HGL Data Validation Review Report

Project Name/Number	PHSS-SIB PDI / DT2002
Data Validation Stage	2A
Laboratory	ALS Environmental
SDG	K2211704
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. 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. 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. Based on this evaluation, the HGL reviewer made the changes described in the following table. Note that for sample SIB-107-OHW-0-1-10052022, 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 these results 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-109-OHW-0-1-10052022	DRO	2300	U	--	J	--
SIB-109-OHW-0-1-10052022	RRO	5800	U	--	J	--
SIB-109-TOB-0-1-10052022	DRO	150	U	--	J	--
SIB-109-TOB-0-1-10052022	RRO	640	U	--	J	--
SIB-107-OHW-0-1-10052022	DRO	600	U	U	U	MBL
SIB-107-OHW-0-1-10052022	RRO	1500	U	J	J	MBL
SIB-107-TOB-0-1-10052022	DRO	78	U	U	U	MBL
SIB-107-TOB-0-1-10052022	RRO	440	U	--	J	--

Tributyltin:

The diluted reanalysis of sample SIB-109-TOB-0-1-10052022 was performed on day 86 after extraction, which is more than 2x the holding time of 40 days. The HGL reviewer changed the reason code from HTA to HTAX.

The validator applied an R qualifier to the detected TBT result for sample SIB-109-OHW-0-1-10052022 due to the surrogate %R being below 10%. As this is a detected result and the NFG makes specific exception for surrogates with a lower control limit of 10% of lower, the HGL reviewer changed the qualifier to J and the reason code to SSL. The HGL reviewer observed that the text of the DV report erroneously indicates that the affected result was a non-detection.

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-109-OHW-0-1-10052022	Tributyltin hydride	3.5	R	J	J	SSL
SIB-109-TOB-0-1-10052022	Tributyltin hydride	290	J	J	J	HTAX

Organochlorine Pesticides:

No issues noted.

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

The DV report assigned U qualifiers to the phenanthrene results for six samples due to this compound being detected in the associated equipment blank. Phenanthrene was also detected in the method blank associated with these four samples. The U qualifier should be removed (see General Issues above) unless the sample result is also below the method blank qualification limit of 3.8 µg/kg (adjusted in raw data). Reason code EBL should be removed from these six results, replaced with MBL as applicable.

The HGL reviewer noted a similar issue with applying the dilution factor when evaluating equipment blank qualification as was noted for TPH. 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. Based on this evaluation, the HGL reviewer made the changes described in the following table.

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-111-TOB-0-1-10052022	Phenanthrene	3.8	U	U	U	MBL
SIB-110-MLW-0-1-10052022	Phenanthrene	7.2	U	--	--	--
SIB-108-TOB-0-1-10052022	Phenanthrene	6.1	U	--	--	--
SIB-107-OHW-0-1-10052022	2-Methylnaphthalene	69	U	--	--	--
	Fluorene	35	U	--	--	--
	Naphthalene	200	U	--	--	--
SIB-106-TOB-0-1-10052022	Phenanthrene	11	U	--	--	--
SIB-105-OHW-0-1-10052022	Phenanthrene	8.5	U	--	--	--
SIB-105-TOB-0-1-10052022	Phenanthrene	9.8	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.