Appendix F

Laboratory Reporting Limits

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Table F−1. Reporting Limits for Monitoring Parameters, DOE LEHR

Parameter	Method Reference	Laboratory	Reporting Limit	MDL	Units
Aluminum	EPA 6020A	CalScience Environmental Lab	10.5	50	µg/L
Antimony	EPA 6020A	CalScience Environmental Lab	1	0.38	µg/L
Arsenic	EPA 6020A	CalScience Environmental Lab	1	0.589	µg/L
Barium	EPA 6020A	CalScience Environmental Lab	1	0.105	µg/L
Beryllium	EPA 6020A	CalScience Environmental Lab	1	0.131	µg/L
Cadmium	EPA 6020A	CalScience Environmental Lab	1	0.266	µg/L
Chromium, total	EPA 6020A	CalScience Environmental Lab	1	0.618	µg/L
Cobalt	EPA 6020A	CalScience Environmental Lab	1	0.14	µg/L
Copper	EPA 6020A	CalScience Environmental Lab	1	0.105	µg/L
Iron	EPA 6020A	CalScience Environmental Lab	100	6.67	µg/L
Lead	EPA 6020A	CalScience Environmental Lab	1	0.17	µg/L
Manganese	EPA 6020A	CalScience Environmental Lab	1	0.62	µg/L
Molybdenum	EPA 6020A	CalScience Environmental Lab	1	0.29	µg/L
Nickel	EPA 6020A	CalScience Environmental Lab	1	0.155	µg/L
Selenium	EPA 6020A	CalScience Environmental Lab	1	0.554	µg/L
Silver	EPA 6020A	CalScience Environmental Lab	1	0.12	µg/L
Thallium	EPA 6020A	CalScience Environmental Lab	1	0.498	µg/L
Vanadium	EPA 6020A	CalScience Environmental Lab	1	0.79	µg/L
Zinc	EPA 6020A	CalScience Environmental Lab	5	1.8	µg/L
Mercury	EPA 7470	CalScience Environmental Lab	0.2	0.0177	µg/L
Chromium, hexavalent	EPA 7199	CalScience Environmental Lab	1	0.12	µg/L
Americium-241	EML HASL 300	GEL Laboratories	1	1	pCi/L
Cesium-137	EPA 901.1	GEL Laboratories	5	5	pCi/L
Tritium	EPA 906.0	GEL Laboratories	220	220	pCi/L
Strontium-90	EPA 905.0	GEL Laboratories	1	1	pCi/L
Gross Alpha	EPA 900.0	GEL Laboratories	2	2	pCi/L
Gross Beta	EPA 900.0	GEL Laboratories	3	3	pCi/L
Carbon-14	EPA EERF C-01	GEL Laboratories	7	7	pCi/L
Radium-226	EPA 903.1	GEL Laboratories	1	1	pCi/L

Table F−1 (continued). Reporting Limits for Monitoring Parameters, DOE LEHR

Parameter	Method Reference	Laboratory	Reporting Limit	MDL	Units
Uranium-235	EPA 901.1	GEL Laboratories	1	1	pCi/L
Uranium-238	EPA 901.1	GEL Laboratories	1	1	pCi/L
Nitrate (as Nitrogen)	EPA 300.0	CalScience Environmental Lab	100	17	µg/L
Formaldehyde	EPA 8315	TestAmerica North Canton	50	21	µg/L
1,1,1,2-Tetrachloroethane	EPA 8260C	CalScience Environmental Lab	1	0.35	µg/L
1,1,1-Trichloroethane	EPA 8260C	CalScience Environmental Lab	1	0.45	µg/L
1,1,2,2-Tetrachloroethane	EPA 8260C	CalScience Environmental Lab	1	0.44	µg/L
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260C	CalScience Environmental Lab	10	0.64	µg/L
1,1,2-Trichloroethane	EPA 8260C	CalScience Environmental Lab	1	0.54	µg/L
1,1-Dichloroethane	EPA 8260C	CalScience Environmental Lab	1	0.37	µg/L
1,1-Dichloroethene	EPA 8260C	CalScience Environmental Lab	1	0.4	µg/L
1,1-Dichloropropene	EPA 8260C	CalScience Environmental Lab	1	0.26	µg/L
1,2,3-Trichlorobenzene	EPA 8260C	CalScience Environmental Lab	1	0.31	µg/L
1,2,3-Trichloropropane	EPA 8260C	CalScience Environmental Lab	5	1.3	µg/L
1,2,4-Trichlorobenzene	EPA 8260C	CalScience Environmental Lab	1	0.49	µg/L
1,2,4-Trimethylbenzene	EPA 8260C	CalScience Environmental Lab	1	0.24	µg/L
1,2-Dibromo-3-Chloropropane	EPA 8260C	CalScience Environmental Lab	5	3.1	µg/L
1,2-Dibromoethane	EPA 8260C	CalScience Environmental Lab	1	0.47	µg/L
1,2-Dichlorobenzene	EPA 8260C	CalScience Environmental Lab	1	0.27	µg/L
1,2-Dichloroethane	EPA 8260C	CalScience Environmental Lab	0.5	0.31	µg/L
1,2-Dichloropropane	EPA 8260C	CalScience Environmental Lab	1	0.38	µg/L
1,3,5-Trimethylbenzene	EPA 8260C	CalScience Environmental Lab	1	0.23	µg/L
1,3-Dichlorobenzene	EPA 8260C	CalScience Environmental Lab	1	0.28	µg/L
1,3-Dichloropropane	EPA 8260C	CalScience Environmental Lab	1	0.38	µg/L
1,4-Dichlorobenzene	EPA 8260C	CalScience Environmental Lab	1	0.21	µg/L
2,2-Dichloropropane	EPA 8260C	CalScience Environmental Lab	1	0.46	µg/L
2-Butanone	EPA 8260C	CalScience Environmental Lab	10	6.9	µg/L
2-Chlorotoluene	EPA 8260C	CalScience Environmental Lab	1	0.55	µg/L
2-Hexanone	EPA 8260C	CalScience Environmental Lab	10	6.9	µg/L

