

Appendix B. Analytical QC Tables

Hobbs, W., K. Bailey, J. Protasio and C. Frans. 2024. Guidance for the WDOE NWTPH-Dx Method for Testing Groundwater: Silica Gel Cleanup Protocol Revision. Publication 24-03-001. Washington State Department of Ecology, Olympia.

<https://apps.ecology.wa.gov/publications/SummaryPages/2403001.html>.

Table B-1. Quality control samples for the MEL NWTPH-Dx analysis. Pass/Fail is based on the comparison with project MQOs.

Sample ID	QC type	Analyte	Result	Qualifier	Units	RPD	Pass/Fail	Notes
B22H216-BLK1	Method Blank	#2 Diesel	0.15	U	mg/L	N/A	pass	—
B22H216-BLK1	Method Blank	Lube Oil	0.38	U	mg/L	N/A	pass	—
B22H216-BLK1	Method Blank	Pentacosane	84	—	%	N/A	pass	—
B22H216-BS1	LCS	#2 Diesel	82	—	%	N/A	pass	—
B22H216-BS1	LCS	Pentacosane	113	—	%	N/A	pass	—
B22H216-BSD1	LCS Duplicate	#2 Diesel	88	—	%	N/A	pass	—
B22H216-BSD1	LCS Duplicate	Pentacosane	126	—	%	N/A	pass	—
B22C089-BLK1	Method Blank	Lube Oil	0.26	J	mg/L	N/A	pass	—
B22C089-BLK1	Method Blank	Pentacosane	123	—	%	N/A	pass	—
B22C089-BLK1	Method Blank	#2 Diesel	0.12	J	mg/L	N/A	pass	—
B22C089-BLK1	Method Blank	Decanoic acid	123	—	%	N/A	fail	uncleaned sample (expected fail)
B22C089-BLK2	Method Blank	#2 Diesel	0.09	J	mg/L	N/A	pass	—
B22C089-BLK2	Method Blank	Decanoic acid	23	—	%	N/A	fail	run using free-flowing SGC method (expected fail)
B22C089-BLK2	Method Blank	Lube Oil	0.12	J	mg/L	N/A	pass	—
B22C089-BLK2	Method Blank	Pentacosane	94	—	%	N/A	pass	—
B22C089-BLK3	Method Blank	Lube Oil	0.17	J	mg/L	N/A	pass	—
B22C089-BLK3	Method Blank	Pentacosane	96	—	%	N/A	pass	—
B22C089-BLK3	Method Blank	#2 Diesel	0.09	J	mg/L	N/A	pass	—
B22C089-BLK3	Method Blank	Decanoic acid	0	NAF	%	N/A	pass	—
B22C089-BLK4	Method Blank	#2 Diesel	0.13	J	mg/L	N/A	pass	—
B22C089-BLK4	Method Blank	Decanoic acid	0	NAF	%	N/A	pass	—
B22C089-BLK4	Method Blank	Lube Oil	0.17	J	mg/L	N/A	pass	—
B22C089-BLK4	Method Blank	Pentacosane	96	—	%	N/A	pass	—
B22C089-BS1	LCS	#2 Diesel	111	—	%	N/A	pass	—
B22C089-BS1	LCS	Decanoic acid	128	—	%	N/A	fail	uncleaned sample (expected fail)
B22C089-BS1	LCS	Pentacosane	115	—	%	N/A	pass	—
B22C089-BS2	LCS	#2 Diesel	96	—	%	N/A	pass	—
B22C089-BS2	LCS	Decanoic acid	17	—	%	N/A	fail	run using free-flowing SGC method (expected fail)
B22C089-BS2	LCS	Pentacosane	105	—	%	N/A	pass	—
B22C089-BS3	LCS	#2 Diesel	93	—	%	N/A	pass	—
B22C089-BS3	LCS	Decanoic acid	0	NAF	%	N/A	pass	—
B22C089-BS3	LCS	Pentacosane	101	—	%	N/A	pass	—

Sample ID	QC type	Analyte	Result	Qualifier	Units	RPD	Pass/Fail	Notes
B22C089-BS4	LCS	Decanoic acid	0	NAF	%	N/A	pass	—
B22C089-BS4	LCS	Pentacosane	97	—	%	N/A	pass	—
B22C089-BS4	LCS	#2 Diesel	93	—	%	N/A	pass	—
B22C089-BSD1	LCS Duplicate	#2 Diesel	105	—	%	6	pass	—
B22C089-BSD1	LCS Duplicate	Decanoic acid	121	—	%		fail	uncleaned sample (expected fail)
B22C089-BSD1	LCS Duplicate	Pentacosane	109	—	%	N/A	pass	—
B22C089-BSD2	LCS Duplicate	Pentacosane	96	—	%	N/A	pass	—
B22C089-BSD2	LCS Duplicate	Decanoic acid	18	—	%	N/A	fail	run using free-flowing SGC method (expected fail)
B22C089-BSD2	LCS Duplicate	#2 Diesel	87	—	%	10	pass	—
B22C089-BSD3	LCS Duplicate	#2 Diesel	93	—	%	0.04	pass	—
B22C089-BSD3	LCS Duplicate	Decanoic acid	0	NAF	%	N/A	pass	—
B22C089-BSD3	LCS Duplicate	Pentacosane	102	—	%	N/A	pass	—
B22C089-BSD4	LCS Duplicate	Pentacosane	95	—	%	N/A	pass	—
B22C089-BSD4	LCS Duplicate	Decanoic acid	0	NAF	%	N/A	pass	—
B22C089-BSD4	LCS Duplicate	#2 Diesel	93	—	%	0.08	pass	—

QC = quality control; MQO = measurement quality objectives; N/A = not applicable; RPD = relative percent difference; Qualifiers: U = analyte not detected at or above the reported sample quantitation limit, J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, NAF = not analyzed for.

