HGL Data Validation Review Report

Project Name/Number	PHSS-SIB PDI / DT2002
Data Validation Stage	2A
Laboratory	ALS Environmental
SDG	K2212040
HGL Reviewer	Ken Rapuano 9/11/23
HGL Peer Review	Justin Hersh 9/12/2023

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. In the EDD, five 4,4′-DDT results that were qualified UJ also had a UJ qualifier in the approval_code and dqm_qualifier fields; this was potentially an artifact of Excel, which will paste data into hidden columns and rows. The HGL reviewer deleted these extraneous qualifiers.

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 EB02-10102022 were 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 concentration of 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; 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.

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 reported results and, if not, if the method blank qualification limit was applicable. For samples SIB-080-OHW-0-1-10122022, SIB-080-TOB-0-1-10122022, and SIB-077-TOB-0-1-10122022, the validator-assigned qualification and EBL reason code applied to the DRO result were determined to be not applicable and were removed. The DRO result for sample SIB-080-TOB-0-1-10122022 is below the qualification limit calculated from the associated method blank; the U qualifier assigned to this result is retained and the EBL reason code is changed to MBL.

In addition, the DV report assigned U qualifiers to the RRO results for six undiluted samples due to this compound being detected in the associated equipment blank. Although RRO is considered a false positive in the equipment blank (see General Issues above), RRO was also detected in the method blank associated with these samples. For eight samples, the RRO result is also below the qualification limit (adjusted in raw data) associated with the soil method blank. Reason code EBL should be removed from these results, replaced with MBL. For the other four samples reported in this SDG with RRO detections, the U qualifier and EBL reason code should be removed from the RRO results.

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-080-MLW-0-1-10122022	RRO	43	U	U	U	MBL
SIB-080-MLW-1-2-10122022	RRO	53	U	U	U	MBL
SIB-080-OHW-0-1-10122022	DRO	210	UJ	J	J	HTA
SIB-080-TOB-0-1-10122022	DRO	120	UJ	UJ	UJ	MBL, HTA
	RRO	570	UJ	J	J	HTA
SIB-079-OHW-0-1-10122022	RRO	61	U	--	J	--
SIB-078-MLW-0-1-10122022	RRO	65	U	--	J	--
SIB-078-OHW-0-1-10122022	RRO	44	U	U	U	MBL
SIB-077-MLW-0-1-10122022	RRO	99	U	--	J	--
SIB-077-TOB-0-1-10122022	DRO	570	UJ	J	J	HTA
	RRO	1600	UJ	J	J	HTA

Tributyltin:

The validator noted the extremely low %R in the MS performed on sample SIB-077-MLW-0-1-10122022; the MSD %R is in control and the validator indicated that the %R results are inconclusive. The detected result for the parent sample was qualified J-MSP and the HGL reviewer concurs with this qualification.

Organochlorine Pesticides:

The laboratory used different labeled quantitation standards than presented in the QAPP; the HGL reviewer confirmed that although alternate labeled standard associations were used, the only target analyte associated with 13C12-endrin (low %R in sample SIB-076-OHW-0-1-10122022) is dieldrin and no additional qualification is required beyond that applied by the validators.

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

For this SDG, the soil method blank led to a higher qualification threshold for B2EHP than was calculated using the equipment blank; the potential false positive in the equipment blank identified in General Issues above does not apply. The DV report applied a U-qualifier to the bis(2-ethylhexyl)phthalate result for sample SIB-080-OHW-0-1-10122022. The result reported for this sample is below the qualification limit calculated from the associated method blank; however, the result is reported from a 20x diluted reanalysis and in the judgment of the HGL reviewer, the B2EHP

result in this sample is not a false positive, although it may be biased high due to laboratory contamination. The HGL reviewer replaced the U qualifier with a J qualifier and retained the associated MBL reason code.

The DV report assigned U qualifiers to the acenaphthylene and phenanthrene results for sample SIB-082-OHW-0-1-10112022 due to these compounds being detected in the associated equipment blank. However, the sample was diluted 20x and the reported results for these samples are above the qualification limit when not adjusted for dilution (see General Issues above). The U qualifier and EBL reason code are removed from the acenaphthylene and phenanthrene results for these two samples.

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-080-OHW-0-1-10122022	bis(2-Ethylhexyl) phthalate	1300	U	J	J	MBL
SIB-077-TOB-0-1-10122022	Acenaphthylene	9	U	--	J	--
	Phenanthrene	210	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.