Table F−1 (continued). Reporting Limits for Monitoring Parameters, DOE LEHR

Parameter	Method Reference	Laboratory	Reporting Limit	MDL	Units
4-Chlorotoluene	EPA 8260C	CalScience Environmental Lab	1	0.21	µg/L
4-Methyl-2-Pentanone	EPA 8260C	CalScience Environmental Lab	10	4.4	µg/L
Acetone	EPA 8260C	CalScience Environmental Lab	50	20	µg/L
Benzene	EPA 8260C	CalScience Environmental Lab	0.5	0.28	µg/L
Bromobenzene	EPA 8260C	CalScience Environmental Lab	1	0.33	µg/L
Bromochloromethane	EPA 8260C	CalScience Environmental Lab	1	0.69	µg/L
Bromodichloromethane	EPA 8260C	CalScience Environmental Lab	1	0.33	µg/L
Bromoform	EPA 8260C	CalScience Environmental Lab	1	0.55	µg/L
Bromomethane	EPA 8260C	CalScience Environmental Lab	10	4.3	µg/L
c-1,2-Dichloroethene	EPA 8260C	CalScience Environmental Lab	1	0.49	µg/L
c-1,3-Dichloropropene	EPA 8260C	CalScience Environmental Lab	0.5	0.28	µg/L
Carbon Disulfide	EPA 8260C	CalScience Environmental Lab	10	1.9	µg/L
Carbon Tetrachloride	EPA 8260C	CalScience Environmental Lab	0.5	0.43	µg/L
Chlorobenzene	EPA 8260C	CalScience Environmental Lab	1	0.22	µg/L
Chloroethane	EPA 8260C	CalScience Environmental Lab	5	1.3	µg/L
Chloroform	EPA 8260C	CalScience Environmental Lab	1	0.33	µg/L
Chloromethane	EPA 8260C	CalScience Environmental Lab	10	0.49	µg/L
Dibromochloromethane	EPA 8260C	CalScience Environmental Lab	1	0.48	µg/L
Dibromomethane	EPA 8260C	CalScience Environmental Lab	1	0.59	µg/L
Dichlorodifluoromethane	EPA 8260C	CalScience Environmental Lab	1	0.49	µg/L
Ethylbenzene	EPA 8260C	CalScience Environmental Lab	1	0.22	µg/L
Isopropylbenzene	EPA 8260C	CalScience Environmental Lab	1	0.23	µg/L
Methylene Chloride	EPA 8260C	CalScience Environmental Lab	10	2.6	µg/L
Methyl-t-Butyl Ether (MTBE)	EPA 8260C	CalScience Environmental Lab	1	0.3	µg/L
Naphthalene	EPA 8260C	CalScience Environmental Lab	10	2.5	µg/L
n-Butylbenzene	EPA 8260C	CalScience Environmental Lab	1	0.28	µg/L
n-Propylbenzene	EPA 8260C	CalScience Environmental Lab	1	0.79	µg/L
o-Xylene	EPA 8260C	CalScience Environmental Lab	1	0.24	µg/L

Table F−1 (continued). Reporting Limits for Monitoring Parameters, DOE LEHR

Parameter	Method Reference	Laboratory	Reporting Limit	MDL	Units
p/m-Xylene	EPA 8260C	CalScience Environmental Lab	1	0.45	µg/L
p-Isopropyltoluene	EPA 8260C	CalScience Environmental Lab	1	0.26	µg/L
sec-Butylbenzene	EPA 8260C	CalScience Environmental Lab	1	0.2	µg/L
Styrene	EPA 8260C	CalScience Environmental Lab	1	0.3	µg/L
t-1,2-Dichloroethene	EPA 8260C	CalScience Environmental Lab	1	0.4	µg/L
t-1,3-Dichloropropene	EPA 8260C	CalScience Environmental Lab	0.5	0.36	µg/L
tert-Butylbenzene	EPA 8260C	CalScience Environmental Lab	1	0.28	µg/L
Tetrachloroethene	EPA 8260C	CalScience Environmental Lab	1	0.51	µg/L
Toluene	EPA 8260C	CalScience Environmental Lab	1	0.33	µg/L
Trichloroethene	EPA 8260C	CalScience Environmental Lab	1	0.3	µg/L
Trichlorofluoromethane	EPA 8260C	CalScience Environmental Lab	10	0.31	µg/L
Vinyl Acetate	EPA 8260C	CalScience Environmental Lab	10	7.1	µg/L
Vinyl Chloride	EPA 8260C	CalScience Environmental Lab	0.5	0.33	µg/L
1,2-Dichloroethane-d4	EPA 8260C	CalScience Environmental Lab	1	4.1	µg/L
1,4-Bromofluorobenzene	EPA 8260C	CalScience Environmental Lab	0	2.3	µg/L
Dibromofluoromethane	EPA 8260C	CalScience Environmental Lab	0.5	3	µg/L
Toluene-d8	EPA 8260C	CalScience Environmental Lab	0	5.8	µg/L
1,2,4-Trichlorobenzene	EPA 8270C	CalScience Environmental Lab	10	1.3	µg/L
1,2-Dichlorobenzene	EPA 8270C	CalScience Environmental Lab	10	1.1	µg/L
1,3-Dichlorobenzene	EPA 8270C	CalScience Environmental Lab	10	1.2	µg/L
1,4-Dichlorobenzene	EPA 8270C	CalScience Environmental Lab	10	1.1	µg/L
1-Methylnaphthalene	EPA 8270C	CalScience Environmental Lab	10	1.4	µg/L
2,4,5-Trichlorophenol	EPA 8270C	CalScience Environmental Lab	10	0.97	µg/L
2,4,6-Trichlorophenol	EPA 8270C	CalScience Environmental Lab	10	1.2	µg/L
2,4-Dichlorophenol	EPA 8270C	CalScience Environmental Lab	10	1.1	µg/L
2,4-Dimethylphenol	EPA 8270C	CalScience Environmental Lab	10	1.2	µg/L
2,4-Dinitrophenol	EPA 8270C	CalScience Environmental Lab	50	2.6	µg/L
2,4-Dinitrotoluene	EPA 8270C	CalScience Environmental Lab	10	1	µg/L
2,6-Dinitrotoluene	EPA 8270C	CalScience Environmental Lab	10	1.1	µg/L