Table B-2. Quality control samples for the MEL-analyzed supplemental parameters. Pass/Fail is based on the comparison with project MQOs.

Sample ID	Analyte	Result	Units	Qualifier	Method	RPD	QC type	Pass/Fail
B22C086-BLK1	Calcium	0.05	mg/L	U	EPA200.7	N/A	method blank	pass
B22C086-BLK1	Potassium	0.5	mg/L	U	EPA200.7	N/A	method blank	pass
B22C086-BLK1	Magnesium	0.05	mg/L	U	EPA200.7	N/A	method blank	pass
B22C086-BLK1	Sodium	0.05	mg/L	U	EPA200.7	N/A	method blank	pass
B22C084-BLK1	Chromium	0.1	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK1	Cadmium	0.02	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK1	Silver	0.02	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK1	Arsenic	0.1	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK1	Beryllium	0.1	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK1	Copper	0.1	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK1	Nickel	0.1	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK1	Lead	0.02	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK1	Antimony	0.2	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK1	Selenium	0.1	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK1	Thallium	0.1	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK1	Zinc	1	ug/L	U	EPA200.8	N/A	method blank	pass
B22C036-BLK1	Bromide	0.025	mg/L	U	EPA300.0	N/A	method blank	pass
B22C036-BLK1	Chloride	0.1	mg/L	U	EPA300.0	N/A	method blank	pass
B22C036-BLK1	Fluoride	0.1	mg/L	U	EPA300.0	N/A	method blank	pass
B22C036-BLK1	Sulfate	0.3	mg/L	U	EPA300.0	N/A	method blank	pass
B22C065-BLK1	Benzene, 1,4-dibromo-2-methyl-	100	%	—	NWTPH-GX	N/A	method blank	pass
B22C065-BLK1	1,4-Difluorobenzene	100	%	—	NWTPH-GX	N/A	method blank	pass
B22C065-BLK1	Gasoline	0.07	mg/L	U	NWTPH-GX	N/A	method blank	pass
B22C086-BLK1	Hardness as CaCO3	0.3	mg/L	U	SM2340B	N/A	method blank	pass
B22C052-BLK1	Ammonia	0.01	mg/L	U	SM4500NH3H	N/A	method blank	pass
B22C052-BLK1	Nitrate-Nitrite as N	0.01	mg/L	U	SM4500NO3I	N/A	method blank	pass
B22C091-BLK1	Dissolved Organic Carbon	0.5	mg/L	U	SM5310B	N/A	method blank	pass
B22C070-BLK1	Toluene	1	ug/L	U	SW8021B	N/A	method blank	pass
B22C070-BLK1	1,4-Difluorobenzene	105	%	—	SW8021B	N/A	method blank	pass
B22C070-BLK1	Benzene	1	ug/L	U	SW8021B	N/A	method blank	pass
B22C070-BLK1	Benzene, 1,4-dibromo-2-methyl-	103	%	—	SW8021B	N/A	method blank	pass

Sample ID	Analyte	Result	Units	Qualifier	Method	RPD	QC type	Pass/Fail
B22C070-BLK1	Ethylbenzene	1	ug/L	U	SW8021B	N/A	method blank	pass
B22C070-BLK1	m,p-Xylene	2	ug/L	U	SW8021B	N/A	method blank	pass
B22C070-BLK1	o-Xylene	1	ug/L	U	SW8021B	N/A	method blank	pass
B22C074-BLK1	Terphenyl-D14	114	%	—	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Retene	0.05	ug/L	U	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Pyrene-D10	110	%	—	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Pyrene	0.05	ug/L	U	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Phenanthrene	0.05	ug/L	U	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Benzo(k)fluoranthene	0.05	ug/L	U	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Carbazole	0.05	ug/L	U	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Chrysene	0.05	ug/L	U	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Dibenzo(a,h)anthracene	0.05	ug/L	U	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Dibenzofuran	0.05	ug/L	U	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Fluoranthene	0.05	ug/L	U	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Fluorene	0.05	ug/L	U	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Fluorene-D10	88	%	—	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Indeno(1,2,3-cd)pyrene	0.05	ug/L	U	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Anthracene-D10	89	%	—	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Benz[a]anthracene	0.05	ug/L	U	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Benzo(a)pyrene	0.05	ug/L	U	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Benzo(a)pyrene-D12	101	%	—	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Benzo(b)fluoranthene	0.05	ug/L	U	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Benzo(ghi)perylene	0.05	ug/L	U	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Naphthalene	0.0149	ug/L	J	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	1-Methylnaphthalene	0.0028	ug/L	J	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	2-Chloronaphthalene	0.05	ug/L	U	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	2-Fluorobiphenyl	96	%	—	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	2-Methylnaphthalene	0.0044	ug/L	J	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Acenaphthene	0.05	ug/L	U	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Acenaphthylene	0.05	ug/L	U	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Acenaphthylene-D8	85	%	—	SW8270ESIM	N/A	method blank	pass
B22C074-BLK1	Anthracene	0.05	ug/L	U	SW8270ESIM	NA	method blank	pass
B22C084-BLK2	Selenium	0.1	ug/L	U	EPA200.8	N/A	method blank	pass

