Guidelines for the Drawdown of Lagoons to Freshwater Receiving Waters

NOVA SCOTIA
Environment and Labour

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PURPOSE:
The following steps serve as a guide for staff when assessing a request to discharge a portion of the contents of a sewage treatment plant lagoon into a body of freshwater.

1. Drawdowns of lagoons to freshwater receiving waters are only authorized during high water flow conditions normally October/November and April/May.

2. All materials and approvals required to modify existing piping such that individual cells can be isolated, are to be on site prior to any drawdown of lagoons.

3. Drawdown rates are to be considered on an individual basis.

4. The applicant is to advise the public a minimum of one week prior to any drawdown, by advertisement (size 75 mm x 100 mm) in the local newspaper.

5. Average wet weather flow data or field measured flow data for the receiving water is to be supplied by the applicant.

6. Discharges from lagoons are to be from the final cell of the lagoon system only.

7. Prior to any discharge, upstream and downstream samples of the receiving water are to be analysed for total ammonia, pH, dissolved oxygen and total suspended solids.

8. Prior to any discharge, a sample of the final cell lagoon contents is to be analysed for total ammonia, pH, dissolved oxygen and total suspended solids.

9. During discharge, daily composite samples of the upstream and downstream receiving waters and lagoon effluent are to be analysed for total ammonia, dissolved oxygen, pH and total suspended solids. In addition, a total chlorine residual is required for the lagoon effluent.

10. Total ammonia concentration in the receiving water is not to exceed values indicated in Table 1 at a point five meters from the effluent discharge point. For receiving waters with pH less than 6.5, the limit of 6.5 for pH shall apply.

11. The total suspended solids in the effluent is not to cause the suspended solids in the receiving water to increase by more than 10 mg/l at a point five meters from the effluent discharge point, when background suspended solids are less than 100 mg/l. The total suspended solids in the effluent is not to cause the suspended solids in the receiving water to increase by more than 10%, at a point five meters from the effluent discharge point, when background suspended solids are greater than 100 mg/l.

12. A total chlorine residual of less than 0.5 mg/l is to be maintained in the lagoon effluent during discharge.

13. The minimum downstream receiving water dissolved oxygen concentration at a point five meters from the effluent discharge point is 6.0 mg/l during discharge when background dissolved oxygen exceeds 6 mg/l. There is to be no change in dissolved oxygen concentration at a point five meters downstream from the effluent discharge when the background dissolved oxygen concentration is less than 6.0 mg/l.

14. The pH of the effluent is to be in the range of 6.5 - 9.0 during the discharge.

15. Following drawdown of the lagoons, the walls of the lagoons are to be washed down and limed to prevent odours.

TABLE 1 - Maximum Total Ammonia (NH_3) in receiving water

Ammonia Concentration (mg/L) at Following Temperatures (°C)

PH	0	5	10	15	20	25	30
6.50	2.50	2.40	2.20	2.20	1.49	1.04	0.73
6.75	2.50	2.40	2.20	2.20	1.49	1.04	0.73
7.00	2.50	2.40	2.20	2.20	1.49	1.04	0.74
7.25	2.50	2.40	2.20	2.20	1.50	1.04	0.74
7.50	2.50	2.40	2.20	2.20	1.50	1.05	0.74
7.75	2.30	2.20	2.10	2.00	1.40	0.99	0.71
8.00	1.53	1.44	1.37	1.33	0.93	0.66	0.47
8.25	0.87	0.82	0.78	0.76	0.54	0.39	0.28
8.50	0.49	0.47	0.45	0.44	0.32	0.23	0.17
8.75	0.28	0.27	0.26	0.27	0.19	0.16	0.11
9.00	0.16	0.16	0.16	0.16	0.13	0.10	0.08

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