highest blank concentration of "common laboratory solvents", VOCs (methylene chloride, acetone, toluene, 2-butanone, cyclohexane) or SVOCs (phthalates), and 5X the highest blank concentration for all other VOC, SVOC, Pesticides, and PCB compounds. Sample weights, volumes, and dilution factors must be taken into account when applying the 5X and 10X criteria. This allows the total amount of contaminant present to be considered.

Deviations:

Compound	Maximum Conc. Detected, (ppb)	Action Level (ppb)	Samples Affected

Actions:

1. If compound results exceed the action levels, the data are not qualified
2. If compound results are below the required reporting level, report results as non-detect (U) at the reporting level
3. If the compound is detected above the reporting level, but below the action level, qualify as not-detected (U)
4. If gross contamination exists in blanks (i.e.,, saturated peaks by GC/ MS), all affected compounds in the associated samles should be qualifed as unusable (R) due to interference.
5. If blanks were not analyzed per matrix per concentration level for each 12 hour period on each GC/MS system used to analyze VOCs and SVOCs use professional judgement to qualifty data. Data may be rejected (R).

Remarks: None

Hold Time Summary

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Sample Number	Sample Name	Method	Date Collected	Analysis Date	Date Extracted	Days to Analysis
180-48309-1	HD-MW-87-0/1-0	SW846 8260C	9/30/2015	10/8/2015		8
180-48309-2	HD-MW-143S-0/1-0	SW846 8260C	9/30/2015	10/7/2015		7
180-48309-3	HD-MW-143D-0/1-0	SW846 8260C	9/30/2015	10/7/2015		7
180-48309-4	HD-MW-20M-0/1-0	SW846 8260C	9/30/2015	10/7/2015		7
180-48309-5	HD-MW-92-0/1-0	SW846 8260C	9/30/2015	10/7/2015		7
180-48309-5	HD-MW-92-0/1-0	SW846 8260C	9/30/2015	10/8/2015		8
180-48309-6	HD-MW-64D-0/1-0	SW846 8260C	9/30/2015	10/7/2015		7
180-48309-6	HD-MW-64D-0/1-0	SW846 8260C	9/30/2015	10/8/2015		8
180-48309-7	HD-QC12-0/1-2	SW846 8260C	9/30/2015	10/7/2015		7
180-48309-1	HD-MW-87-0/1-0	SW846 8270D LL	9/30/2015	10/11/2015	10/6/2015	11

Blank Detections

SDG

Sample ID	Sample	Analyte	Result	Method	Units	Qual

Qualifier Check

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Sample ID	Sample	Analyte	Result	5x	10x	Method	Units	Qual
180-48309-3	HD-MW-143D-0/1-0	1,1,1,2-Tetrachloroethane				SW846 8260C	ug/L	^c
180-48309-2	HD-MW-143S-0/1-0	1,1,1,2-Tetrachloroethane				SW846 8260C	ug/L	^c
180-48309-4	HD-MW-20M-0/1-0	1,1,1,2-Tetrachloroethane				SW846 8260C	ug/L	^c
180-48309-6	HD-MW-64D-0/1-0	1,1,1,2-Tetrachloroethane				SW846 8260C	ug/L	^c
180-48309-5	HD-MW-92-0/1-0	1,1,1,2-Tetrachloroethane				SW846 8260C	ug/L	^c
180-48309-7	HD-QC12-0/1-2	1,1,1,2-Tetrachloroethane				SW846 8260C	ug/L	^c
180-48309-1	HD-MW-87-0/1-0	1,1,1-Trichloroethane	9.8	49	98	SW846 8260C	ug/L	J
180-48309-1	HD-MW-87-0/1-0	1,1-Dichloroethane	4.6	23	46	SW846 8260C	ug/L	J
180-48309-1	HD-MW-87-0/1-0	1,1-Dichloroethene	11	55	110	SW846 8260C	ug/L	J
180-48309-3	HD-MW-143D-0/1-0	1,4-Dioxane				SW846 8260C	ug/L	^c
180-48309-2	HD-MW-143S-0/1-0	1,4-Dioxane				SW846 8260C	ug/L	^c
180-48309-4	HD-MW-20M-0/1-0	1,4-Dioxane				SW846 8260C	ug/L	^c
180-48309-6	HD-MW-64D-0/1-0	1,4-Dioxane				SW846 8260C	ug/L	^c
180-48309-6	HD-MW-64D-0/1-0	1,4-Dioxane				SW846 8260C	ug/L	^c
180-48309-1	HD-MW-87-0/1-0	1,4-Dioxane				SW846 8260C	ug/L	^c
180-48309-5	HD-MW-92-0/1-0	1,4-Dioxane				SW846 8260C	ug/L	^c
180-48309-5	HD-MW-92-0/1-0	1,4-Dioxane				SW846 8260C	ug/L	^c
180-48309-7	HD-QC12-0/1-2	1,4-Dioxane				SW846 8260C	ug/L	^c
180-48309-3	HD-MW-143D-0/1-0	2-Hexanone				SW846 8260C	ug/L	^c
180-48309-2	HD-MW-143S-0/1-0	2-Hexanone				SW846 8260C	ug/L	^c
180-48309-4	HD-MW-20M-0/1-0	2-Hexanone				SW846 8260C	ug/L	^c
180-48309-6	HD-MW-64D-0/1-0	2-Hexanone				SW846 8260C	ug/L	^c
180-48309-5	HD-MW-92-0/1-0	2-Hexanone				SW846 8260C	ug/L	^c
180-48309-7	HD-QC12-0/1-2	2-Hexanone				SW846 8260C	ug/L	^c
180-48309-3	HD-MW-143D-0/1-0	Acrylonitrile				SW846 8260C	ug/L	^c
180-48309-2	HD-MW-143S-0/1-0	Acrylonitrile				SW846 8260C	ug/L	^c
180-48309-4	HD-MW-20M-0/1-0	Acrylonitrile				SW846 8260C	ug/L	^c
180-48309-6	HD-MW-64D-0/1-0	Acrylonitrile				SW846 8260C	ug/L	^c
180-48309-5	HD-MW-92-0/1-0	Acrylonitrile				SW846 8260C	ug/L	^c
180-48309-7	HD-QC12-0/1-2	Acrylonitrile				SW846 8260C	ug/L	^c
180-48309-3	HD-MW-143D-0/1-0	Bromoform				SW846 8260C	ug/L	^c
180-48309-2	HD-MW-143S-0/1-0	Bromoform				SW846 8260C	ug/L	^c
180-48309-4	HD-MW-20M-0/1-0	Bromoform				SW846 8260C	ug/L	^c