Table F−1 (continued). Reporting Limits for Monitoring Parameters, DOE LEHR

Parameter	Method Reference	Laboratory	Reporting Limit	MDL	Units
2-Chloronaphthalene	EPA 8270C	CalScience Environmental Lab	10	1.3	µg/L
2-Chlorophenol	EPA 8270C	CalScience Environmental Lab	10	1	µg/L
2-Methylnaphthalene	EPA 8270C	CalScience Environmental Lab	10	1.2	µg/L
2-Methylphenol	EPA 8270C	CalScience Environmental Lab	10	1.1	µg/L
2-Nitroaniline	EPA 8270C	CalScience Environmental Lab	10	1	µg/L
2-Nitrophenol	EPA 8270C	CalScience Environmental Lab	10	1.2	µg/L
3,3'-Dichlorobenzidine	EPA 8270C	CalScience Environmental Lab	25	1.3	µg/L
3/4-Methylphenol	EPA 8270C	CalScience Environmental Lab	10	1	µg/L
3-Nitroaniline	EPA 8270C	CalScience Environmental Lab	10	1.2	µg/L
4,6-Dinitro-2-Methylphenol	EPA 8270C	CalScience Environmental Lab	50	3.4	µg/L
4-Bromophenyl-Phenyl Ether	EPA 8270C	CalScience Environmental Lab	10	1.2	µg/L
4-Chloro-3-Methylphenol	EPA 8270C	CalScience Environmental Lab	10	1.2	µg/L
4-Chloroaniline	EPA 8270C	CalScience Environmental Lab	10	1.3	µg/L
4-Chlorophenyl-Phenyl Ether	EPA 8270C	CalScience Environmental Lab	10	1.2	µg/L
4-Nitroaniline	EPA 8270C	CalScience Environmental Lab	10	2.4	µg/L
4-Nitrophenol	EPA 8270C	CalScience Environmental Lab	10	0.86	µg/L
Acenaphthene	EPA 8270C	CalScience Environmental Lab	10	1.4	µg/L
Acenaphthylene	EPA 8270C	CalScience Environmental Lab	10	1.4	µg/L
Aniline	EPA 8270C	CalScience Environmental Lab	10	1.2	µg/L
Anthracene	EPA 8270C	CalScience Environmental Lab	10	1.5	µg/L
Azobenzene	EPA 8270C	CalScience Environmental Lab	10	1.7	µg/L
Benzidine	EPA 8270C	CalScience Environmental Lab	50	0.62	µg/L
Benzo (a) Anthracene	EPA 8270C	CalScience Environmental Lab	10	1.1	µg/L
Benzo (a) Pyrene	EPA 8270C	CalScience Environmental Lab	10	0.88	µg/L
Benzo (b) Fluoranthene	EPA 8270C	CalScience Environmental Lab	10	1.2	µg/L
Benzo (g,h,i) Perylene	EPA 8270C	CalScience Environmental Lab	10	0.71	µg/L
Benzo (k) Fluoranthene	EPA 8270C	CalScience Environmental Lab	10	1.7	µg/L
Benzoic Acid	EPA 8270C	CalScience Environmental Lab	50	0.43	µg/L
Benzyl Alcohol	EPA 8270C	CalScience Environmental Lab	10	1	µg/L

