

APPENDIX F2

COMMENTS AND RESPONSES

CANNING LAKE PROPERTY OWNERS ASSOCIATION

CANNING LAKE PROPERTY OWNERS' ASSOCIATION

September 5, 1989

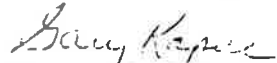
The Honourable Jim Bradley
Minister of the Environment
15th. floor, 135 St. Clair Ave. W.
Toronto, Ontario
M4V 1P5

Dear Mr. Bradley,

Our association is concerned about the quality of the water in Canning Lake. We see visible signs such as increased algae and weed growth as evidence of a deteriorating lake system. With respect to the Dysart (Haliburton) sewage treatment plant expansion, at our annual general meeting held on July 9, 1989, our membership unanimously passed a motion that we work toward ensuring there is a net reduction in the effluent loading of the lake system.

Having reviewed the sewage treatment plant expansion plans proposed for the Town of Haliburton, we believe there will be a net increase in effluent loading to the lake system. We have concerns regarding the effects of the proposed expansion on the quality of water in the lake system and request an Individual Environmental Assessment study be conducted.

Yours truly,



Gary Kapac,
President,
Canning Lake Property Owners' Association
17 Wrenson Road
Toronto, Ontario
M4L 2G5



Office of the
Minister

Ministry
of the
Environment

135 St. Clair Avenue West
Toronto, Ontario
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416/323-4359

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OCT 0 4 1989

Mr. Gary Kapac
President
Canning Lake Property
Owners' Association
17 Wrenson Road
Toronto, Ontario
M4L 2G5

Dear Mr. Kapac:

Thank you for your recent letter expressing the concerns of the Canning Lake Property Owners' Association with the expansion of the Haliburton Sewage Treatment Plant proposed by the Township of Dysart et al.

It is premature to decide on the need for an individual environmental assessment as the municipality is still planning.

The planning process outlined in the Class Environmental Assessment for Municipal Sewage and Water Projects (Class EA) requires that the municipality provide at least three opportunities for public and government agency input. The last opportunity is at the completion of planning a project. At that point, an Environmental Study Report (ESR) must be prepared detailing the municipality's planning, the reasons for selecting a preferred alternative and any mitigation measures proposed. I have been advised that an ESR for this project will be completed by mid-October 1989. The ESR must be placed with the Municipal Clerk for 30 days. Then, you may review the report and raise any concerns you feel the municipality has not addressed.

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Mr. Gary Kapac
Page 2

If you believe your concerns have still not been adequately resolved, you may request that the project be "bumped-up" to an individual environmental assessment.

I encourage you to participate in all forums provided by the municipality, and make your concerns known. I expect municipal staff to work with you to resolve outstanding issues. Mr. Robert Winson, (416) 440-3482, is available to provide you with detailed help.

I thank you for your interest in protecting Ontario's environment.

Sincerely yours,

Original signed by Minister

Jim Bradley
Minister

cc: Dr. Philip Byer
Chairman
Environmental Assessment
Advisory Committee

Mrs. D.L. McCallum
Township of Dysart et al.

Mr. R. Baker
Totten Sims Hubicki Associates

**HALIBURTON SEWAGE TREATMENT PLANT EXPANSION
CLASS ENVIRONMENTAL ASSESSMENT PHASE I AND II REPORTS
MOE PROJECT #3-0706**

G. Reply to Comments by Gary Kapac dated 5 September 1989 (Exhibit G)

G.1

As clearly demonstrated in the report, the effluent phosphorus load from the expanded sewage treatment plant will not result in an increase in the total phosphorus load on the lake system as a portion of the existing phosphorus load attributable to the existing developments on the lakes will be intercepted and delivered to the expanded plant for treatment. The allowable effluent phosphorus load stipulated by the Ministry of the Environment of 160 kg/yr is based on this limitation. Regardless of the alternative selected, it is evident that there will be no change in the phosphorus level in the south basin of Kashagawigamog Lake and downstream which includes Canning Lake.

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297A Ontario Street
Toronto, Ontario
M5A 2V8

May 23, 1989

Honourable James Bradley
Minister of the Environment
135 St. Clair Avenue W.
15th Floor
Toronto, Ontario
M4V 1P5

Dear Mr. Bradley:

I became aware recently that a long-standing proposal to connect Kashagawigamog Lake resorts to the Haliburton sewage treatment plant is being pursued in earnest, and is presently under review by your Ministry.

When I first heard of the suggestion I presumed, or at least hoped, that the high cost of the connection would extinguish the idea. As a long time cottager on the lake chain (at Ingoldsby) with some background in water pollution control, I have great concerns over this proposal. Having witnessed with dismay the marked change in water quality in the lake system since the initial installation of the Haliburton plant, I can only conclude that any additional sewage loading to the plant (even with associated plant expansion) will lead to further water quality deterioration.

