HGL Data Validation Review Report

Project Name/Number	PHSS-SIB PDI / DT2002
Data Validation Stage	2A
Laboratory	ALS Environmental
SDG	K2211934
HGL Reviewer	Ken Rapuano 8/31/23
HGL Peer Review	Justin Hersh 9/1/2023

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 blank associated with equipment blank EB01-10052022 was contaminated with several target analytes, including DRO, RRO, BEHP, and the PAHs 2-methylnaphthalene, fluorene, and phenanthrene. In most cases, the concentration in the aqueous method blank was below the corresponding concentration found in the equipment blank and in the judgment of the HGL reviewer, it is appropriate to use the equipment blank to qualify any associated sample results for those analytes. However, the concentrations of BEHP and phenanthrene in EB01-10052022 are below the associated method blank concentration and these two analytes should be considered detected due to aqueous sample preparation contamination and not to cross-contamination of soil samples during sampling activities. For EB02-10102022, BEHP was below the concentration detected in the associated aqueous method blank and the RRO result was only slightly greater than the aqueous method blank result and these two analytes are also considered to be laboratory artifacts due to aqueous preparation rather than field cross-contamination artifacts. Any change to qualification or reason codes is discussed in the method-specific sections below.

<u>Diesel Range Organics (DRO) and Residual Range Organics (RRO):</u>

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. The HGL reviewer re-evaluated all diluted results to determine if the equipment blank contamination affected the result and, if not, if the method blank qualification limit was applicable. In all cases but one, the validator-assigned qualification and EBL reason code were applicable. For sample SIB-100-OHW-0-1-10062022, the RRO on-column concentration was below the corresponding method blank qualification limit; however, due to the need to analyze these samples under dilution, in the HGL reviewer's judgment, the appropriate qualifier for this result is J rather than U, reason code MBL.

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-100-OHW-0-1-10062022	RRO	410	U	J	J	MBL

Tributyltin:

No issues noted.

Organochlorine Pesticides:

No issues noted.

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

The DV report assigned reason code FDPA to the phenanthrene result for sample SIB-102-TOB-0-1-10062022 and applied a final qualifier of UJ to the phenanthrene result in both the parent sample and the field duplicate FD02-10102022 (results reported in SDG K2211944). As the phenanthrene result in the field duplicate is considered to be artifacts of the field sampling process and not representative of the concentration native to the sample, field duplicate precision is not applicable and the J qualifier and FDPA reason code should be removed.

The DV report assigned U qualifiers to the phenanthrene results for 11 samples due to this compound being detected in the associated equipment blank. The U qualifier and reason code EBL should be removed (see General Issues above).

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-104-OHW-0-1-10062022	Phenanthrene	8.7	U	--	--	--
SIB-104-TOB-0-1-10062022	Phenanthrene	3.8	U	--	J	--
SIB-103-MLW-0-1-10062022	Phenanthrene	7.3	U	--	--	--
SIB-103-OHW-0-1-10062022	Phenanthrene	2.9	U	--	J	--
SIB-102-TOB-0-1-10062022	Phenanthrene	4.7	U	--	J	--
SIB-101-OHW-0-1-10062022	Phenanthrene	1.7	U	--	J	--
SIB-101-MLW-0-1-10062022	Phenanthrene	9.8	U	--	--	--
SIB-100-MLW-0-1-10062022	Phenanthrene	2.6	U	--	J	--
SIB-100-OHW-0-1-10062022	Phenanthrene	11	U	--	J	--
SIB-099-MLW-0-1-10072022	Phenanthrene	10	U	--	--	--
SIB-098-MLW-0-1-10072022	Phenanthrene	5.3	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.