Table F−1 (continued). Reporting Limits for Monitoring Parameters, DOE LEHR

Parameter	Method Reference	Laboratory	Reporting Limit	MDL	Units
Bis(2-Chloroethoxy) Methane	EPA 8270C	CalScience Environmental Lab	10	1.2	µg/L
Bis(2-Chloroethyl) Ether	EPA 8270C	CalScience Environmental Lab	25	1	µg/L
Bis(2-Chloroisopropyl) Ether	EPA 8270C	CalScience Environmental Lab	10	1.5	µg/L
Bis(2-Ethylhexyl) Phthalate	EPA 8270C	CalScience Environmental Lab	10	1	µg/L
Butyl Benzyl Phthalate	EPA 8270C	CalScience Environmental Lab	10	1	µg/L
Carbazole	EPA 8270C	CalScience Environmental Lab	10	1.3	µg/L
Chrysene	EPA 8270C	CalScience Environmental Lab	10	1.3	µg/L
Dibenz (a,h) Anthracene	EPA 8270C	CalScience Environmental Lab	10	0.82	µg/L
Dibenzofuran	EPA 8270C	CalScience Environmental Lab	10	1.4	µg/L
Diethyl Phthalate	EPA 8270C	CalScience Environmental Lab	10	1.4	µg/L
Dimethyl Phthalate	EPA 8270C	CalScience Environmental Lab	10	1.3	µg/L
Di-n-Butyl Phthalate	EPA 8270C	CalScience Environmental Lab	10	1.5	µg/L
Di-n-Octyl Phthalate	EPA 8270C	CalScience Environmental Lab	10	1	µg/L
Fluoranthene	EPA 8270C	CalScience Environmental Lab	10	1.5	µg/L
Fluorene	EPA 8270C	CalScience Environmental Lab	10	1.4	µg/L
Hexachloro-1,3-Butadiene	EPA 8270C	CalScience Environmental Lab	10	1.2	µg/L
Hexachlorobenzene	EPA 8270C	CalScience Environmental Lab	10	1.2	µg/L
Hexachlorocyclopentadiene	EPA 8270C	CalScience Environmental Lab	25	0.44	µg/L
Hexachloroethane	EPA 8270C	CalScience Environmental Lab	10	0.98	µg/L
Indeno (1,2,3-c,d) Pyrene	EPA 8270C	CalScience Environmental Lab	10	0.83	µg/L
Isophorone	EPA 8270C	CalScience Environmental Lab	10	1.2	µg/L
Methapyrilene	EPA 8270C	CalScience Environmental Lab	10	1.3	µg/L
Methyl Parathion	EPA 8270C	CalScience Environmental Lab	10	1.3	µg/L
Naphthalene	EPA 8270C	CalScience Environmental Lab	10	1.4	µg/L
Nitrobenzene	EPA 8270C	CalScience Environmental Lab	25	1.3	µg/L
N-Nitrosodimethylamine	EPA 8270C	CalScience Environmental Lab	10	1.1	µg/L
N-Nitroso-di-n-propylamine	EPA 8270C	CalScience Environmental Lab	10	1.3	µg/L
N-Nitrosodiphenylamine	EPA 8270C	CalScience Environmental Lab	10	1.4	µg/L

Table F−1 (continued). Reporting Limits for Monitoring Parameters, DOE LEHR

Parameter	Method Reference	Laboratory	Reporting Limit	MDL	Units
Pentachlorophenol	EPA 8270C	CalScience Environmental Lab	10	0.75	µg/L
Phenanthrene	EPA 8270C	CalScience Environmental Lab	10	1.5	µg/L
Phenol	EPA 8270C	CalScience Environmental Lab	10	1.2	µg/L
Pyrene	EPA 8270C	CalScience Environmental Lab	10	1.4	µg/L
Pyridine	EPA 8270C	CalScience Environmental Lab	10	1.4	µg/L
Total PAHs	EPA 8270C	CalScience Environmental Lab	10	1.7	µg/L
2,4,6-Tribromophenol	EPA 8270C	CalScience Environmental Lab	0	1.1	µg/L
2-Fluorobiphenyl	EPA 8270C	CalScience Environmental Lab	0	1.3	µg/L
2-Fluorophenol	EPA 8270C	CalScience Environmental Lab	0	0.96	µg/L
Nitrobenzene-d5	EPA 8270C	CalScience Environmental Lab	0	1.3	µg/L
Phenol-d6	EPA 8270C	CalScience Environmental Lab	0	0.96	µg/L
p-Terphenyl-d14	EPA 8270C	CalScience Environmental Lab	0	1.4	µg/L
4,4'-DDD	EPA 8081B	CalScience Environmental Lab	0.1	0.024	µg/L
4,4'-DDE	EPA 8081B	CalScience Environmental Lab	0.1	0.023	µg/L
4,4'-DDT	EPA 8081B	CalScience Environmental Lab	0.1	0.017	µg/L
Aldrin	EPA 8081B	CalScience Environmental Lab	0.1	0.021	µg/L
Alpha-BHC	EPA 8081B	CalScience Environmental Lab	0.1	0.025	µg/L
Beta-BHC	EPA 8081B	CalScience Environmental Lab	0.1	0.018	µg/L
Chlordane	EPA 8081B	CalScience Environmental Lab	1	0.17	µg/L
Delta-BHC	EPA 8081B	CalScience Environmental Lab	0.1	0.032	µg/L
Dieldrin	EPA 8081B	CalScience Environmental Lab	0.1	0.024	µg/L
Endosulfan I	EPA 8081B	CalScience Environmental Lab	0.1	0.01	µg/L
Endosulfan II	EPA 8081B	CalScience Environmental Lab	0.1	0.022	µg/L
Endosulfan Sulfate	EPA 8081B	CalScience Environmental Lab	0.1	0.015	µg/L
Endrin	EPA 8081B	CalScience Environmental Lab	0.1	0.016	µg/L
Endrin Aldehyde	EPA 8081B	CalScience Environmental Lab	0.1	0.0092	µg/L
Endrin Ketone	EPA 8081B	CalScience Environmental Lab	0.1	0.011	µg/L
Gamma-BHC	EPA 8081B	CalScience Environmental Lab	0.1	0.026	µg/L
Heptachlor	EPA 8081B	CalScience Environmental Lab	0.1	0.0096	µg/L
Heptachlor Epoxide	EPA 8081B	CalScience Environmental Lab	0.1	0.017	µg/L

Table F−1 (continued). Reporting Limits for Monitoring Parameters, DOE LEHR

Parameter	Method Reference	Laboratory	Reporting Limit	MDL	Units
Methoxychlor	EPA 8081B	CalScience Environmental Lab	0.1	0.028	µg/L
Toxaphene	EPA 8081B	CalScience Environmental Lab	2	0.61	µg/L
2,4,5,6-Tetrachloro-m-Xylene	EPA 8081B	CalScience Environmental Lab	0	0	µg/L
Decachlorobiphenyl	EPA 8081B	CalScience Environmental Lab	0	0	µg/L
Aroclor-1016	EPA 8082	CalScience Environmental Lab	1	0.15	µg/L
Aroclor-1221	EPA 8082	CalScience Environmental Lab	1	0.1	µg/L
Aroclor-1232	EPA 8082	CalScience Environmental Lab	1	0.1	µg/L
Aroclor-1242	EPA 8082	CalScience Environmental Lab	1	0.1	µg/L
Aroclor-1248	EPA 8082	CalScience Environmental Lab	1	0.1	µg/L
Aroclor-1254	EPA 8082	CalScience Environmental Lab	1	0.1	µg/L
Aroclor-1260	EPA 8082	CalScience Environmental Lab	1	0.25	µg/L
Aroclor-1262	EPA 8082	CalScience Environmental Lab	1	0.1	µg/L
2,4,5,6-Tetrachloro-m-Xylene	EPA 8082	CalScience Environmental Lab	0	0	µg/L
Decachlorobiphenyl	EPA 8082	CalScience Environmental Lab	0	0	µg/L

