HGL Data Validation Review Report

Project Name/Number	PHSS-SIB PDI / DT2002
Data Validation Stage	2A
Laboratory	ALS Environmental
SDG	K2212275
HGL Reviewer	Ken Rapuano 9/28/23
HGL Peer Review	Justin Hersh 9/28/2023

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 the equipment blanks were contaminated with several target analytes.

- For EB02-10102022, these analytes included 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.
- For EB03-10192022, these analytes included DRO, RRO, BEHP, and multiple PAHs. The concentrations of most contaminants found 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.

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. All TPH results reported in this SDG are from 1x dilution analyses and evaluation to eliminate dilution effects was not necessary.

The DV report assigned U qualifiers to the RRO results for five undiluted samples due to this compound being detected in associated equipment blank EB02-10102022. 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 four of these 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 and replaced with MBL. For sample SIB-069-TOB-0-1-10142022, the U qualifier and EBL reason code should be removed from the RRO result.

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-069-TOB-0-1-10142022	RRO	35	U	--	J	--
SIB-068-TOB-0-1-10142022	RRO	9.9	U	U	U	MBL
SIB-067-TOB-0-1-10142022	RRO	13	U	U	U	MBL
SIB-067-OHW-0-1-10142022	RRO	13	U	U	U	MBL
SIB-067-MLW-0-1-10142022	RRO	11	U	U	U	MBL

Tributyltin:

The MS/MSD had a high RPD; the HGL reviewer applied a J-MSP qualifier to the tributyltin result for sample SIB-069-TOB-0-1-10142022.

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-069-TOB-0-1-10142022	Tributyltin	5100	--	J	J	MSP

Organochlorine Pesticides:

No issues noted.

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-069-TOB-0-1-10142022	bis(2-Ethylhexyl)phthalate	32	U	--	J	--
SIB-068-TOB-0-1-10142022	bis(2-Ethylhexyl)phthalate	9.3	U	--	J	--
SIB-067-TOB-0-1-10142022	bis(2-Ethylhexyl)phthalate	23	U	--	J	--
SIB-067-OHW-0-1-10142022	bis(2-Ethylhexyl)phthalate	14	UJ	J	J	SSH
SIB-000-OHW-0-1-10172022	bis(2-Ethylhexyl)phthalate	90	UJ	J	J	SSH
SIB-000-OHW-0-1-10172022	Chrysene	21	U	--	--	--
SIB-000-OHW-0-1-10172022	Fluoranthene	30	U	--	--	--
SIB-000-OHW-0-1-10172022	Phenanthrene	12	U	--	--	--
SIB-000-OHW-0-1-10172022	Pyrene	33	U	--	--	--
SIB-001-TOB-0-1-10172022	bis(2-Ethylhexyl)phthalate	1900	UJ	J	J	SSH
SIB-001-OHW-0-1-10172022	bis(2-Ethylhexyl)phthalate	3000	U	--	--	--
SIB-002-OHW-0-1-10172022	bis(2-Ethylhexyl)phthalate	200	U	--	--	--
SIB-002-OHW-0-1-10172022	Phenanthrene	23	U	--	--	--
SIB-003-TOB-0-1-10172022	bis(2-Ethylhexyl)phthalate	1300	UJ	J	J	SSH
SIB-003-OHW-0-1-10172022	bis(2-Ethylhexyl)phthalate	73	U	--	J	--
SIB-004-TOB-0-1-10172022	bis(2-Ethylhexyl)phthalate	3400	U	--	--	--
SIB-004-OHW-0-1-10172022	bis(2-Ethylhexyl)phthalate	550	UJ	J	J	SSH
SIB-004-OHW-0-1-10172022	Benzo(a)anthracene	11	U	--	--	--
SIB-004-OHW-0-1-10172022	Chrysene	15	U	--	--	--
SIB-004-OHW-0-1-10172022	Fluoranthene	22	U	--	--	--
SIB-004-OHW-0-1-10172022	Phenanthrene	12	U	--	--	--
SIB-004-OHW-0-1-10172022	Pyrene	21	U	--	--	--
SIB-005-TOB-0-1-10172022	bis(2-Ethylhexyl)phthalate	280	U	--	--	--
SIB-005-OHW-0-1-10172022	Fluoranthene	36	U	--	--	--
SIB-005-OHW-0-1-10172022	Phenanthrene	17	U	--	--	--
SIB-005-MLW-0-1-10172022	Benzo(a)anthracene	5.5	U	--	J	--
SIB-005-MLW-0-1-10172022	Benzo(b)fluoranthene	6.9	U	--	J	--
SIB-005-MLW-0-1-10172022	Benzo(g,h,i)perylene	3.6	U	--	J	--
SIB-005-MLW-0-1-10172022	Chrysene	5.4	U	--	J	--
SIB-005-MLW-0-1-10172022	Fluoranthene	9.3	U	--	--	--
SIB-005-MLW-0-1-10172022	Phenanthrene	5.1	U	--	J	--
SIB-005-MLW-0-1-10172022	Pyrene	10	U	--	--	--

Sample	Analyte	Validated Result	Validated Qualifier	Modified Validated Qualifier	Modified Interpreted Qualifier	Modified Final Reason Code
SIB-006-TOB-0-1-10172022	bis(2-Ethylhexyl)phthalate	2900	UJ	J	J	SSH

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.