HGL Data Validation Review Report

Project Name/Number	PHSS-SIB PDI / DT2002
Data Validation Stage	4
Laboratory	ALS Environmental
SDG	K2212674; tributyltin reported in SDG K2300272
HGL Reviewer	Ken Rapuano 9/14/23
HGL Peer Review	Justin Hersh 9/14/2023

General issues: The HGL reviewer ensured that all results with an interpreted_qualifiers of U or UJ had the corresponding detect_flag field populated with N and that all rows had Y in the validated_yn field.

The DV report used the higher of the method blank or equipment blank results (on-column) to qualify associated results. Although HGL's internal protocol is to use all applicable reason codes, using the reason code only associated with the highest associated blank is consistent with the NFG and is acceptable for this project.

Although equipment blank results are not validated, the method blanks associated with equipment blank EB04-10262022 were contaminated with several target analytes, including DRO, RRO, BEHP, and multiple PAHs; however, the analytes detected in this EB were generally higher than most corresponding aqueous method blank concentration and only B2EHP and pyrene are considered to be laboratory artifacts in that EB. Any change to qualification or reason codes is discussed in the method-specific sections below.

Diesel Range Organics (DRO) and Residual Range Organics (RRO):

The DV report used the on-column concentration to determine when to apply qualification for equipment blank contamination. This is appropriate when the dilution factor is 1; however, when the sample is diluted, this has the effect of applying the dilution factor to the qualification limit due to the equipment blank. HGL considers the undiluted qualification limit to be an absolute limit of the potential contribution of cross-contamination during sampling and applying the dilution factor on a sample-specific basis artificially overestimates the potential impact of field sampling cross contamination. When determining whether qualification should be applied, the equipment blank on-column qualification limit should be divided by the dilution factor to appropriately separate field contamination from laboratory contamination as represented by the method blank. Ten DRO results and ten RRO results from 10x diluted analyses were above the equipment blank qualification limit when dilution factor was removed from the evaluation. Seven of the 10 affected DRO results were below the qualification limit calculated from the associated soil method blank and the EBL reason code was replaced with MBL, but no change was made to the qualification. The HGL reviewer removed the U qualifier and EBL reason code from the remaining 3 affected DRO results and all 10 affected RRO results.

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-038-MLW-0-1-10252022	DRO	530	U	--	--	--
	RRO	1800	U	--	--	--

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-037-MLW-0-1-10252022	DRO	190	U	U	U	MBL
	RRO	700	U	--	J	--
SIB-036-MLW-0-1-10252022	DRO	590	U	--	--	--
	RRO	2500	U	--	--	--
SIB-035-OHW-0-1-10252022	DRO	86	U	U	U	MBL
	RRO	670	U	--	J	--
SIB-034-MLW-0-1-10252022	RRO	3000	U	--	--	--
SIB-034-OHW-0-1-10252022	DRO	86	U	U	U	MBL
	RRO	560	U	--	J	--
SIB-033-OHW-0-1-10252022	DRO	380	U	--	--	--
SIB-032-OHW-0-1-10252022	DRO	130	U	U	U	MBL
	RRO	1100	U	--	--	--
SIB-031-OHW-0-1-10252022	DRO	95	U	U	U	MBL
	RRO	870	U	--	J	--
SIB-030-MLW-0-1-10252022	DRO	340	U	UJ	UJ	MBL,CCVD
	RRO	1600	UJ	J	J	CCVD
SIB-029-OHW-0-1-10252022	DRO	100	U	UJ	UJ	MBL,CCVD
	RRO	730	UJ	J	J	CCVD

Tributyltin:

The DV report noted the %D discrepancy in column RTX-1 but misidentified that column as the secondary column and did not apply any qualification. The laboratory narrative indicated that the practice when both columns are in control is to report the lower of the two results; as only one result was available to be selected, there is some quantitative uncertainty in the reported values and in the judgment of the HGL reviewer applied a J or UJ qualifier, reason code CCVD, to results associated with a CCV discrepancy in the secondary column even though all data were reported from the primary column. This is consistent with the qualification approach the validator took in the data validation performed on SDG K2212356.