Abbreviations:

EERF Eastern Environmental Radiation Facility
EML HASL Analytical procedure from *The Procedures Manual of the Environmental Measurements Laboratory* (DOE 1997).
EPA Environmental Protection Agency
MDL method detection limit
pCi/L picocuries per liter
µg/L micrograms per liter

Table F–2. Quality Control Limits for Groundwater Monitoring Parameters, DOE LEHR

Parameter	Method Reference	Laboratory	MS CL	MS RPD	LCS CL	LCS RPD
Aluminum	EPA 6020A	CalScience Environmental Lab	47–161	0–24	80–120	0–20
Antimony	EPA 6020A	CalScience Environmental Lab	1–97	0–39	80–120	0–20
Arsenic	EPA 6020A	CalScience Environmental Lab	72–132	0–13	80–120	0–20
Barium	EPA 6020A	CalScience Environmental Lab	50–152	0–41	80–120	0–20
Beryllium	EPA 6020A	CalScience Environmental Lab	56–122	0–11	80–120	0–20
Cadmium	EPA 6020A	CalScience Environmental Lab	85–121	0–12	80–120	0–20
Chromium	EPA 6020A	CalScience Environmental Lab	73–133	0–11	80–120	0–20
Cobalt	EPA 6020A	CalScience Environmental Lab	79–121	0–10	80–120	0–20
Copper	EPA 6020A	CalScience Environmental Lab	25–157	0–22	80–120	0–20
Iron	EPA 6020A	CalScience Environmental Lab	80–120	0–20	80–120	0–20
Lead	EPA 6020A	CalScience Environmental Lab	79–121	0–10	80–120	0–20
Manganese	EPA 6020A	CalScience Environmental Lab	72–126	0–42	80–120	0–20
Mercury	EPA 7470A	CalScience Environmental Lab	57–141	0–10	85–121	0–10
Molybdenum	EPA 6020A	CalScience Environmental Lab	83–137	0–10	80–120	0–20
Nickel	EPA 6020A	CalScience Environmental Lab	68–122	0–10	80–120	0–20
Selenium	EPA 6020A	CalScience Environmental Lab	59–125	0–12	80–120	0–20
Silver	EPA 6020A	CalScience Environmental Lab	68–128	0–14	80–120	0–20
Thallium	EPA 6020A	CalScience Environmental Lab	79–115	0–11	80–120	0–20
Vanadium	EPA 6020A	CalScience Environmental Lab	77–137	0–15	80–120	0–20
Zinc	EPA 6020A	CalScience Environmental Lab	43–145	0–39	80–120	0–20
Chromium, hexavalent	EPA 7199	CalScience Environmental Lab	70–130	0–25	80–120	0–20
Americium-241	EML HASL 300	GEL Laboratories	75–125	0–20	75–125	0–20
Cesium-137	EPA 901.1	GEL Laboratories	75–125	0–20	75–125	0–20
Tritium	EPA 906.0	GEL Laboratories	75–125	0–20	75–125	0–20
Strontium-90	EPA 905.0	GEL Laboratories	75–125	0–20	75–125	0–20
Gross Alpha	EPA 900.0	GEL Laboratories	75–125	0–20	75–125	0–20
Gross Beta	EPA 900.0	GEL Laboratories	75–125	0–20	75–125	0–20
Carbon-14	EPA EERF C-01	GEL Laboratories	75–125	0–20	75–125	0–20

Table F–2 (continued). Quality Control Limits for Groundwater Monitoring Parameters, DOE LEHR

Parameter	Method Reference	Laboratory	MS CL	MS RPD	LCS CL	LCS RPD
Radium-226	EPA 903.1	GEL Laboratories	75–125	0–20	75–125	0–20
Uranium-235	EPA 901.1	GEL Laboratories				
Uranium-238	EPA 901.1	GEL Laboratories	75–125	0–20	75–125	0–20
Nitrate (as Nitrogen)	EPA 300.0	CalScience Environmental Lab	80–120	0–20	90–110	0–15
Formaldehyde	EPA 8315	TestAmerica North Canton	50–150	0–50	50–150	0–50
1,1,1,2-Tetrachloroethane	EPA 8260C	CalScience Environmental Lab				
1,1,1-Trichloroethane	EPA 8260C	CalScience Environmental Lab				
1,1,2,2-Tetrachloroethane	EPA 8260C	CalScience Environmental Lab				
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260C	CalScience Environmental Lab				
1,1,2-Trichloroethane	EPA 8260C	CalScience Environmental Lab				
1,1-Dichloroethane	EPA 8260C	CalScience Environmental Lab				
1,1-Dichloroethene	EPA 8260C	CalScience Environmental Lab	69–129	0–20	71–125	0–25
1,1-Dichloropropene	EPA 8260C	CalScience Environmental Lab				
1,2,3-Trichlorobenzene	EPA 8260C	CalScience Environmental Lab				
1,2,3-Trichloropropane	EPA 8260C	CalScience Environmental Lab				
1,2,4-Trichlorobenzene	EPA 8260C	CalScience Environmental Lab				
1,2,4-Trimethylbenzene	EPA 8260C	CalScience Environmental Lab				
1,2-Dibromo-3-Chloropropane	EPA 8260C	CalScience Environmental Lab				
1,2-Dibromoethane	EPA 8260C	CalScience Environmental Lab	77–125	0–20	80–120	0–20
1,2-Dichlorobenzene	EPA 8260C	CalScience Environmental Lab	78–120	0–20	79–120	0–20
1,2-Dichloroethane	EPA 8260C	CalScience Environmental Lab	80–120	0–20	80–120	0–20
1,2-Dichloropropane	EPA 8260C	CalScience Environmental Lab				
1,3,5-Trimethylbenzene	EPA 8260C	CalScience Environmental Lab				
1,3-Dichlorobenzene	EPA 8260C	CalScience Environmental Lab				
1,3-Dichloropropane	EPA 8260C	CalScience Environmental Lab				
1,4-Dichlorobenzene	EPA 8260C	CalScience Environmental Lab				
2,2-Dichloropropane	EPA 8260C	CalScience Environmental Lab				
2-Butanone	EPA 8260C	CalScience Environmental Lab				
2-Chlorotoluene	EPA 8260C	CalScience Environmental Lab				

