HGL Data Validation Review Report

Project Name/Number	PHSS-SIB PDI / DT2002
Data Validation Stage	4
Laboratory	ALS Environmental
SDG	K2212535
HGL Reviewer	Ken Rapuano 9/12/23
HGL Peer Review	Justin Hersh 9/13/2023

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 blanks EB03-10192022 and EB04-10262022 were contaminated with several target analytes, including DRO, RRO, BEHP, and multiple PAHs. The concentrations of most contaminants found in in the aqueous method blank associated with EB03-10192022 were similar to the corresponding concentration found in the equipment blank and in the judgment of the HGL reviewer, it is appropriate to consider the detected results in the equipment blank to be laboratory artifacts due to aqueous preparation rather than field cross-contamination artifacts. This affects bis(2-ethylhexyl)phthalate and all PAHs except 2-methylnaphthalene and naphthalene. A similar situation affects equipment blank EB04-10262022; 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. Three DRO results and 15 RRO results from 10x diluted analyses were above the equipment blank qualification limit when dilution factor was removed from the evaluation. All three affected DRO results and four RRO results were below the qualification limit calculated from the associated soil method blank and the EBH 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 11 affected RRO results.

The RRO results in duplicate pair SIB-049-OHW-0-1-10202022 / FD12-10202022 showed a wide discrepancy; the result from the parent sample was reported from a 10x dilution while the field duplicate result was reported from an undiluted analysis. The field duplicate result was subsequently

qualified U due to equipment blank contamination while the parent sample result was not. In the judgment of the HGL reviewer, the parent sample RRO result should be qualified J and the field duplicate result should be qualified UJ, with reason code FDPA.

The DV report Major and Minor Findings summary table had Percent Relative Standard Deviation and Percent Difference checked for a minor finding instead of Calibration.

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-053-MLW-0-1-10202022	DRO	160	UJ	UJ	UJ	MBL, CCVD
	RRO	1800	U	--	--	--
SIB-053-OHW-0-1-10202022	RRO	530	U	--	J	--
SIB-053-TOB-0-1-10202022	RRO	350	U	U	U	MBL
SIB-052-TOB-0-1-10202022	RRO	340	U	U	U	MBL
SIB-051-OHW-0-1-10202022	RRO	1100	U	--	--	--
SIB-050-OHW-0-1-10202022	RRO	510	U	--	J	--
SIB-049-OHW-0-1-10202022	RRO	450	U	J	J	FDPA
SIB-049-TOB-0-1-10202022	RRO	750	U	--	J	--
FD12-10202022	RRO	43	U	UJ	UJ	EBL, FDPA
SIB-048-TOB-0-1-10242022	RRO	480	U	--	J	--
SIB-048-MLW-0-1-10242022	DRO	94	UJ	UJ	UJ	MBL, CCVD
	RRO	1400	U	--	--	--
SIB-047-TOB-0-1-10242022	RRO	770	U	--	J	--
SIB-047-OHW-0-1-10242022	RRO	350	U	U	U	MBL
SIB-046-TOB-0-1-10242022	DRO	130	UJ	UJ	UJ	MBL, CCVD
	RRO	2000	U	--	--	--
SIB-046-OHW-0-1-10242022	RRO	500	U	--	J	--
SIB-045-TOB-0-1-10242022	RRO	340	U	U	U	MBL

Tributyltin:

The DV report correctly identified the precision discrepancy in the field duplicate pair SIB-045-TOB-0-1-10242022 / FD13-10242022 (results reported in SDG K2212538), but applied reason code FDPA instead of FDPR to the affected results. The HGL reviewer corrected the reason code to FDPR.

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-045-TOB-0-1-10242022	Tributlytin	12	J	J	J	FDPR

Organochlorine Pesticides:

The DV report indicates that the peak area for IS pyrene-d10 was above the upper control limit for all samples in this SDG; however, the IS area for sample SIB-053-MLW-0-1-10202022 was within the control limits. The J qualifier and IRH reason code should be removed from all detected pesticide results reported for sample SIB-053-MLW-0-1-10202022.

