

Appendix X

Process Effluent Discharge into Long Lake Projected to Meet
MMER Water Quality at End of Pipe

Table 17.L.1 MMER Authorized Limits of Deleterious Substances (Schedule 4)

| Parameter | Units | Maximum Monthly Mean Concentration | Maximum Concentration in a Composite Sample | Maximum Concentration in a Grab Sample |
|------------------------|-------|------------------------------------|---|--|
| Arsenic | mg/L | 0.50 | 0.75 | 1.00 |
| Copper | mg/L | 0.30 | 0.45 | 0.60 |
| Cyanide | mg/L | 1.00 | 1.50 | 2.00 |
| Lead | mg/L | 0.20 | 0.30 | 0.40 |
| Nickel | mg/L | 0.50 | 0.75 | 1.00 |
| Zinc | mg/L | 0.50 | 0.75 | 1.00 |
| Total Suspended Solids | mg/L | 15.0 | 22.5 | 30.0 |
| Radium 226 | Bq/L | 0.37 | 0.74 | 1.11 |

Table 17.L.2 Newfoundland Environmental Control Water and Sewage Regulations Schedule A

| Constituents | Maximum Content (in mg/L unless noted) |
|--|--|
| B.O.D. | 20 |
| Coliform – fecal | 1000/100 ml |
| Coliform – total | 5000/100 ml |
| Solids (dissolved) | 1000 ^a |
| Solids (suspended) | 30 ^a |
| Oils (Ether extract) | 15 |
| Floating debris, oils and grease | None to be visible |
| Arsenic | 0.5 |
| Barium | 5.0 |
| Boron | 5.0 |
| Cadmium | 0.05 |
| Chlorine | 1.0 |
| Chromium (hexavalent) | 0.05 |
| Chromium (trivalent) | 1.0 |
| Copper | 0.3 |
| Cyanide | 0.025 |
| Iron (total) | 10 |
| Lead | 0.2 |
| Mercury | 0.005 |
| Nickel | 0.5 |
| Nitrates | 10 |
| Nitrogen (ammoniacal) | 2.0 |
| Phenol | 0.1 |
| Phosphates (total as P ₂ O ₅) | 1.0 |

| Constituents | Maximum Content (in mg/L unless noted) |
|---|--|
| Phosphorus (elemental) | 0.0005 |
| Selenium | 0.01 |
| Sulfides | 0.5 |
| Silver | 0.05 |
| Zinc | 0.5 |
| ^a If water is being abstracted from a water course, used, treated and subsequently returned to the same water course, these solids data mean that the effluent should not contain more than 1000 or 30 mg/L more than was in the water quality original abstracted | |

Table 17.L.3 Background Water Quality of Streams and Lakes in the Project Area

| Constituents | Content (mg/L unless noted) | | |
|----------------------------|-----------------------------|--------------|-------------|
| | Max | Mean | Min |
| Solids (dissolved) | 110 | 55 | 27 |
| Solids (suspended) | 5.2 | 1.3 | 0.5 |
| Arsenic | 0.0005 | 0.0005 | 0.0005 |
| Barium | 0.031 | 0.015 | 0.009 |
| Boron | 0.025 | 0.025 | 0.025 |
| Cadmium | 0.000056 | 0.000016 | 0.0000085 |
| Chlorine | | | |
| Chromium (hexavalent) | | | |
| Chromium (trivalent) | | | |
| Copper | 0.0024 | 0.001056 | 0.001 |
| Cyanide | 0.001 | 0.001 | 0.001 |
| Iron (total) | 0.493 | 0.112 | 0.025 |
| Lead | 0.00084 | 0.00029 | 0.00025 |
| Mercury | 0.00007 | 0.00001 | 0.00001 |
| Nickel | 0.001 | 0.001 | 0.001 |
| Nitrates | 0.27 | 0.062 | 0.025 |
| Nitrogen (ammoniacal) | 0.16 | 0.038 | 0.025 |
| Phenol | | | |
| Phosphates (total as P2O5) | | | |
| Phosphorus (elemental) | 0.018 | 0.010 | 0.003 |
| Radium 226 | 0.2 Bq/L | 0.00629 Bq/L | 0.0025 Bq/L |
| Selenium | 0.0005 | 0.0005 | 0.0005 |
| Sulfides | | | |
| Silver | 0.00005 | 0.00005 | 0.00005 |
| Zinc | 0.031 | 0.006 | 0.0025 |

Table 17.L.4 Canadian Water Quality Guidelines

| Constituents | CWQG Guideline (mg/L unless noted) |
|---|------------------------------------|
| Solids (dissolved) | - |
| Solids (suspended) | 6.2 ^b |
| Arsenic | 0.005 |
| Barium | - |
| Boron | 1.5 |
| Cadmium | 0.000014 |
| Chlorine | 0.0005 |
| Chromium (hexavalent) | 0.001 |
| Chromium (trivalent) | 0.0089 |
| Copper | 0.002 |
| Cyanide | 0.005 |
| Iron (total) | 0.3 |
| Lead | 0.001 |
| Mercury | 0.000026 |
| Nickel | 0.044 |
| Nitrates | 13 |
| Nitrogen (ammoniacal) | |
| Phenol | 0.004 |
| Phosphates (total as P ₂ O ₅) | |
| Phosphorus (elemental) | 0.01 |
| Radium 226 | 0.0025 Bq/L |
| Selenium | 0.001 |
| Sulfides | - |
| Silver | 0.0001 |
| Zinc | 0.03 |
| ^b Clear flow: Maximum increase of 25 mg/L from background levels for any short-term exposure (e.g., 24 h period). Maximum average increase of 5 mg/L from background levels for longer term exposures (e.g., inputs lasting between 24 h and 30 d). High flow: Maximum increase of 25 mg/L from background levels at any time when background levels are between 25 and 250 mg/L. Should not increase more than 10% of background levels when background is > 250 mg/L | |