Table F–2 (continued). Quality Control Limits for Groundwater Monitoring Parameters DOE LEHR

Parameter	Method Reference	Laboratory	MS CL	MS RPD	LCS CL	LCS RPD
2-Hexanone	EPA 8260C	CalScience Environmental Lab				
4-Chlorotoluene	EPA 8260C	CalScience Environmental Lab				
4-Methyl-2-Pentanone	EPA 8260C	CalScience Environmental Lab				
Acetone	EPA 8260C	CalScience Environmental Lab				
Benzene	EPA 8260C	CalScience Environmental Lab	80–120	0–20	80–120	0–20
Bromobenzene	EPA 8260C	CalScience Environmental Lab				
Bromochloromethane	EPA 8260C	CalScience Environmental Lab				
Bromodichloromethane	EPA 8260C	CalScience Environmental Lab				
Bromoform	EPA 8260C	CalScience Environmental Lab				
Bromomethane	EPA 8260C	CalScience Environmental Lab				
c-1,2-Dichloroethene	EPA 8260C	CalScience Environmental Lab				
c-1,3-Dichloropropene	EPA 8260C	CalScience Environmental Lab				
Carbon Disulfide	EPA 8260C	CalScience Environmental Lab				
Carbon Tetrachloride	EPA 8260C	CalScience Environmental Lab	55–151	0–20	67–139	0–22
Chlorobenzene	EPA 8260C	CalScience Environmental Lab	80–120	0–20	80–120	0–20
Chloroethane	EPA 8260C	CalScience Environmental Lab				
Chloroform	EPA 8260C	CalScience Environmental Lab				
Chloromethane	EPA 8260C	CalScience Environmental Lab				
Dibromochloromethane	EPA 8260C	CalScience Environmental Lab				
Dibromomethane	EPA 8260C	CalScience Environmental Lab				
Dichlorodifluoromethane	EPA 8260C	CalScience Environmental Lab				
Ethylbenzene	EPA 8260C	CalScience Environmental Lab	73–127	0–20	80–123	0–20
Isopropylbenzene	EPA 8260C	CalScience Environmental Lab				
Methylene Chloride	EPA 8260C	CalScience Environmental Lab				
Methyl-t-Butyl Ether (MTBE)	EPA 8260C	CalScience Environmental Lab	65–131	0–22	75–123	0–25
Naphthalene	EPA 8260C	CalScience Environmental Lab				
n-Butylbenzene	EPA 8260C	CalScience Environmental Lab				
n-Propylbenzene	EPA 8260C	CalScience Environmental Lab				
o-Xylene	EPA 8260C	CalScience Environmental Lab				

Table F–2 (continued). Quality Control Limits for Groundwater Monitoring Parameters DOE LEHR

Parameter	Method Reference	Laboratory	MS CL	MS RPD	LCS CL	LCS RPD
p/m-Xylene	EPA 8260C	CalScience Environmental Lab				
p-Isopropyltoluene	EPA 8260C	CalScience Environmental Lab				
sec-Butylbenzene	EPA 8260C	CalScience Environmental Lab				
Styrene	EPA 8260C	CalScience Environmental Lab				
t-1,2-Dichloroethene	EPA 8260C	CalScience Environmental Lab				
t-1,3-Dichloropropene	EPA 8260C	CalScience Environmental Lab				
tert-Butylbenzene	EPA 8260C	CalScience Environmental Lab				
Tetrachloroethene	EPA 8260C	CalScience Environmental Lab				
Toluene	EPA 8260C	CalScience Environmental Lab	80–120	0–20	80–120	0–20
Trichloroethene	EPA 8260C	CalScience Environmental Lab	67–133	0–20	80–120	0–20
Trichlorofluoromethane	EPA 8260C	CalScience Environmental Lab				
Vinyl Acetate	EPA 8260C	CalScience Environmental Lab				
Vinyl Chloride	EPA 8260C	CalScience Environmental Lab	67–133	0–20	68–140	0–23
1,2-Dichloroethane-d4	EPA 8260C	CalScience Environmental Lab	80–131		80–131	
1,4-Bromofluorobenzene	EPA 8260C	CalScience Environmental Lab	80–120		80–120	
Dibromofluoromethane	EPA 8260C	CalScience Environmental Lab	80–126		80–126	
1,2,4-Trichlorobenzene	EPA 8270C	CalScience Environmental Lab	28–136	0–27	49–121	0–19
1,2-Dichlorobenzene	EPA 8270C	CalScience Environmental Lab				
1,3-Dichlorobenzene	EPA 8270C	CalScience Environmental Lab				
1,4-Dichlorobenzene	EPA 8270C	CalScience Environmental Lab	13–145	0–26	50–122	0–19
1-Methylnaphthalene	EPA 8270C	CalScience Environmental Lab				
2,4,5-Trichlorophenol	EPA 8270C	CalScience Environmental Lab				
2,4,6-Trichlorophenol	EPA 8270C	CalScience Environmental Lab				
2,4-Dichlorophenol	EPA 8270C	CalScience Environmental Lab				
2,4-Dimethylphenol	EPA 8270C	CalScience Environmental Lab				
2,4-Dinitrophenol	EPA 8270C	CalScience Environmental Lab				
2,4-Dinitrotoluene	EPA 8270C	CalScience Environmental Lab	54–144	0–17	41–161	0–22
2,6-Dinitrotoluene	EPA 8270C	CalScience Environmental Lab				