Sample ID	Analyte	Result	Units	Qualifier	Method	RPD	QC type	Pass/Fail
B22C084-BLK3	Selenium	0.1	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK4	Selenium	0.1	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK5	Selenium	0.1	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK6	Selenium	0.1	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK7	Antimony	0.2	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK7	Selenium	0.1	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK7	Thallium	0.1	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK7	Beryllium	0.1	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK8	Beryllium	0.1	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK8	Antimony	0.2	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK8	Selenium	0.1	ug/L	U	EPA200.8	N/A	method blank	pass
B22C084-BLK8	Thallium	0.1	ug/L	U	EPA200.8	N/A	method blank	pass
B22C091-BS1	Dissolved Organic Carbon	97	%	—	SM5310B	N/A	LCS	pass
B22C086-BS1	Magnesium	105	%	—	EPA200.7	N/A	LCS	pass
B22C086-BS1	Sodium	103	%	—	EPA200.7	N/A	LCS	pass
B22C086-BS1	Calcium	103	%	—	EPA200.7	N/A	LCS	pass
B22C086-BS1	Potassium	103	%	—	EPA200.7	N/A	LCS	pass
B22C084-BS1	Lead	99	%	—	EPA200.8	N/A	LCS	pass
B22C084-BS1	Antimony	95	%	—	EPA200.8	N/A	LCS	pass
B22C084-BS1	Selenium	100	%	—	EPA200.8	N/A	LCS	pass
B22C084-BS1	Thallium	102	%	—	EPA200.8	N/A	LCS	pass
B22C084-BS1	Copper	100	%	—	EPA200.8	N/A	LCS	pass
B22C084-BS1	Nickel	99	%	—	EPA200.8	N/A	LCS	pass
B22C084-BS1	Silver	101	%	—	EPA200.8	N/A	LCS	pass
B22C084-BS1	Arsenic	95	%	—	EPA200.8	N/A	LCS	pass
B22C084-BS1	Beryllium	98	%	—	EPA200.8	N/A	LCS	pass
B22C084-BS1	Cadmium	99	%	—	EPA200.8	N/A	LCS	pass
B22C084-BS1	Chromium	99	%	—	EPA200.8	N/A	LCS	pass
B22C084-BS1	Zinc	99	%	—	EPA200.8	N/A	LCS	pass
B22C036-BS1	Sulfate	99	%	—	EPA300.0	N/A	LCS	pass
B22C036-BS1	Fluoride	99	%	—	EPA300.0	N/A	LCS	pass
B22C036-BS1	Chloride	105	%	—	EPA300.0	N/A	LCS	pass
B22C036-BS1	Bromide	101	%	—	EPA300.0	N/A	LCS	pass

Sample ID	Analyte	Result	Units	Qualifier	Method	RPD	QC type	Pass/Fail
B22C065-BS1	1,4-Difluorobenzene	104	%	—	NWTPH-GX	N/A	LCS	pass
B22C065-BS1	Benzene, 1,4-dibromo-2-methyl-	107	%	—	NWTPH-GX	N/A	LCS	pass
B22C065-BS1	Gasoline	93	%	—	NWTPH-GX	N/A	LCS	pass
B22C086-BS1	Hardness as CaCO3	104	%	—	SM2340B	N/A	LCS	pass
B22C052-BS1	Nitrate-Nitrite as N	98	%	—	SM4500NO3I	N/A	LCS	pass
B22C070-BS1	1,4-Difluorobenzene	100	%	—	SW8021B	N/A	LCS	pass
B22C070-BS1	Benzene	111	%	—	SW8021B	N/A	LCS	pass
B22C070-BS1	Benzene, 1,4-dibromo-2-methyl-	96	%	—	SW8021B	N/A	LCS	pass
B22C070-BS1	Ethylbenzene	110	%	—	SW8021B	N/A	LCS	pass
B22C070-BS1	m,p-Xylene	110	%	—	SW8021B	N/A	LCS	pass
B22C070-BS1	o-Xylene	111	%	—	SW8021B	N/A	LCS	pass
B22C070-BS1	Toluene	110	%	—	SW8021B	N/A	LCS	pass
B22C074-BS1	AceN/Aphthylene	90	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Acenaphthene	85	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	2-Methylnaphthalene	97	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	2-Fluorobiphenyl	87	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	2-Chloronaphthalene	98	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	1-Methylnaphthalene	97	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Carbazole	108	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Chrysene	91	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Dibenzo(a,h)anthracene	90	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Acenaphthylene-D8	85	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Anthracene	87	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Anthracene-D10	81	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Benz[a]anthracene	104	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Benzo(a)pyrene	78	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Benzo(a)pyrene-D12	90	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Benzo(b)fluoranthene	93	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Benzo(ghi)perylene	79	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Benzo(k)fluoranthene	92	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Retene	119	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Terphenyl-D14	107	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Naphthalene	97	%	—	SW8270ESIM	N/A	LCS	pass

