

US EPA ARCHIVE DOCUMENT



Tier II Data Validation Report Summary

Client: Chevron-Cincinnati	Laboratory: Lancaster Laboratories
Project Name: POC Sentinel and SWQ, 3 rd Quarter 2009	Sample Matrix: Water
Project Number: 500-017-012	Sample Start Date: 07/20/2009
Date Validated: September 3, 2009	Sample End Date: 07/23/2009
Parameters: Volatile Organic Compounds (VOC) by Solid Waste-846 (SW-846) Method 8260B, and Dissolved Metals by SW-846 Method 6010B	
Laboratory Project ID: Sample Group 1154769	
Data Validator: Tim Gunn, Geoscientist CHMM; and Justin Hildenbrand, Environmental Chemist	

DATA EVALUATION CRITERIA SUMMARY

A Tier II Data Validation was performed by Trihydro Corporation's Chemical Data Evaluation Services group on the analytical data report package generated by Lancaster Laboratories, Inc., of Lancaster, Pennsylvania, evaluating samples from the Chevron-Cincinnati site located in Hooven, Ohio.

Precision, accuracy, method compliance, and completeness of this data package were assessed during this data review. Precision was determined by evaluating the calculated RPD values of samples from field duplicate pairs and laboratory duplicate pairs. Laboratory accuracy was established by reviewing the demonstrated percent recovery of matrix spike (MS), matrix spike duplicates (MSD), and laboratory control samples (LCS) and laboratory control sample duplicates (LCSD) to verify that none of the data were biased. Additionally, field accuracy was established by collecting an equipment blank and a trip blank to monitor for possible ambient or cross contamination during sampling. Method compliance was established by reviewing holding times, detection limits, surrogate recoveries, method blanks, and LCSs and LCSDs against method specific requirements. Completeness was evaluated by determining the overall ratio of the number of samples planned versus the number of samples with valid analyses. Determination of completeness included a review of the chain-of-custody, laboratory analytical methods, and all other necessary documents associated with this analytical data set.

Data were evaluated in general accordance with validation criteria set forth in the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Superfund Organic Methods Data Review, document number USEPA-540-R-08-01, June 2008 with additional reference to USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, document number EPA 540/R-99-008 of October 1999 and the USEPA CLP National Functional Guidelines for Inorganic Data Review, document number EPA 540R-04-004, October 2004. Review of duplicates is conducted in accordance with USEPA Region 1 Laboratory Data Validation Function Guidelines for Evaluation of Organic Analysis, December 1996 or as specified by the method.





Tier II Data Validation Report Summary

SAMPLE NUMBERS TABLE

Client Sample ID	Laboratory Sample Number
EB-1,07202009	5731568
BD-1,07202009	5731569
MW-132,072009	5731570
MW-134,072009	5731571
MW-133,072109	5731572
MW-35,072109	5731573
MW-138,072109	5731574
MW-139,072109	5731575
MW-131,072309	5731576
MW-142,072309	5731577
MW-141,072309	5731578
MW-141,072309 MS	5731579
MW-141,072309 MSD	5731580
MW-141,072309 DUP	5731581
Trip_Blank,072309	5731582



Tier II Data Validation Report Summary

The samples were analyzed for client-specified analytes. Chain-of-custody (COC) completeness is included in Section #3. The laboratory data were reviewed to evaluate compliance with the required methods and the quality of the reported data. A leading check mark (✓) indicates that the referenced data were deemed acceptable. A preceding crossed circle (⊗) signifies problems with the referenced data that may have warranted attaching qualifiers to the data.

- ✓ Data Completeness
- ✓ COC Documentation
- ✓ Holding Times and Preservation
- ✓ Laboratory Blanks
- ✓ System Monitoring Compounds (i.e. Surrogates)
- ✓ Laboratory Control Samples/ Laboratory Control Samples Duplicates (LCS/LCSD)
- ✓ Matrix Spike/Matrix Spike Duplicate (MS/MSD)
- ✓ Field Duplicates
- ✓ Field Blank and Trip Blank Samples

OVERALL DATA PACKAGE ASSESSMENT

Based on a data validation review, the data are acceptable as delivered. Data qualified by the laboratory are discussed in Section #2.

The purpose of validating data and assigning qualifiers is to assist in proper data interpretation. Data which are not qualified meet the site data quality objectives. If values are assigned qualifiers other than an "R", the data may be used for site evaluation, with the reasons for qualification being given consideration when interpreting sample concentrations. Data points which are assigned an "R" qualifier should not be used for any site evaluation purposes. Data were qualified with J data flags by the laboratory if the results were greater than or equal to the method detection limit (MDL) but less than the limit of quantitation (LOQ). Laboratory J flags were preserved in the data and included in the Data Qualification Summary table at the end of this report.

Data qualifiers used during this validation included:

J – Estimated concentration

Data Completeness

The analyses appeared to be performed as requested on the chain-of-custody records. The associated samples were received by the laboratory and appeared to be analyzed properly. No data points were rejected. The data completeness measure for this data package is 100%.