Table F–2 (continued). Quality Control Limits for Groundwater Monitoring Parameters DOE LEHR

Parameter	Method Reference	Laboratory	MS CL	MS RPD	LCS CL	LCS RPD
2-Chloronaphthalene	EPA 8270C	CalScience Environmental Lab				
2-Chlorophenol	EPA 8270C	CalScience Environmental Lab	48–120	0–26	53–113	0–17
2-Methylnaphthalene	EPA 8270C	CalScience Environmental Lab				
2-Methylphenol	EPA 8270C	CalScience Environmental Lab				
2-Nitroaniline	EPA 8270C	CalScience Environmental Lab				
2-Nitrophenol	EPA 8270C	CalScience Environmental Lab				
3,3'-Dichlorobenzidine	EPA 8270C	CalScience Environmental Lab				
3/4-Methylphenol	EPA 8270C	CalScience Environmental Lab				
3-Nitroaniline	EPA 8270C	CalScience Environmental Lab				
4,6-Dinitro-2-Methylphenol	EPA 8270C	CalScience Environmental Lab				
4-Bromophenyl-Phenyl Ether	EPA 8270C	CalScience Environmental Lab				
4-Chloro-3-Methylphenol	EPA 8270C	CalScience Environmental Lab	58–130	0–27	55–121	0–18
4-Chloroaniline	EPA 8270C	CalScience Environmental Lab				
4-Chlorophenyl-Phenyl Ether	EPA 8270C	CalScience Environmental Lab				
4-Nitroaniline	EPA 8270C	CalScience Environmental Lab				
4-Nitrophenol	EPA 8270C	CalScience Environmental Lab	8–176	0–34	1–145	0–29
Acenaphthene	EPA 8270C	CalScience Environmental Lab	46–136	0–19	55–139	0–17
Acenaphthylene	EPA 8270C	CalScience Environmental Lab	50–150	0–20	33–145	0–20
Aniline	EPA 8270C	CalScience Environmental Lab				
Anthracene	EPA 8270C	CalScience Environmental Lab				
Azobenzene	EPA 8270C	CalScience Environmental Lab				
Benzidine	EPA 8270C	CalScience Environmental Lab				
Benzo (a) Anthracene	EPA 8270C	CalScience Environmental Lab				
Benzo (a) Pyrene	EPA 8270C	CalScience Environmental Lab				
Benzo (b) Fluoranthene	EPA 8270C	CalScience Environmental Lab				
Benzo (g,h,i) Perylene	EPA 8270C	CalScience Environmental Lab				
Benzo (k) Fluoranthene	EPA 8270C	CalScience Environmental Lab				
Benzoic Acid	EPA 8270C	CalScience Environmental Lab				

Table F–2 (continued). Quality Control Limits for Groundwater Monitoring Parameters DOE LEHR

Parameter	Method Reference	Laboratory	MS CL	MS RPD	LCS CL	LCS RPD
Benzyl Alcohol	EPA 8270C	CalScience Environmental Lab				
Bis(2-Chloroethoxy) Methane	EPA 8270C	CalScience Environmental Lab				
Bis(2-Chloroethyl) Ether	EPA 8270C	CalScience Environmental Lab				
Bis(2-Chloroisopropyl) Ether	EPA 8270C	CalScience Environmental Lab				
Bis(2-Ethylhexyl) Phthalate	EPA 8270C	CalScience Environmental Lab				
Butyl Benzyl Phthalate	EPA 8270C	CalScience Environmental Lab	50–150	0–20	0–152	0–20
Carbazole	EPA 8270C	CalScience Environmental Lab				
Chrysene	EPA 8270C	CalScience Environmental Lab				
Dibenz (a,h) Anthracene	EPA 8270C	CalScience Environmental Lab				
Dibenzofuran	EPA 8270C	CalScience Environmental Lab				
Diethyl Phthalate	EPA 8270C	CalScience Environmental Lab				
Dimethyl Phthalate	EPA 8270C	CalScience Environmental Lab	50–150	0–20	0–112	0–20
Di-n-Butyl Phthalate	EPA 8270C	CalScience Environmental Lab				
Di-n-Octyl Phthalate	EPA 8270C	CalScience Environmental Lab				
Fluoranthene	EPA 8270C	CalScience Environmental Lab				
Fluorene	EPA 8270C	CalScience Environmental Lab	50–150	0–20	59–121	0–20
Hexachloro-1,3-Butadiene	EPA 8270C	CalScience Environmental Lab				
Hexachlorobenzene	EPA 8270C	CalScience Environmental Lab				
Hexachlorocyclopentadiene	EPA 8270C	CalScience Environmental Lab				
Hexachloroethane	EPA 8270C	CalScience Environmental Lab				
Indeno (1,2,3-c,d) Pyrene	EPA 8270C	CalScience Environmental Lab				
Isophorone	EPA 8270C	CalScience Environmental Lab				
Methapyrilene	EPA 8270C	CalScience Environmental Lab				
Methyl Parathion	EPA 8270C	CalScience Environmental Lab				
Naphthalene	EPA 8270C	CalScience Environmental Lab	50–150	0–20	21–133	0–20
Nitrobenzene	EPA 8270C	CalScience Environmental Lab				
N-Nitrosodimethylamine	EPA 8270C	CalScience Environmental Lab				
N-Nitroso-di-n-propylamine	EPA 8270C	CalScience Environmental Lab	60–144	0–40	56–146	0–22
N-Nitrosodiphenylamine	EPA 8270C	CalScience Environmental Lab				