Sample ID	Analyte	Result	Units	Qualifier	Method	RPD	QC type	Pass/Fail
B22C074-BS1	Phenanthrene	96	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Pyrene	107	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Pyrene-D10	103	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Dibenzofuran	97	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Fluoranthene	107	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Fluorene	86	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Fluorene-D10	86	%	—	SW8270ESIM	N/A	LCS	pass
B22C074-BS1	Indeno(1,2,3-cd)pyrene	95	%	—	SW8270ESIM	N/A	LCS	pass
B22C052-BS2	Ammonia	104	%	—	SM4500NH3H	N/A	LCS	pass
B22C074-BSD1	Fluoranthene	108	%	—	SW8270ESIM	1	LCS Duplicate	pass
B22C074-BSD1	Fluorene	86	%	—	SW8270ESIM	0.4	LCS Duplicate	pass
B22C074-BSD1	Fluorene-D10	90	%	—	SW8270ESIM	N/A	LCS Duplicate	pass
B22C074-BSD1	Indeno(1,2,3-cd)pyrene	92	%	—	SW8270ESIM	3	LCS Duplicate	pass
B22C074-BSD1	Naphthalene	99	%	—	SW8270ESIM	2	LCS Duplicate	pass
B22C084-BSD1	Lead	99	%	—	EPA200.8	0.3	LCS Duplicate	pass
B22C084-BSD1	Antimony	97	%	—	EPA200.8	2	LCS Duplicate	pass
B22C084-BSD1	Selenium	99	%	—	EPA200.8	0.1	LCS Duplicate	pass
B22C084-BSD1	Thallium	103	%	—	EPA200.8	0.7	LCS Duplicate	pass
B22C084-BSD1	Zinc	100	%	—	EPA200.8	0.5	LCS Duplicate	pass
B22C074-BSD1	Phenanthrene	97	%	—	SW8270ESIM	2	LCS Duplicate	pass
B22C074-BSD1	Pyrene	107	%	—	SW8270ESIM	0.3	LCS Duplicate	pass
B22C074-BSD1	Pyrene-D10	110	%	—	SW8270ESIM	N/A	LCS Duplicate	pass
B22C074-BSD1	Retene	120	%	—	SW8270ESIM	0.3	LCS Duplicate	pass
B22C074-BSD1	Terphenyl-D14	113	%	—	SW8270ESIM	N/A	LCS Duplicate	pass
B22C086-BSD1	Sodium	101	%	—	EPA200.7	2	LCS Duplicate	pass
B22C086-BSD1	Hardness as CaCO3	103	%	—	SM2340B	0.7	LCS Duplicate	pass
B22C074-BSD1	Acenaphthene	86	%	—	SW8270ESIM	0.8	LCS Duplicate	pass
B22C074-BSD1	Acenaphthylene	90	%	—	SW8270ESIM	0.2	LCS Duplicate	pass
B22C074-BSD1	Acenaphthylene-D8	89	%	—	SW8270ESIM	N/A	LCS Duplicate	pass
B22C074-BSD1	Anthracene	87	%	—	SW8270ESIM	0.2	LCS Duplicate	pass
B22C074-BSD1	Anthracene-D10	83	%	—	SW8270ESIM	N/A	LCS Duplicate	pass
B22C074-BSD1	Benz[a]anthracene	101	%	—	SW8270ESIM	2	LCS Duplicate	pass
B22C074-BSD1	Benzo(a)pyrene	74	%	—	SW8270ESIM	6	LCS Duplicate	pass

Sample ID	Analyte	Result	Units	Qualifier	Method	RPD	QC type	Pass/Fail
B22C074-BSD1	Benzo(a)pyrene-D12	94	%	—	SW8270ESIM	N/A	LCS Duplicate	pass
B22C074-BSD1	Benzo(b)fluoranthene	94	%	—	SW8270ESIM	1	LCS Duplicate	pass
B22C074-BSD1	Benzo(ghi)perylene	78	%	—	SW8270ESIM	1	LCS Duplicate	pass
B22C074-BSD1	Benzo(k)fluoranthene	92	%	—	SW8270ESIM	0.3	LCS Duplicate	pass
B22C074-BSD1	Carbazole	109	%	—	SW8270ESIM	1	LCS Duplicate	pass
B22C074-BSD1	Chrysene	94	%	—	SW8270ESIM	3	LCS Duplicate	pass
B22C074-BSD1	Dibenzo(a,h)anthracene	89	%	—	SW8270ESIM	0.6	LCS Duplicate	pass
B22C074-BSD1	Dibenzofuran	97	%	—	SW8270ESIM	0.03	LCS Duplicate	pass
B22C086-BSD1	Calcium	103	%	—	EPA200.7	0.2	LCS Duplicate	pass
B22C086-BSD1	Potassium	103	%	—	EPA200.7	0.2	LCS Duplicate	pass
B22C086-BSD1	Magnesium	104	%	—	EPA200.7	1	LCS Duplicate	pass
B22C065-BSD1	Benzene, 1,4-dibromo-2-methyl-	107	%	—	NWTPH-GX	N/A	LCS Duplicate	pass
B22C065-BSD1	Gasoline	100	%	—	NWTPH-GX	7	LCS Duplicate	pass
B22C070-BSD1	m,p-Xylene	114	%	—	SW8021B	4	LCS Duplicate	pass
B22C070-BSD1	o-Xylene	115	%	—	SW8021B	3	LCS Duplicate	pass
B22C070-BSD1	Toluene	113	%	—	SW8021B	3	LCS Duplicate	pass
B22C074-BSD1	1-Methylnaphthalene	99	%	—	SW8270ESIM	2	LCS Duplicate	pass
B22C074-BSD1	2-Chloronaphthalene	99	%	—	SW8270ESIM	2	LCS Duplicate	pass
B22C074-BSD1	2-Fluorobiphenyl	92	%	—	SW8270ESIM	N/A	LCS Duplicate	pass
B22C074-BSD1	2-Methylnaphthalene	99	%	—	SW8270ESIM	2	LCS Duplicate	pass
B22C065-BSD1	1,4-Difluorobenzene	110	%	—	NWTPH-GX	N/A	LCS Duplicate	pass
B22C070-BSD1	1,4-Difluorobenzene	100	%	—	SW8021B	N/A	LCS Duplicate	pass
B22C070-BSD1	Benzene	115	%	—	SW8021B	3	LCS Duplicate	pass
B22C070-BSD1	Benzene, 1,4-dibromo-2-methyl-	98	%	—	SW8021B	N/A	LCS Duplicate	pass
B22C070-BSD1	Ethylbenzene	113	%	—	SW8021B	3	LCS Duplicate	pass
B22C084-BSD1	Silver	102	%	—	EPA200.8	0.9	LCS Duplicate	pass
B22C084-BSD1	Arsenic	96	%	—	EPA200.8	0.5	LCS Duplicate	pass
B22C084-BSD1	Beryllium	99	%	—	EPA200.8	0.8	LCS Duplicate	pass
B22C084-BSD1	Cadmium	99	%	—	EPA200.8	0.003	LCS Duplicate	pass
B22C084-BSD1	Chromium	99	%	—	EPA200.8	0.7	LCS Duplicate	pass
B22C084-BSD1	Copper	100	%	—	EPA200.8	0.04	LCS Duplicate	pass
B22C084-BSD1	Nickel	100	%	—	EPA200.8	0.5	LCS Duplicate	pass
B22C091-DUP1	Dissolved Organic Carbon	1.21	mg/L	—	SM5310B	2	Lab Duplicate	pass