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-039-MLW-0-1-10252022	Tributyltin	1.3	--	J	J	CCVD
SIB-039-OHW-0-1-10252022	Tributyltin	0.43	--	UJ	UJ	CCVD
FD14-10252022	Tributyltin	0.43	--	UJ	UJ	CCVD
SIB-038-MLW-0-1-10252022	Tributyltin	0.88	--	J	J	CCVD
SIB-038-OHW-0-1-10252022	Tributyltin	0.45	--	J	J	CCVD

Organochlorine Pesticides:

The validator applied a J qualifier and FDPA reason code to the 4,4′-DDT results in the SIB-039-OHW-0-1-10252022 / FD14-10252022 duplicate pair. The detected result in the parent sample was subsequently qualified U due to method blank contamination and in the judgment of the HGL reviewer there is no precision discrepancy for this analyte. The HGL reviewer removed the FDPA reason code from both results. The UJ qualifier applied to the 4,4′-DDT result for sample SIB-039-OHW-0-1-10252022 was changed to U. The UJ qualifier applied to the 4,4′-DDT result for FD14-10252022 is retained due to a holding time discrepancy.

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-039-OHW-0-1-10252022	4,4′-DDT	0.22	UJ	--	U	--
FD14-10252022	4,4′-DDT	1.8	UJ	UJ	UJ	MBL, HTA

bis(2-Ethylhexyl)phthalate; Polycyclic Aromatic Hydrocarbons (PAHs):

The CCV associated with the analysis of sample SIB-031-OHW-0-1-10252022 had a %D of 20.3%. The acceptance criterion is 20%. The validator did not apply qualification; this exceedance is nominal and in the judgment of the HGL reviewer, no qualification is required.

The DV report used the on-column concentration to determine when to apply qualification for equipment blank contamination. This is appropriate when the dilution factor is 1; however, when the sample is diluted, this has the effect of applying the dilution factor to the qualification limit due to the equipment blank. HGL considers the undiluted qualification limit to be an absolute limit of the potential contribution of cross-contamination during sampling and applying the dilution factor on a sample-specific basis artificially overestimates the potential impact of field sampling cross contamination. When determining whether qualification should be applied, the equipment blank on-column qualification limit should be divided by the dilution factor to appropriately separate field contamination from laboratory contamination as represented by the method blank. Sixteen PAH results diluted analyses were above the equipment blank qualification limit when dilution factor was removed from the evaluation. The HGL reviewer removed the U qualifier and EBL or EBH reason code from all affected PAH results.

The pyrene result for sample SIB-039-OHW-0-1-10252022 was qualified U due to equipment blank contamination; the pyrene result in the equipment blank is attributable to laboratory contamination and not applicable to soil sample results. The HGL reviewer removed the U qualifier and EBL reason code from the affected pyrene result.

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-039-OHW-0-1-10252022	Pyrene	5.8	U	--	--	--
SIB-036-MLW-0-1-10252022	Acenaphthene	100	U	--	--	--
SIB-036-MLW-0-1-10252022	Acenaphthylene	72	U	--	--	--
SIB-036-MLW-0-1-10252022	Fluorene	150	U	--	--	--

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-034-MLW-0-1-10252022	Acenaphthylene	31	U	--	--	--
SIB-034-OHW-0-1-10252022	Acenaphthene	18	U	--	J	--
SIB-034-OHW-0-1-10252022	Acenaphthylene	16	U	--	J	--
SIB-034-OHW-0-1-10252022	Fluorene	37	U	--	--	--
SIB-033-OHW-0-1-10252022	2-Methylnaphthalene	95	U	--	J	--
SIB-033-OHW-0-1-10252022	Acenaphthene	51	U	--	J	--
SIB-033-OHW-0-1-10252022	Acenaphthylene	69	U	--	J	--
SIB-033-OHW-0-1-10252022	Anthracene	150	U	--	--	--
SIB-033-OHW-0-1-10252022	Fluorene	56	U	--	J	--
SIB-033-OHW-0-1-10252022	Phenanthrene	400	U	--	--	--
SIB-032-OHW-0-1-10252022	Acenaphthylene	11	U	--	J	--
SIB-032-OHW-0-1-10252022	Anthracene	36	U	--	J	--

Total Organic Carbon (TOC):

The DV report indicated that all analyses were performed within the holding time. The holding time for soil samples listed in the QAPP is incorrect. The HGL reviewer confirmed that all samples were analyzed within the correct holding time of 28 days.