SCIENCE APPLICATIONS INTERNATIONAL CORPORATION
Organic Data Review Checklist - Standard Validation

Project: Harley-Davidson

SDG No: 180-43185-1

Laboratory: TestAmerica Pittsburgh

Analysis: See attached

Method: See attached

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

Method and Project Blanks

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

Overall Remarks: Blank 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. Milke Jr. Date: 6/23/15

QA Reviewed by: CARuen Date: 6-23-15.

AGM 6/23/15

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 See attached.

III. Holding Times

Metals - Waters - preserved to pH<2, 180 days from sample collection
Metals - Soils - 180 days from sample collection
Mercury - Waters - preserved to pH<2, 28 days from sample collection
Mercury - Soils - 28 days from sample collection

Deviations:

Sample #	Metals				Mercury			
	Date Collected	Date Analyzed	Days >HT	pH Check	Date Collected	Date Analyzed	Days >HT	pH Check

Actions:

1. If preserved samples exceed holding time, qualifty all associated results as estimated (J/UJ).
2. If unpreserved samples exceed holding time, qualify all associated results as unusable (R).
3. If holding times are exceeded by more than 2X, reviewer may qualify non-detected results as unusable (R)
4. If water samples are not acidified, use professional judgement. Minimally, qualify data as estimated (J) and non-detects unusable (R).
5. If soil samples exceed holding time, use professional judgement to qualify data.

Remarks: NA

III. Holding Times

Sample should be preserved and analyzed according to the appropriate analytical method
In general the following preservations and holding times for waters can be applied:

Sulfate, 4 degress C, 28 days
Sulfide, 4 degrees C, pH $\geq$9 with zinc acetate/sodium hydroxide, 7 days
Bromide/Chloride/Fluoride, no preservative required, 28 days
Nitrate/Nitrite or Ammonia, 4 degrees C, pH $\leq$ 2 with sulfuric acid, 28 days
Nitrate or Nitrite, 4 degrees C, 48 hours
Alkalinity, 4 degrees C, 14 days
TDS/TSS, 4degrees C, 7 days
Phosphate (total), 4 degrees C, pH < 2 with sulfuric acid, 28 days
Hexavalent Chromium, Cool 4 degress C, water- 24 hours, soil - 30 days

Deviations:

Sample #	Analyte	Date Collected	Date Extracted	Date Analyzed	Notes:

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)
3. If samples were not properly preserved, use professional judgement to qualify the data

Remarks:

NA

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)
4/22/15	MB-180-13971/5	VOC	Methylene chloride	0.133

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

Date	Lab ID #	Fraction	Compound	Conc. (ppb)
4/16/15	180-43185-1	VOC	Methylene chloride	0.2

Remarks:

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
TB - Methylene Chloride	.20	2	None
MB - Methylene Chloride	0.133	1.33	2 — U only impacts diluted sms.

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: See above.

Trip Blank Detections

Sample ID	Sample	Analyte	Result	5x	10x	Method	Units	Qual
180-43185-1	HD-QC2-0/1-2	Methylene Chloride	0.20	1	2	SW846 8260C	ug/L	J
MB 180-139271/5	MB 180-139271/5	Methylene Chloride	0.133	0.665	1.33	SW846 8260C	ug/L	J

Hold Time Summary

Sample Number	Sample Name	Method	Date Collected	Analysis Date	Date Extracted	Days to Analysis
180-43185-1	HD-QC2-0/1-2	SW846 8260C	4/16/2015	4/21/2015		5
180-43185-2	HD-MW-64S-0/1-0	SW846 8260C	4/16/2015	4/22/2015		6