Sample ID	Analyte	Result	Units	Qualifier	Method	RPD	QC type	Pass/Fail
B22C036-DUP1	Sulfate	0.884	mg/L	—	EPA300.0	0.5	Lab Duplicate	pass
B22C036-DUP1	Fluoride	0.1	mg/L	U	EPA300.0	NC	Lab Duplicate	pass
B22C036-DUP1	Chloride	0.481	mg/L	—	EPA300.0	2	Lab Duplicate	pass
B22C036-DUP1	Bromide	0.025	mg/L	U	EPA300.0	NC	Lab Duplicate	pass
B22C052-DUP1	Ammonia	0.01	mg/L	U	SM4500NH3H	NC	Lab Duplicate	pass
B22C052-DUP1	Nitrate-Nitrite as N	0.095	mg/L	—	SM4500NO3I	0.7	Lab Duplicate	pass
B22C084-MRL1	Selenium	0.022	ug/L	U	EPA200.8	NC	MRL1	pass
B22C084-MRL2	Selenium	0.019	ug/L	U	EPA200.8	NC	MRL2	pass
B22C084-MRL3	Selenium	0.021	ug/L	U	EPA200.8	NC	MRL3	pass
B22C084-MRL4	Selenium	0.022	ug/L	U	EPA200.8	NC	MRL4	pass
B22C084-MRL5	Selenium	0.02	ug/L	U	EPA200.8	NC	MRL5	pass
B22C084-MRL6	Selenium	0.021	ug/L	U	EPA200.8	NC	MRL6	pass
B22C084-MRL7	Thallium	0.023	ug/L	U	EPA200.8	NC	MRL7	pass
B22C084-MRL7	Selenium	0.022	ug/L	U	EPA200.8	NC	MRL7	pass
B22C084-MRL7	Antimony	0.035	ug/L	U	EPA200.8	NC	MRL7	pass
B22C084-MRL7	Beryllium	0.021	ug/L	U	EPA200.8	NC	MRL7	pass
B22C084-MRL8	Beryllium	0.022	ug/L	U	EPA200.8	NC	MRL8	pass
B22C084-MRL8	Antimony	0.029	ug/L	U	EPA200.8	NC	MRL8	pass
B22C084-MRL8	Selenium	0.02	ug/L	U	EPA200.8	NC	MRL8	pass
B22C084-MRL8	Thallium	0.019	ug/L	U	EPA200.8	NC	MRL8	pass
B22C091-MS1	Dissolved Organic Carbon	94	%	—	SM5310B	N/A	Matrix Spike	pass
B22C036-MS1	Sulfate	106	%	—	EPA300.0	N/A	Matrix Spike	pass
B22C036-MS1	Fluoride	100	%	—	EPA300.0	N/A	Matrix Spike	pass
B22C036-MS1	Chloride	108	%	—	EPA300.0	N/A	Matrix Spike	pass
B22C036-MS1	Bromide	106	%	—	EPA300.0	N/A	Matrix Spike	pass
B22C084-MS1	Silver	97	%	—	EPA200.8	N/A	Matrix Spike	pass
B22C084-MS1	Antimony	104	%	—	EPA200.8	N/A	Matrix Spike	pass
B22C084-MS1	Selenium	104	%	—	EPA200.8	N/A	Matrix Spike	pass
B22C084-MS1	Thallium	110	%	—	EPA200.8	N/A	Matrix Spike	pass
B22C084-MS1	Zinc	98	%	—	EPA200.8	N/A	Matrix Spike	pass
B22C086-MS1	Magnesium	93	%	—	EPA200.7	N/A	Matrix Spike	pass
B22C086-MS1	Sodium	0	%	—	EPA200.7	N/A	Matrix Spike	pass
B22C086-MS1	Calcium	30	%	—	EPA200.7	N/A	Matrix Spike	pass