Table F–2 (continued). Quality Control Limits for Groundwater Monitoring Parameters DOE LEHR

Parameter	Method Reference	Laboratory	MS CL	MS RPD	LCS CL	LCS RPD
Pentachlorophenol	EPA 8270C	CalScience Environmental Lab	52–136	0–35	34–130	0–23
Phenanthrene	EPA 8270C	CalScience Environmental Lab				
Phenol	EPA 8270C	CalScience Environmental Lab	6–138	0–39	4–142	0–24
Pyrene	EPA 8270C	CalScience Environmental Lab	39–165	0–56	38–170	0–27
Pyridine	EPA 8270C	CalScience Environmental Lab				
Total PAHs	EPA 8270C	CalScience Environmental Lab				
2,4,6-Tribromophenol	EPA 8270C	CalScience Environmental Lab	41–137		41–137	
2-Fluorobiphenyl	EPA 8270C	CalScience Environmental Lab	42–138		42–138	
2-Fluorophenol	EPA 8270C	CalScience Environmental Lab	7–121		7–121	
Nitrobenzene-d5	EPA 8270C	CalScience Environmental Lab	50–146		50–146	
Phenol-d6	EPA 8270C	CalScience Environmental Lab	1–127		1–127	
p-Terphenyl-d14	EPA 8270C	CalScience Environmental Lab	47–173		47–173	
4,4'-DDD	EPA 8081B	CalScience Environmental Lab	50–135	0–25	50–135	0–25
4,4'-DDE	EPA 8081B	CalScience Environmental Lab	50–135	0–25	50–135	0–25
4,4'-DDT	EPA 8081B	CalScience Environmental Lab	50–135	0–25	50–135	0–25
Aldrin	EPA 8081B	CalScience Environmental Lab	50–135	0–25	50–135	0–25
Alpha-BHC	EPA 8081B	CalScience Environmental Lab	50–135	0–25	50–135	0–25
Beta-BHC	EPA 8081B	CalScience Environmental Lab	50–135	0–25	50–135	0–25
Chlordane	EPA 8081B	CalScience Environmental Lab				
Delta-BHC	EPA 8081B	CalScience Environmental Lab	50–135	0–25	50–135	0–25
Dieldrin	EPA 8081B	CalScience Environmental Lab	50–135	0–25	50–135	0–25
Endosulfan I	EPA 8081B	CalScience Environmental Lab	50–135	0–25	50–135	0–25
Endosulfan II	EPA 8081B	CalScience Environmental Lab	50–135	0–25	50–135	0–25
Endosulfan Sulfate	EPA 8081B	CalScience Environmental Lab	50–135	0–25	50–135	0–25
Endrin	EPA 8081B	CalScience Environmental Lab	50–135	0–25	50–135	0–25
Endrin Aldehyde	EPA 8081B	CalScience Environmental Lab	50–135	0–25	50–135	0–25
Endrin Ketone	EPA 8081B	CalScience Environmental Lab				
Gamma-BHC	EPA 8081B	CalScience Environmental Lab	50–135	0–25	50–135	0–25
Heptachlor	EPA 8081B	CalScience Environmental Lab	50–135	0–25	50–135	0–25
Heptachlor Epoxide	EPA 8081B	CalScience Environmental Lab	50–135	0–25	50–135	0–25

Table F–2 (continued). Quality Control Limits for Groundwater Monitoring Parameters DOE LEHR

Parameter	Method Reference	Laboratory	MS CL	MS RPD	LCS CL	LCS RPD
Methoxychlor	EPA 8081B	CalScience Environmental Lab	50–135	0–25	50–135	0–25
Toxaphene	EPA 8081B	CalScience Environmental Lab				
2,4,5,6-Tetrachloro-m-Xylene	EPA 8081B	CalScience Environmental Lab	50–135		50–135	
Decachlorobiphenyl	EPA 8081B	CalScience Environmental Lab	50–135		50–135	
Aroclor-1016	EPA 8082	CalScience Environmental Lab	50–135	0–25	50–135	0–25
Aroclor-1221	EPA 8082	CalScience Environmental Lab				
Aroclor-1232	EPA 8082	CalScience Environmental Lab				
Aroclor-1242	EPA 8082	CalScience Environmental Lab				
Aroclor-1248	EPA 8082	CalScience Environmental Lab				
Aroclor-1254	EPA 8082	CalScience Environmental Lab				
Aroclor-1260	EPA 8082	CalScience Environmental Lab	50–135	0–25	50–135	0–25
Aroclor-1262	EPA 8082	CalScience Environmental Lab				
2,4,5,6-Tetrachloro-m-Xylene	EPA 8082	CalScience Environmental Lab	50–135		50–135	
Decachlorobiphenyl	EPA 8082	CalScience Environmental Lab	50–135		50–135	

Abbreviations:

MS matrix spike
CL control limit
RPD relative percent difference
LCS laboratory control sample
EPA Environmental Protection Agency