

## Sampling and Monitoring

77. The Approval Holder shall ensure that an experienced and qualified technician conducts all sampling at the Facility and a laboratory approved by the Department conducts the required analysis.
78. The Approval Holder shall ensure that groundwater elevations are recorded for each sampling event and that groundwater samples to be submitted for trace metal analysis are field filtered using 0.45 µm in-line waterera filter or equivalent. All other samples should be unfiltered.
79. The Approval Holder shall ensure that the results of all sampling and analysis at the Facility are kept on file in both a hardcopy and electronic version.
80. The Approval Holder shall ensure that for each discharge of water from the sedimentation pond a sample is obtained at the mid-point of the discharge event and analyzed for TSS.
81. Monitoring wells to be sampled at the Facility consist of nests of multi well installations of various depths. The well nests are understood to be comprised of the following:

Well Nest	Shallow Till	Deep Till	Shallow Bedrock	Mid Bedrock	Deep Bedrock
MW17	-	-	MW17-S		MW17-D
MW18	-	MW18	-		-
MW22	-	-	MW22-S		MW22-D
MW31	-	-	MW31-S	MW31-U	MW31-L
MW32	-	-	MW32-U	MW32-L	-
MW33	MW33-S	-	MW33-U	-	-
MW34	MW34-S	-	MW34-U		-
MW35	MW35-S1	MW35-S2	MW35-L	-	-
MW36	MW36-S	-	MW36-U	-	MW36-L
MW37	MW37-S				
MW38	MW38-S	-	MW38-U	MW38-L	
MW39	MW39-S	-			
MW40	MW40-S	-	MW40-U	-	-
MW41	MW41-S	-	MW41-U	MW41-L	-
MW42	MW42-S	-	MW42-U	-	MW42-L
MW43	MW43-S	-	MW43-U	-	-
MW44	MW44-S	-	MW44-U	-	-
MW45	-	-	MW45-U	-	MW45-L
MW46	-	-	MW46-U	-	MW46-L
MW47	MW47-S	-	MW47-U	-	MW47-L
MW48	MW48-S	-	MW48-U	-	MW48-L
MW49	MW49-S	-	MW49-U	MW49-L	-
MW50	MW50-S	-	MW50-U	-	MW50L
MW51	MW51-S1	MW51-S2			MW51-D
MW52	MW52-S			MW52-D	
MW53		-		MW53-D	

**82.** For the purposes of this Approval, "GENERAL CHEMISTRY" shall include the following analyses:

Ammonia (as NH <sub>3</sub> -N)	Iron	Sulfate
Alkalinity (as CaCO <sub>3</sub> )	Nitrate-Nitrite (as N)	Temperature (field parameter)
Calcium Chloride	Magnesium	Total Dissolved Solids
Conductivity (field parameter)	Manganese	Total Organic Carbon
Copper	o-Phosphate (as P)	Turbidity
Dissolved Oxygen (field parameter)	pH	Zinc
	Potassium	
	r-Silica (as SiO <sub>2</sub> )	
	Sodium	

with the associated calculated parameters:

Bicarbonate (as CaCO <sub>3</sub> )	Cation sum	Hardness (as CaCO <sub>3</sub> )
Carbonate (as CaCO <sub>3</sub> )	Anion sum	Ion sum
Hydroxide (as CaCO <sub>3</sub> )	% difference	Saturation pH (5°C)
	Theoretical conductance	Langelier Index (5°C)

**83.** For the purpose of this approval, "TRACE METALS" shall include the following analyses:

Aluminum	Cobalt	Selenium
Antimony	Copper	Silver
Arsenic	Iron	Sodium
Barium	Lead	Strontium
Beryllium	Magnesium	Thallium
Bismuth	Manganese	Tin
Boron	Mercury (CVAAS)	Uranium
Cadmium	Molybdenum	Vanadium
Calcium	Nickel	Zinc
Chromium	Potassium	

- 84.** The Approval Holder shall ensure that monitoring wells MW31S, MW31U, MW31L, MW33U, MW34S, MW34U, MW35S1, MW35S2, MW35L, MW36S, MW36U, MW36L, MW37S, MW38S, MW38U, MW38L, MW39S, MW40S, MW41S, MW41U, MW41L, MW42S, MW43S, MW43U, MW44-S, MW44-U, MW45U, MW45L, MW50S, MW50U, and MW50L are sampled and analyzed two times annually for each individual well for the following parameters. Samples should be taken in April and September of each year.

GENERAL CHEMISTRY

TRACE METALS

- 85.** The Approval Holder shall ensure that the groundwater monitoring wells MW51D, MW51S1, MW51S2, MW52D, MW52S, MW53D are sampled in the months of April, August and October of each year and analyzed for the following parameters:

BTEX/TPH

GENERAL CHEMISTRY

TRACE METALS

Groundwater elevations

- 86.** The Approval Holder shall ensure that the groundwater monitoring wells MW33U, MW34S, MW34U, MW35S1, MW35S2, MW35L, MW38U, MW41S and MW41U are sampled in the months of February, April, July, September and November of each year and analyzed for the following parameters:

GENERAL CHEMISTRY

- 87.** The Approval Holder shall ensure that the disposal cell underdrains (UD2 and UD3) shall be sampled in the months of February, April, July, September and November of each year and analyzed for the following parameters:

GENERAL CHEMISTRY

TRACE METALS

- 88.** The Approval Holder shall ensure that the groundwater monitoring well nests MW32, MW40, MW42, MW46, MW47, MW48, MW49 are sampled in conjunction with the September monitoring event yearly and analyzed for the following parameters:

GENERAL CHEMISTRY

TRACE METALS

- 89.** The Approval Holder shall ensure that the surface water sampling stations SW1, SW2, SW3, SW4, SW5, SW6 and the sedimentation pond discharge shall be sampled in April and September of each year and analyzed for the following parameters:

GENERAL CHEMISTRY

The sedimentation pond discharge shall be sampled at the mid-point of a discharge event.

- 90.** The Approval Holder shall ensure that in September or October of each year the domestic wells chosen for the Domestic Well Monitoring Program are sampled and analysed for:

GENERAL CHEMISTRY (except dissolved oxygen)