Sample ID	Analyte	Result	Units	Qualifier	Method	RPD	QC type	Pass/Fail
B22C086-MS1	Potassium	99	%	—	EPA200.7	N/A	Matrix Spike	pass
B22C084-MS1	Nickel	95	%	—	EPA200.8	N/A	Matrix Spike	pass
B22C084-MS1	Lead	106	%	—	EPA200.8	N/A	Matrix Spike	pass
B22C084-MS1	Cadmium	100	%	—	EPA200.8	N/A	Matrix Spike	pass
B22C084-MS1	Chromium	101	%	—	EPA200.8	N/A	Matrix Spike	pass
B22C084-MS1	Copper	93	%	—	EPA200.8	N/A	Matrix Spike	pass
B22C086-MS1	Hardness as CaCO3	69	%	—	SM2340B	N/A	Matrix Spike	pass
B22C052-MS1	Nitrate-Nitrite as N	93	%	—	SM4500NO3I	N/A	Matrix Spike	pass
B22C084-MS1	Arsenic	102	%	—	EPA200.8	N/A	Matrix Spike	pass
B22C084-MS1	Beryllium	103	%	—	EPA200.8	N/A	Matrix Spike	pass
B22C052-MS2	Ammonia	100	%	—	SM4500NH3H	N/A	Matrix Spike	pass
B22C084-MSD1	Arsenic	102	%	—	EPA200.8	0.08	Matrix Spike Duplicate	pass
B22C084-MSD1	Beryllium	103	%	—	EPA200.8	0.7	Matrix Spike Duplicate	pass
B22C084-MSD1	Thallium	112	%	—	EPA200.8	1	Matrix Spike Duplicate	pass
B22C084-MSD1	Zinc	99	%	—	EPA200.8	1	Matrix Spike Duplicate	pass
B22C084-MSD1	Silver	98	%	—	EPA200.8	1	Matrix Spike Duplicate	pass
B22C084-MSD1	Cadmium	102	%	—	EPA200.8	2	Matrix Spike Duplicate	pass
B22C084-MSD1	Chromium	102	%	—	EPA200.8	0.7	Matrix Spike Duplicate	pass
B22C084-MSD1	Copper	94	%	—	EPA200.8	0.3	Matrix Spike Duplicate	pass
B22C086-MSD1	Calcium	32	%	—	EPA200.7	0.1	Matrix Spike Duplicate	pass
B22C086-MSD1	Potassium	99	%	—	EPA200.7	0	Matrix Spike Duplicate	pass
B22C086-MSD1	Magnesium	93	%	—	EPA200.7	0	Matrix Spike Duplicate	pass
B22C084-MSD1	Nickel	95	%	—	EPA200.8	0.09	Matrix Spike Duplicate	pass
B22C084-MSD1	Lead	108	%	—	EPA200.8	2	Matrix Spike Duplicate	pass
B22C084-MSD1	Antimony	107	%	—	EPA200.8	3	Matrix Spike Duplicate	pass
B22C084-MSD1	Selenium	105	%	—	EPA200.8	0.8	Matrix Spike Duplicate	pass
B22C086-MSD1	Sodium	0	%	—	EPA200.7	0.2	Matrix Spike Duplicate	pass
B22C086-MSD1	Hardness as CaCO3	70	%	—	SM2340B	0.09	Matrix Spike Duplicate	pass

QC = quality control; MQO = measurement quality objectives; N/A = not applicable; NC = not calculated; RPD = relative percent difference. Qualifiers: U = analyte not detected at or above the reported sample quantitation limit, J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

Table B-3. Quality control samples for the contract lab-analyzed supplemental parameters. Pass/Fail is based on the comparison with project MQOs.

ARI ID	Client ID	Compound	Value	Qualifier	Units	Pass/Fail	Notes
22C0156-01	2203054-1 (DW3)	1-Chloro-octadecane	57.3	—	%	fail	result qualified UJ
22C0156-01	2203054-1 (DW3)	o-Terphenyl	79.7	—	%	pass	—
22C0156-01	2203054-1 (DW3)	FID: 2,5-Dibromotoluene	84.5	—	%	pass	—
22C0156-01	2203054-1 (DW3)	PID: 2,5-Dibromotoluene	81.2	—	%	pass	—
22C0156-02	2203054-2 (DW3 rep)	1-Chloro-octadecane	62.7	—	%	fail	result qualified UJ
22C0156-02	2203054-2 (DW3 rep)	o-Terphenyl	80.3	—	%	pass	—
22C0156-02	2203054-2 (DW3 rep)	FID: 2,5-Dibromotoluene	90.2	—	%	pass	—
22C0156-02	2203054-2 (DW3 rep)	PID: 2,5-Dibromotoluene	82.4	—	%	pass	—
BKC0332-DUP1	2203054-1 (DW3)	Sulfide	0.050	U	mg/L	pass	—
BKC0332-MS1	2203054-1 (DW3)	Sulfide	0.514	—	mg/L	pass	—
BKC0297-BLK1	Blank	>C10-C12 Aliphatics	40	U	ug/L	pass	—
BKC0297-BLK1	Blank	>C12-C16 Aliphatics	40	U	ug/L	pass	—
BKC0297-BLK1	Blank	>C16-C21 Aliphatics	40	U	ug/L	pass	—
BKC0297-BLK1	Blank	>C21-C34 Aliphatics	40	U	ug/L	pass	—
BKC0297-BLK1	Blank	1-Chloro-octadecane	61.0	—	%	fail	result qualified UJ
BKC0297-BLK1	Blank	C8-C10 Aliphatics	40	U	ug/L	pass	—
BKC0297-BLK2	Blank	>C10-C12 Aromatics	40	U	ug/L	pass	—
BKC0297-BLK2	Blank	>C12-C16 Aromatics	40	U	ug/L	pass	—
BKC0297-BLK2	Blank	>C16-C21 Aromatics	40	U	ug/L	pass	—
BKC0297-BLK2	Blank	>C21-C34 Aromatics	40	U	ug/L	pass	—
BKC0297-BLK2	Blank	C8-C10 Aromatics	40	U	ug/L	pass	—
BKC0297-BLK2	Blank	o-Terphenyl	74.3	—	%	pass	—
BKC0297-BS1	LCS	>C10-C12 Aliphatics	151	—	ug/L	pass	—
BKC0297-BS1	LCS	>C12-C16 Aliphatics	203	—	ug/L	pass	—
BKC0297-BS1	LCS	>C16-C21 Aliphatics	256	—	ug/L	pass	—
BKC0297-BS1	LCS	>C21-C34 Aliphatics	254	—	ug/L	pass	—