Sample ID	Sample	Analyte	Result	5x	10x	Method	Units	Qual
180-48309-6	HD-MW-64D-0/1-0	Bromoform				SW846 8260C	ug/L	^c
180-48309-5	HD-MW-92-0/1-0	Bromoform				SW846 8260C	ug/L	^c
180-48309-7	HD-QC12-0/1-2	Bromoform				SW846 8260C	ug/L	^c
180-48309-3	HD-MW-143D-0/1-0	Bromomethane				SW846 8260C	ug/L	^c
180-48309-2	HD-MW-143S-0/1-0	Bromomethane				SW846 8260C	ug/L	^c
180-48309-4	HD-MW-20M-0/1-0	Bromomethane				SW846 8260C	ug/L	^c
180-48309-6	HD-MW-64D-0/1-0	Bromomethane				SW846 8260C	ug/L	^c
180-48309-6	HD-MW-64D-0/1-0	Bromomethane				SW846 8260C	ug/L	^c
180-48309-1	HD-MW-87-0/1-0	Bromomethane				SW846 8260C	ug/L	^c
180-48309-5	HD-MW-92-0/1-0	Bromomethane				SW846 8260C	ug/L	^c
180-48309-5	HD-MW-92-0/1-0	Bromomethane				SW846 8260C	ug/L	^c
180-48309-7	HD-QC12-0/1-2	Bromomethane				SW846 8260C	ug/L	^c
180-48309-1	HD-MW-87-0/1-0	Carbon tetrachloride	2	10	20	SW846 8260C	ug/L	J
180-48309-6	HD-MW-64D-0/1-0	Chloroethane				SW846 8260C	ug/L	^c
180-48309-1	HD-MW-87-0/1-0	Chloroethane				SW846 8260C	ug/L	^c
180-48309-5	HD-MW-92-0/1-0	Chloroethane				SW846 8260C	ug/L	^c
180-48309-3	HD-MW-143D-0/1-0	cis-1,2-Dichloroethene	0.39	1.95	3.9	SW846 8260C	ug/L	J
180-48309-5	HD-MW-92-0/1-0	cis-1,2-Dichloroethene	0.31	1.55	3.1	SW846 8260C	ug/L	J
180-48309-3	HD-MW-143D-0/1-0	Styrene				SW846 8260C	ug/L	^c
180-48309-2	HD-MW-143S-0/1-0	Styrene				SW846 8260C	ug/L	^c
180-48309-4	HD-MW-20M-0/1-0	Styrene				SW846 8260C	ug/L	^c
180-48309-6	HD-MW-64D-0/1-0	Styrene				SW846 8260C	ug/L	^c
180-48309-5	HD-MW-92-0/1-0	Styrene				SW846 8260C	ug/L	^c
180-48309-7	HD-QC12-0/1-2	Styrene				SW846 8260C	ug/L	^c
180-48309-6	HD-MW-64D-0/1-0	Tetrachloroethene	420	2100	4200	SW846 8260C	ug/L	E
180-48309-5	HD-MW-92-0/1-0	Tetrachloroethene	150	750	1500	SW846 8260C	ug/L	E
180-48309-4	HD-MW-20M-0/1-0	Tetrachloroethene	0.3	1.5	3	SW846 8260C	ug/L	J
180-48309-6	HD-MW-64D-0/1-0	Trichloroethene	240	1200	2400	SW846 8260C	ug/L	E
180-48309-6	HD-MW-64D-0/1-0	Vinyl chloride				SW846 8260C	ug/L	^c
180-48309-1	HD-MW-87-0/1-0	Vinyl chloride				SW846 8260C	ug/L	^c
180-48309-5	HD-MW-92-0/1-0	Vinyl chloride				SW846 8260C	ug/L	^c