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-053-MLW-0-1-10202022	alpha-Chlordane	3.8	J	--	J	--
	beta-Chlordane	5.2	J	--	J	--
	o,p'-DDT	0.89	J	J	J	LCSL
	p,p'-DDD	1.4	J	--	J	--
	p,p'-DDE	0.62	J	--	J	--
	p,p'-DDT	6.3	J	--	J	--
	trans-Nonachlor	1.5	J	--	J	--

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

Fifteen of the 20 B2EHP results were qualified U due to contamination in the equipment blank; these results should have the U-qualifier and EBH or EBL reason code removed due to the equipment blank results being considered analytical artifacts (see General Issues). The soil method blank associated with these samples was free from contamination and no alternate qualification or reason code is required.

In multiple cases, PAH results were qualified U due to contamination in the equipment blank that was determined to be caused by laboratory aqueous preparation contamination rather than field cross-contamination (see General Issues). In all cases, the affected sample results are greater than the qualification limit established by the corresponding soil method blank and the U qualifier and EBL or EBH reason code are removed and not replaced.

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-053-MLW-0-1-10202022	bis(2-Ethylhexyl)phthalate	38	UJ	J	J	MSH
SIB-053-OHW-0-1-10202022	bis(2-Ethylhexyl)phthalate	62	U	--	J	--
SIB-053-OHW-0-1-10202022	Benzo(a)anthracene	13	U	--	--	--
SIB-053-OHW-0-1-10202022	Fluoranthene	41	U	--	--	--
SIB-053-OHW-0-1-10202022	Phenanthrene	15	U	--	--	--
SIB-053-OHW-0-1-10202022	Pyrene	44	U	--	--	--
SIB-053-TOB-0-1-10202022	bis(2-Ethylhexyl)phthalate	300	U	--	--	--
SIB-052-OHW-0-1-10202022	bis(2-Ethylhexyl)phthalate	71	U	--	J	--

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-052-OHW-0-1-10202022	Phenanthrene	22	U	--	--	--
SIB-052-TOB-0-1-10202022	bis(2-Ethylhexyl)phthalate	230	U	--	--	--
SIB-051-OHW-0-1-10202022	bis(2-Ethylhexyl)phthalate	180	U	--	--	--
SIB-051-TOB-0-1-10202022	bis(2-Ethylhexyl)phthalate	95	U	--	J	--
SIB-051-TOB-0-1-10202022	Phenanthrene	18	U	--	--	--
SIB-050-OHW-0-1-10202022	bis(2-Ethylhexyl)phthalate	40	U	--	J	--
SIB-050-OHW-0-1-10202022	Phenanthrene	21	U	--	--	--
SIB-050-TOB-0-1-10202022	bis(2-Ethylhexyl)phthalate	190	U	--	--	--
SIB-049-OHW-0-1-10202022	bis(2-Ethylhexyl)phthalate	45	U	--	J	--
SIB-049-OHW-0-1-10202022	Benzo(a)anthracene	12	U	--	--	--
SIB-049-OHW-0-1-10202022	Chrysene	14	U	--	--	--
SIB-049-OHW-0-1-10202022	Fluoranthene	28	UJ	J	J	FDPA
SIB-049-OHW-0-1-10202022	Phenanthrene	16	U	--	--	--
SIB-049-OHW-0-1-10202022	Pyrene	37	UJ	J	J	FDPA
FD12-10202022	bis(2-Ethylhexyl)phthalate	14	U	--	J	--
FD12-10202022	Benzo(a)anthracene	6.9	U	--	--	--
FD12-10202022	Chrysene	8	U	--	--	--
FD12-10202022	Fluoranthene	14	UJ	J	J	FDPA
FD12-10202022	Phenanthrene	7.9	U	--	--	--
FD12-10202022	Pyrene	19	UJ	J	J	FDPA
SIB-048-OHW-0-1-10242022	bis(2-Ethylhexyl)phthalate	47	U	--	J	--
SIB-048-MLW-0-1-10242022	bis(2-Ethylhexyl)phthalate	47	U	--	J	--
SIB-047-OHW-0-1-10242022	bis(2-Ethylhexyl)phthalate	43	U	--	J	--
SIB-045-TOB-0-1-10242022	bis(2-Ethylhexyl)phthalate	46	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.