ARI ID	Client ID	Compound	Value	Qualifier	Units	Pass/Fail	Notes
BKC0297-BS1	LCS	1-Chloro-octadecane	65.5	—	%	fail	result qualified UJ
BKC0297-BS1	LCS	C8-C10 Aliphatics	118	—	ug/L	pass	—
BKC0297-BS2	LCS	>C10-C12 Aromatics	156	—	ug/L	pass	—
BKC0297-BS2	LCS	>C12-C16 Aromatics	172	—	ug/L	pass	—
BKC0297-BS2	LCS	>C16-C21 Aromatics	537	—	ug/L	pass	—
BKC0297-BS2	LCS	>C21-C34 Aromatics	245	—	ug/L	pass	—
BKC0297-BS2	LCS	o-Terphenyl	75.9	—	%	pass	—
BKC0297-BSD1	LCS Dup	>C10-C12 Aliphatics	146	—	ug/L	pass	—
BKC0297-BSD1	LCS Dup	>C12-C16 Aliphatics	208	—	ug/L	pass	—
BKC0297-BSD1	LCS Dup	>C16-C21 Aliphatics	259	—	ug/L	pass	—
BKC0297-BSD1	LCS Dup	>C21-C34 Aliphatics	259	—	ug/L	pass	—
BKC0297-BSD1	LCS Dup	1-Chloro-octadecane	66.7	—	%	fail	result qualified UJ
BKC0297-BSD1	LCS Dup	C8-C10 Aliphatics	124	—	ug/L	pass	—
BKC0297-BSD2	LCS Dup	>C10-C12 Aromatics	159	—	ug/L	pass	—
BKC0297-BSD2	LCS Dup	>C12-C16 Aromatics	177	—	ug/L	pass	—
BKC0297-BSD2	LCS Dup	>C16-C21 Aromatics	574	—	ug/L	pass	—
BKC0297-BSD2	LCS Dup	>C21-C34 Aromatics	274	—	ug/L	pass	—
BKC0297-BSD2	LCS Dup	o-Terphenyl	80.5	—	%	pass	—
BKC0332-BLK1	Blank	Sulfide	0.050	U	mg/L	pass	—
BKC0332-BS1	LCS	Sulfide	0.495	—	mg/L	pass	—
BKC0419-BLK1	Blank	>C10-C12 Aliphatics	50	U	ug/L	pass	—
BKC0419-BLK1	Blank	>C10-C12 Aromatics	50	U	ug/L	pass	—
BKC0419-BLK1	Blank	>C12-C13 Aromatics	50	U	ug/L	pass	—
BKC0419-BLK1	Blank	>C6-C8 Aliphatics	50	U	ug/L	pass	—
BKC0419-BLK1	Blank	>C8-C10 Aliphatics	50	U	ug/L	pass	—
BKC0419-BLK1	Blank	1,2,3-Trimethylbenzene	5	U	ug/L	pass	—
BKC0419-BLK1	Blank	1-Methylnaphthalene	5	U	ug/L	pass	—
BKC0419-BLK1	Blank	Benzene	5	U	ug/L	pass	—

