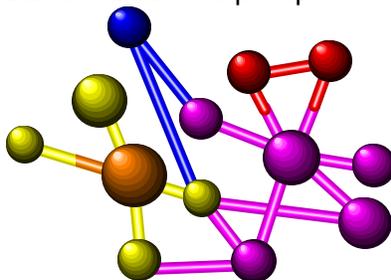


Genius is 1% inspiration and 99% perspirationThomas Edison



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InterOffice Communication

To: Alan Brady Esq.
Supervisor, STPs, Halifax County

From: S. M. Mandaville, Co-Ordinator

Date: 1995

Subject: Request for phosphorus removal in the Springfield L. STP

Following are a synopsis of the data per our telephone conversation. I am providing the field data, both historical and recent as well as the TP values from our theoretical modelling based on the latest regression relationships developed by Dillon et al of the Dorset Research Centre, Ontario. Indeed it was the older Dillon model (1975) that Hart, Scott and Ogden applied in their 1978 Shubie studies as well as the 1990 Shubie studies by Scott, Hart and Waller.

(1) Pre-Springfield STP:

- a) Our Theoretical Modelled TP:
Springfield lake: 26.8 ug/l
Fenerty lake: 7.8 ug/l
- b) Field value per Johnson, 1978 (Aug-Sept 1976, 1 #, vol. wtd.)
Springfield lake: 25.5 ug/l

(2) Recent (as defined below) with partial operation of the Springfield STP:

- a) Our Theoretical 1988 status TP value:
Springfield lake: 10.4 ug/l
Fenerty lake: 12.1 ug/l
- b) Field value per our monitoring, 1991 (summer & fall 1990, 2 #s, surf. mean)
Springfield lake: 11.1 ug/l

(3) Present STP status:

a) Our theoretical modelled TP value

Fenerty lake: 21.4 ug/l

b) Field values, ongoing sampling by us, results to date

Fenerty lake:

18 June 1995:	16 ug/l @ 2m depth
	12 ug/l @ 4m depth
30 July 1995:	18.3 ug/l @ 2m
	26.5 ug/l @ 4m
20 August 1995:	18.4 ug/l @ 2m
	15.5 ug/l @ 4m

From the above, it is quite obvious that Fenerty lake has been quite severely impacted by the Springfield STP.

There is a further problem with STPs. Whatever the effluent concentrations are in TP units, most of the phosphorus in the effluent per literature will be in a highly available biological form and the impact is more dramatic on the downstream watercourses. The international peer reviewed OECD study of 1982 has a very interesting graph with TP and PO₄ as ordinates. Once one knows the background conc. of a lake (prior to a STP), one can obtain the resultant incremental value in a lake's mean-TP.

Please feel free to call me if you have any questions.

C: