HGL Data Validation Review Report

Project Name/Number	PHSS-SIB PDI / DT2002
Data Validation Stage	4
Laboratory	ALS Environmental
SDG	K2212356
HGL Reviewer	Ken Rapuano 9/11/23
HGL Peer Review	Justin Hersh 7/14/2023

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 EB03-10192022 were contaminated with several target analytes, including DRO, RRO, BEHP, and nine PAHs. In most cases, the concentration in the aqueous method blank was 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)phalate and all PAHs except 2-methylnaphthalene and naphthalene. 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. Six DRO results and 10 RRO results from 10x 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 reason code from the affected results.

The DV report assigned a UJ qualifiers to the RRO result for sample SIB-056-MLW-0-1-10192022, with no reason code other than EBL. It is believed that this UJ qualifier was mistakenly applied when qualifying a subset of RRO results due to a CCV discrepancy. When removing the U qualifier for equipment blank contamination from this result, the HGL reviewer also removed the J qualifier.

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-059-MLW-0-1-10192022	DRO	320	U	--	--	--
	RRO	1300	U	--	--	--
SIB-058-MLW-0-1-10192022	DRO	200	U	--	J	--
	RRO	1200	U	--	J	--
SIB-058-OHW-0-1-10192022	DRO	150	U	--	J	--
	RRO	990	U	--	J	--
FD11-10192022	DRO	290	U	--	J	--
	RRO	1800	U	--	--	--
SIB-057-MLW-0-1-10192022	DRO	160	U	--	J	--
	RRO	900	U	--	J	--
SIB-057-TOB-0-1-10192022	RRO	250	U	--	J	--
SIB-056-MLW-0-1-10192022	DRO	100	U	--	J	--
	RRO	1400	UJ	--	--	--
SIB-056-TOB-0-1-10192022	RRO	470	U	--	J	--
SIB-055-TOB-0-1-10192022	RRO	510	U	--	J	--
SIB-054-TOB-0-1-10192022	RRO	670	U	--	J	--

Tributyltin:

The DV report applied a J or UJ qualifier to results associated with a CCV discrepancy in the secondary column even though all data were reported from the primary column. 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 the qualifiers and reason codes should be retained.

Organochlorine Pesticides:

No issues noted.

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

Sixteen of the 17 B2EHP results were qualified U due to contamination in the equipment blank; these results should have the U-qualifier and EBH reason code removed due to the equipment blank result being considered an analytical artifact. The soil method blank associated with these samples was also contaminated; the B2EHP result for 12 samples were below the method blank qualification limit and the MBL reason code replaces the EBH reason code but no qualifier change is required.

The Excel file had reason code EBH, SSH applied to the B2EHP results for SIB-057-MLW-0-1-10192022, SIB-057-TOB-1-2-10192022, SIB-056-MLW-0-1-10192022, and SIB-054-OHW-0-1-10192022 but applied reason code U instead of UJ. The U qualification is retained for these results due to method blank contamination and the final qualifier of UJ was applied by the HGL reviewer.

The benzo(a)pyrene, benzo(b)fluoranthene, and pyrene results in the duplicate pair were assigned reason code FDPA; both results were greater than 5x the LOQ in both members of the duplicate pair and have RPD >50%. The correct reason code is FDPR and the HGL reviewer revised the reason code for these six results.

In multiple cases, 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 but one, 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. The benzo(a)anthracene result for sample SIB-054-OHW-0-1-10192022 retains the U qualifier with reason code EBL replaced with MBL.