ARI ID	Client ID	Compound	Value	Qualifier	Units	Pass/Fail	Notes
BKC0419-BLK1	Blank	C5-C6 Aliphatics	50	U	ug/L	pass	—
BKC0419-BLK1	Blank	C8-C10 Aromatics	50	U	ug/L	pass	—
BKC0419-BLK1	Blank	Ethylbenzene	5	U	ug/L	pass	—
BKC0419-BLK1	Blank	FID: 2,5-Dibromotoluene	80.0	—	%	pass	—
BKC0419-BLK1	Blank	m,p-Xylene	10	U	ug/L	pass	—
BKC0419-BLK1	Blank	Methyl tert-butyl Ether	5	U	ug/L	pass	—
BKC0419-BLK1	Blank	Naphthalene	5	U	ug/L	pass	—
BKC0419-BLK1	Blank	n-Decane	5	U	ug/L	pass	—
BKC0419-BLK1	Blank	n-Dodecane	5	U	ug/L	pass	—
BKC0419-BLK1	Blank	n-Hexane	5	U	ug/L	pass	—
BKC0419-BLK1	Blank	n-Octane	5	U	ug/L	pass	—
BKC0419-BLK1	Blank	n-Pentane	5	U	ug/L	pass	—
BKC0419-BLK1	Blank	o-Xylene	5	U	ug/L	pass	—
BKC0419-BLK1	Blank	PID: 2,5-Dibromotoluene	77.3	—	%	pass	—
BKC0419-BLK1	Blank	Toluene	5	U	ug/L	pass	—
BKC0419-BS1	LCS	>C10-C12 Aliphatics	93.5	—	ug/L	pass	—
BKC0419-BS1	LCS	>C10-C12 Aromatics	59.8	—	ug/L	pass	—
BKC0419-BS1	LCS	>C12-C13 Aromatics	50	U	ug/L	pass	—
BKC0419-BS1	LCS	>C6-C8 Aliphatics	71.3	—	ug/L	pass	—
BKC0419-BS1	LCS	>C8-C10 Aliphatics	88.1	—	ug/L	pass	—
BKC0419-BS1	LCS	1,2,3-Trimethylbenzene	50.5	—	ug/L	pass	—
BKC0419-BS1	LCS	1-Methylnaphthalene	45.3	—	ug/L	pass	—
BKC0419-BS1	LCS	Benzene	58.3	—	ug/L	pass	—
BKC0419-BS1	LCS	C5-C6 Aliphatics	114	—	ug/L	pass	—
BKC0419-BS1	LCS	C8-C10 Aromatics	311	—	ug/L	pass	—
BKC0419-BS1	LCS	Ethylbenzene	45.1	—	ug/L	pass	—
BKC0419-BS1	LCS	FID: 2,5-Dibromotoluene	90.8	—	%	pass	—
BKC0419-BS1	LCS	m,p-Xylene	94.5	—	ug/L	pass	—

ARI ID	Client ID	Compound	Value	Qualifier	Units	Pass/Fail	Notes
BKC0419-BS1	LCS	Methyl tert-butyl Ether	55.6	—	ug/L	pass	—
BKC0419-BS1	LCS	Naphthalene	48.1	—	ug/L	pass	—
BKC0419-BS1	LCS	n-Decane	38.0	—	ug/L	pass	—
BKC0419-BS1	LCS	n-Dodecane	47.3	—	ug/L	pass	—
BKC0419-BS1	LCS	n-Hexane	53.7	—	ug/L	pass	—
BKC0419-BS1	LCS	n-Octane	39.3	—	ug/L	pass	—
BKC0419-BS1	LCS	n-Pentane	60.6	—	ug/L	pass	—
BKC0419-BS1	LCS	o-Xylene	49.4	—	ug/L	pass	—
BKC0419-BS1	LCS	PID: 2,5-Dibromotoluene	86.5	—	%	pass	—
BKC0419-BS1	LCS	Toluene	51.7	—	ug/L	pass	—
BKC0419-BSD1	LCS Dup	>C10-C12 Aliphatics	95.9	—	ug/L	pass	—
BKC0419-BSD1	LCS Dup	>C10-C12 Aromatics	62.6	—	ug/L	pass	—
BKC0419-BSD1	LCS Dup	>C12-C13 Aromatics	50	U	ug/L	pass	—
BKC0419-BSD1	LCS Dup	>C6-C8 Aliphatics	54.0	—	ug/L	pass	—
BKC0419-BSD1	LCS Dup	>C8-C10 Aliphatics	83.2	—	ug/L	pass	—
BKC0419-BSD1	LCS Dup	1,2,3-Trimethylbenzene	52.2	—	ug/L	pass	—
BKC0419-BSD1	LCS Dup	1-Methylnaphthalene	47.0	—	ug/L	pass	—
BKC0419-BSD1	LCS Dup	Benzene	58.1	—	ug/L	pass	—
BKC0419-BSD1	LCS Dup	C5-C6 Aliphatics	118	—	ug/L	pass	—
BKC0419-BSD1	LCS Dup	C8-C10 Aromatics	330	—	ug/L	pass	—
BKC0419-BSD1	LCS Dup	Ethylbenzene	48.1	—	ug/L	pass	—
BKC0419-BSD1	LCS Dup	FID: 2,5-Dibromotoluene	90.4	—	%	pass	—
BKC0419-BSD1	LCS Dup	m,p-Xylene	102	—	ug/L	pass	—
BKC0419-BSD1	LCS Dup	Methyl tert-butyl Ether	49.6	—	ug/L	pass	—
BKC0419-BSD1	LCS Dup	Naphthalene	50.1	—	ug/L	pass	—
BKC0419-BSD1	LCS Dup	n-Decane	39.5	—	ug/L	pass	—
BKC0419-BSD1	LCS Dup	n-Dodecane	51.4	—	ug/L	pass	—
BKC0419-BSD1	LCS Dup	n-Hexane	52.8	—	ug/L	pass	—

ARI ID	Client ID	Compound	Value	Qualifier	Units	Pass/Fail	Notes
BKC0419-BSD1	LCS Dup	n-Octane	39.1	—	ug/L	pass	—
BKC0419-BSD1	LCS Dup	n-Pentane	61.2	—	ug/L	pass	—
BKC0419-BSD1	LCS Dup	o-Xylene	52.3	—	ug/L	pass	—
BKC0419-BSD1	LCS Dup	PID: 2,5-Dibromotoluene	86.2	—	%	pass	—
BKC0419-BSD1	LCS Dup	Toluene	56.0	—	ug/L	pass	—
SKC0173-ICB1	Blank	Sulfide	0.001	—	mg/L	pass	—
SKC0173-ICV1	SRM	Sulfide	0.487	—	mg/L	pass	—

Qualifiers: U = analyte not detected at or above the reported sample quantitation limit, J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.