VALIDATION CRITERIA CHECKLIST	
1. Did the laboratory identify any non-conformances related to the analytical data?	Yes
Comments: The laboratory noted the following non-conformance related to the analytical data. With the exception of the trip blank, the samples were noted by the laboratory to have been filtered in the field for dissolved metals.	
2. Were data qualification flags used by the laboratory? If yes, define.	Yes
Comments: Reporting requirements for flagged data were met by the laboratory. Data were qualified as J by the laboratory if the reported detection was greater than or equal to the method detection limit and less than the LOQ. In addition, the following data qualifiers were applied: (1) – The result for one or both determinations was less than five times the LOQ. (2) – The unspiked result was more than four times the spike added. * – Outside of specification.	
3. Were sample chain-of-custody forms complete?	Yes
Comments: The COC record from field to laboratory was complete. Custody was maintained as evidenced by field and laboratory personnel signatures, dates, and times of receipt. A note was added to the COC for the laboratory to see the attached analyte list. Requested analyses were included on the COC with specific analytes on the list.	
4. Were detection limits in accordance with the QAPP, permit, or method, or indicated as acceptable by the Tier I validator?	Yes
Comments: The Tier I data validator indicated that the laboratory successfully met the project required method detection limits. Dilutions of ten times were required for the benzene analyses for samples MW-142,072309 and MW-141,072309.	
5. Were the requested analytical methods in compliance with the QAPP, permit, or COC?	Yes
Comments: The laboratory analyzed samples were in compliance with the COC and attached analyte list.	
6. Were samples received in good condition within method specified requirements?	Yes
Comments: Samples were received on ice, intact, and in good condition with a cooler temperature within the $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ acceptance range at 2.6°C , as noted on the Environmental Sample Administration Receipt Documentation Log.	
7. Were samples analyzed within method specified or technical holding times?	Yes
Comments: The samples were analyzed within the method specified holding times.	
8. Were reported units appropriate for the associated sample matrix/matrices and method(s) of analyses?	Yes
Comments: The results for VOCs were reported in $\mu\text{g/L}$. The results for metals were reported in mg/L . These units are correct for samples of water matrix.	
9. Do the laboratory reports include all constituents requested to be reported as indicated by the Tier I validator?	Yes
Comments: The laboratory reported the required analytical constituents noted on the "POC Sentinel and SWQ 3Q 2009" list, which was shipped to the laboratory with the samples.	
10. Was there indication from the laboratory that the initial or continued calibration verification results were within acceptable limits?	N/A
Comments: Initial and continuing calibration data were not requested or included as part of this data set; however, these data are assumed to be acceptable as the laboratory did not note that any calibration results were outside acceptable limits.	
11. Was the total number of method blank samples prepared equal to at least 5% of the total number of samples, or analyzed as required by the method?	Yes
Comments: Method blank samples were prepared and analyzed at a frequency equal to at least 10% of the total number of samples.	

VALIDATION CRITERIA CHECKLIST	
12. Were method blank detections reported for this data set?	No
Comments: Detections were not reported for the method blanks.	
13. Was the total number of matrix spike samples prepared equal to at least 5% of the total number of samples, or analyzed as required by the method?	Yes
Comments: The total number of matrix spike samples was equal to at least 5% of the total number of samples. Matrix spike and matrix spike duplicate samples for VOC batch L092082AA and dissolved metals batch 092091848003 were prepared from sample MW-141,072309. The matrix spike and matrix spike duplicate samples for dissolved metals batch 092081848002 were prepared from a sample not associated with this client's data.	
14. Were matrix spike recoveries within laboratory-specified limits?	Yes
Comments: The reported matrix spike recoveries and RPD values were within laboratory or data validation QC limits.	
15. Was the total number of laboratory control samples analyzed equal to at least 5% of the total number of samples, or analyzed as required by the method?	Yes
Comments: The total number of laboratory control samples was at least 5% of the total number of samples.	
16. Were laboratory control recoveries within laboratory-specified limits?	Yes
Comments: Laboratory control sample recoveries were within acceptable laboratory or data validation QC limits.	
17. Were surrogate recoveries within laboratory control limits?	Yes
Comments: Reported surrogate recoveries were within laboratory control limits.	
18. Was the number of equipment, trip, or field blanks collected equal to at least 10% of the total number of samples, or as required by the project guidelines, QAPP, SAP, or permit, or as indicated by the Tier I validator?	Yes
Comments: Field blanks were not shipped to the laboratory with this sample set. One trip blank (Trip Blank, 072309) and one equipment blank (EB-1, 07202009) were shipped to the laboratory with this sample set, resulting in a collection frequency equal to at least 10% of the total number of samples.	
19. Were detections found in trip blanks, equipment blanks, or field blanks?	No
Comments: Detections were not reported in the trip blank or the equipment blank.	
20. Were the field duplicates collected equal to at least 10% of the total number of samples, or as required by the project guidelines, QAPP, SAP, or permit, or as indicated by the Tier I validator?	Yes
Comments: The number of duplicates collected was equal to at least 10% of the total number of samples. The blind duplicate sample BD-1, 07202009 was prepared as a duplicate of sample MW-132.	
21. Were field duplicate RPD values less than the upper RPD limit (soil [50%], water [30%], or air/vapor [25%]), as specified by the laboratory or method?	N/A
Comments: The RPD values could not be calculated since the reported analytes were non-detections.	
22. Were laboratory duplicate RPD values within laboratory-specified limits?	Yes
Comments: Laboratory duplicates were prepared for dissolved metals batch 092091848003 from sample MW-141,072309, and for dissolved metals batch 092081848002 from a sample not associated with this client's data. Laboratory duplicate RPDs were within acceptable laboratory limits or were not applicable since one or both of the duplicate detections were less than five times the laboratory LOQ.	

DATA QUALIFICATION SUMMARY

Analyte	Client Sample ID	Laboratory Assigned ID	Laboratory Result (µg/L)	Reviewer Qualifier	Reason for Qualification
Arsenic, Dissolved	MW-131,072309	5731576	10	J	Flagged by the Lab: Result between MDL and RL.
Arsenic, Dissolved	MW-139,072109	5731575	17.5	J	Flagged by the Lab: Result between MDL and RL.
Ethyl- benzene	MW-139,072109	5731575	1	J	Flagged by the Lab: Result between MDL and RL.
Xylenes, Total	MW-139,072109	5731575	5	J	Flagged by the Lab: Result between MDL and RL.