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-060-OHW-0-1-10192022	bis(2-Ethylhexyl)phthalate	90	U	U	U	MBL
SIB-059-MLW-0-1-10192022	bis(2-Ethylhexyl)phthalate	74	U	U	U	MBL
SIB-059-MLW-0-1-10192022	Benzo(a)anthracene	14	U	--	--	--
SIB-059-MLW-0-1-10192022	Fluoranthene	14	U	--	--	--
SIB-059-MLW-0-1-10192022	Phenanthrene	9.3	U	--	--	--
SIB-059-OHW-0-1-10192022	bis(2-Ethylhexyl)phthalate	100	U	U	U	MBL
SIB-059-OHW-0-1-10192022	Phenanthrene	21	U	--	--	--
SIB-058-MLW-0-1-10192022	bis(2-Ethylhexyl)phthalate	74	UJ	UJ	UJ	MBL, MSH
SIB-058-MLW-0-1-10192022	Benzo(a)pyrene	86	J	J	J	FDPR
SIB-058-MLW-0-1-10192022	Benzo(b)fluoranthene	140	J	J	J	FDPR
SIB-058-MLW-0-1-10192022	Fluoranthene	58	UJ	J	J	FDPA
SIB-058-MLW-0-1-10192022	Phenanthrene	17	U	--	--	--
SIB-058-MLW-0-1-10192022	Pyrene	220	J	J	J	FDPR
SIB-058-OHW-0-1-10192022	bis(2-Ethylhexyl)phthalate	140	U	--	--	--
FD11-10192022	bis(2-Ethylhexyl)phthalate	200	UJ	J	J	SSH
FD11-10192022	Benzo(a)pyrene	40	J	J	J	FDPR
FD11-10192022	Benzo(b)fluoranthene	80	J	J	J	FDPR
FD11-10192022	Fluoranthene	17	UJ	J	J	FDPA
FD11-10192022	Phenanthrene	11	U	--	--	--
FD11-10192022	Pyrene	130	J	J	J	FDPR
SIB-057-MLW-0-1-10192022	bis(2-Ethylhexyl)phthalate	78	U	UJ	UJ	MBL, SSH

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-057-OHW-0-1-10192022	bis(2-Ethylhexyl)phthalate	110	U	U	U	MBL
SIB-057-TOB-0-1-10192022	bis(2-Ethylhexyl)phthalate	100	U	U	U	MBL
SIB-057-TOB-1-2-10192022	bis(2-Ethylhexyl)phthalate	34	U	UJ	UJ	MBL, SSH
SIB-057-TOB-1-2-10192022	Benzo(a)anthracene	8.8	U	--	--	--
SIB-057-TOB-1-2-10192022	Chrysene	16	U	--	--	--
SIB-057-TOB-1-2-10192022	Fluoranthene	19	U	--	--	--
SIB-057-TOB-1-2-10192022	Phenanthrene	9.2	U	--	--	--
SIB-057-TOB-1-2-10192022	Pyrene	26	U	--	--	--
SIB-056-MLW-0-1-10192022	bis(2-Ethylhexyl)phthalate	72	U	UJ	UJ	MBL, SSH
SIB-056-MLW-0-1-10192022	Phenanthrene	110	U	--	--	--
SIB-056-OHW-0-1-10192022	bis(2-Ethylhexyl)phthalate	38	U	U	U	MBL
SIB-056-TOB-0-1-10192022	bis(2-Ethylhexyl)phthalate	140	U	--	--	--
SIB-055-TOB-0-1-10192022	bis(2-Ethylhexyl)phthalate	170	U	--	--	--
SIB-055-OHW-0-1-10192022	bis(2-Ethylhexyl)phthalate	40	U	U	U	MBL
SIB-055-OHW-0-1-10192022	Fluoranthene	32	U	--	--	--
SIB-055-OHW-0-1-10192022	Phenanthrene	16	U	--	--	--
SIB-055-OHW-0-1-10192022	Pyrene	41	U	--	--	--
SIB-054-TOB-0-1-10192022	Fluoranthene	410	U	--	--	--
SIB-054-TOB-0-1-10192022	Phenanthrene	160	U	--	--	--
SIB-054-TOB-0-1-10192022	Pyrene	390	U	--	--	--
SIB-054-OHW-0-1-10192022	bis(2-Ethylhexyl)phthalate	31	U	UJ	UJ	MBL, SSH
SIB-054-OHW-0-1-10192022	Benzo(a)anthracene	2.3	U	U	U	MBL
SIB-054-OHW-0-1-10192022	Benzo(b)fluoranthene	5.3	U	--	--	--
SIB-054-OHW-0-1-10192022	Benzo(g,h,i)perylene	3.1	U	--	J	--
SIB-054-OHW-0-1-10192022	Chrysene	4.7	U	--	J	--
SIB-054-OHW-0-1-10192022	Fluoranthene	7.4	U	--	--	--
SIB-054-OHW-0-1-10192022	Phenanthrene	6.2	U	--	--	--
SIB-054-OHW-0-1-10192022	Pyrene	5.7	U	--	--	--

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.