There appears to be little opposition to the plant expansion proposal and this is not hard to understand given the claims we have heard from its proponents; that water quality in Kashagawigamog Lake will not be harmed, or that it will even be improved. Furthermore, contrary to my observations of a deterioration in water quality (i.e. decreased visibility, appearance of filamentous algae and increased weed growth), others have claimed that collected data has shown no change in water quality since before the installation of the plant. Surprised by this, I obtained all readily available ("Self-Help") data on Kashagawigamog and Canning Lakes to see for myself. At first glance of this data, any remarkable change is not readily apparent, however, closer inspection reveals that a deterioration is documented nonetheless. A few errors or inconsistencies exist

.../2

Honourable James Bradley
May 23, 1989
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in the presentation of the documented data, and, once corrected, the change is more clear. I have summarized this data and included the specifics on the errors as an attached table to this letter, but I will briefly summarize here.

Correcting the 1972 chlorophyll a data to remove anomalies, and ignoring the 1985-onward data for the north basin of Kashagawigamog (because "Venture Bay" is presumably the large embayment in the south basin), the following conclusions are reached:

1. The south basin of Kashagawigamog has seen an overall 19% reduction in secchi disc (clarity) values since pre-plant days, with a continued reduction trend apparent.
2. The chlorophyll a (algae) values for the same basin has seen an overall average increase of 93% over pre-plant data. A trend here, however, is less apparent.
3. Downstream Canning Lake has seen a corresponding 12% decrease in secchi disc values along with a 65% increase in chlorophyll a values. A very definite increasing trend to this latter data is evident to the point where the 1987 value was 217% higher than the pre-plant average.
4. The data for the north basin of Kashagawigamog since the plant start-up is too sporadic to draw any conclusions; however, it suggests that the same is occurring here, as would be expected.

It is evident from this data that previously mesotrophic South Kashagawigamog is now approaching an eutrophic state and previously borderline-oligotrophic Canning Lake is now decidedly mesotrophic, with all indications that it too will very soon reach the point of eutrophy if the influx of nutrients is not stopped. The source of these nutrients is undoubtedly the sewage plant and not due to say increased cottage development on the lakes. This lake chain was cottaged at a very early date and was essentially fully developed before the plant inception, and probably has not seen a 15% increase in cottage numbers since then. Furthermore, improvements in individual sewage disposal systems have probably nullified any impact of the newer cottages, while many older cottages have upgraded their systems and thereby reduced any impact they might have had.

My concerns for the effect of increased loading to the lake is further magnified by the recent appearance of eurasian milfoil in a few locations in the lake chain. These lakes have many shallow areas and are therefore almost as susceptible to this weed problem as are the Kawartha lakes.

Honourable James Bradley
May 23, 1989
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Ways to decrease the loading to the lake rather than increase it must be found. Obviously, no plant expansion could be a starting point. However, this alone does not solve either the alleged problem of the resort sewage or the problem of the existing plant effluent. An answer might be to improve treatment facilities, possibly by employing filters that I understand were originally intended to be used but have not been. It is doubtful however that significant enough improvements could be made at reasonable cost to compensate for any proposed flow increases and produce significant reduction in total loadings. Future plant expansions are also left in question. Certainly another plant must be discouraged.

As an alternative, I wish to offer the following as the possible solution to both problems.

The village of Haliburton is in the somewhat unique position of being readily able to remove its effluent from the sensitive Kashagawigamog Lake basin, and to instead discharge its effluent into a nearby river of comparable size having no lakes along its length to impact upon. That stream is the upper Burnt River which joins with the present recipient stream, the Drag River, below the lake chain. This section of the Burnt River also has very low recreational use or potential. What is particularly unique in Haliburton's case is that the corridor between the plant and the optimum Burnt River discharge point already exists in the form of the abandoned railroad right-of-way which is now apparently owned by the County; who wonders what use it can be put to. This right-of-way also occupies the natural sag between the two rivers, minimizing the pumping requirements as much as possible.

I propose, therefore, that the effluent from the present plant, including any expansions thereto, be conveyed to the Burnt River at Donald. This involves a forcemain some 7.5 km in length.

Some cost cutting measures are possible; since plant effluent would be pumped, the normal pumping station emergency and standby provisions would not necessarily be required. Also, since the drainage basin of the upper Burnt River is reached at only a 5.5 km \pm distance, it may be possible to discharge the effluent into the small drainage course adjacent to the rail bed at that point instead of extending a pipe all the way to the river itself. Furthermore, if space limitations at the present plant prevents or hinders plant expansion, some final treatment phases could possibly be relocated to the forcemain terminus.

I attach a map showing this proposed forcemain alignment.

Honourable James Bradley
May 23, 1989
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I request, on behalf of the Canning Lake Property Owners Association and myself, that the present sewage plant loadings to the Kashagawigamog Lake chain be reduced instead of increased, and, to that end, the utilization of the Burnt River as the receiving stream be thoroughly evaluated.

Yours very truly,



Kevin Walters, P.Eng.

KW:cy
Attachments

cc: Canning Lake Property Owners Association - G. Kapac ✓
Kashagawigamog Lake Association - J. Puffer
Ministry of the Environment - J. Beaver
Dysart et al - Council
County of Haliburton - Council
Anson, Hindon & Minden - Council
Snowdon Township - Council
County Echo - Editor
Minden Times - Editor

SECCHI DISC AND CHLOROPHYLL a DATA

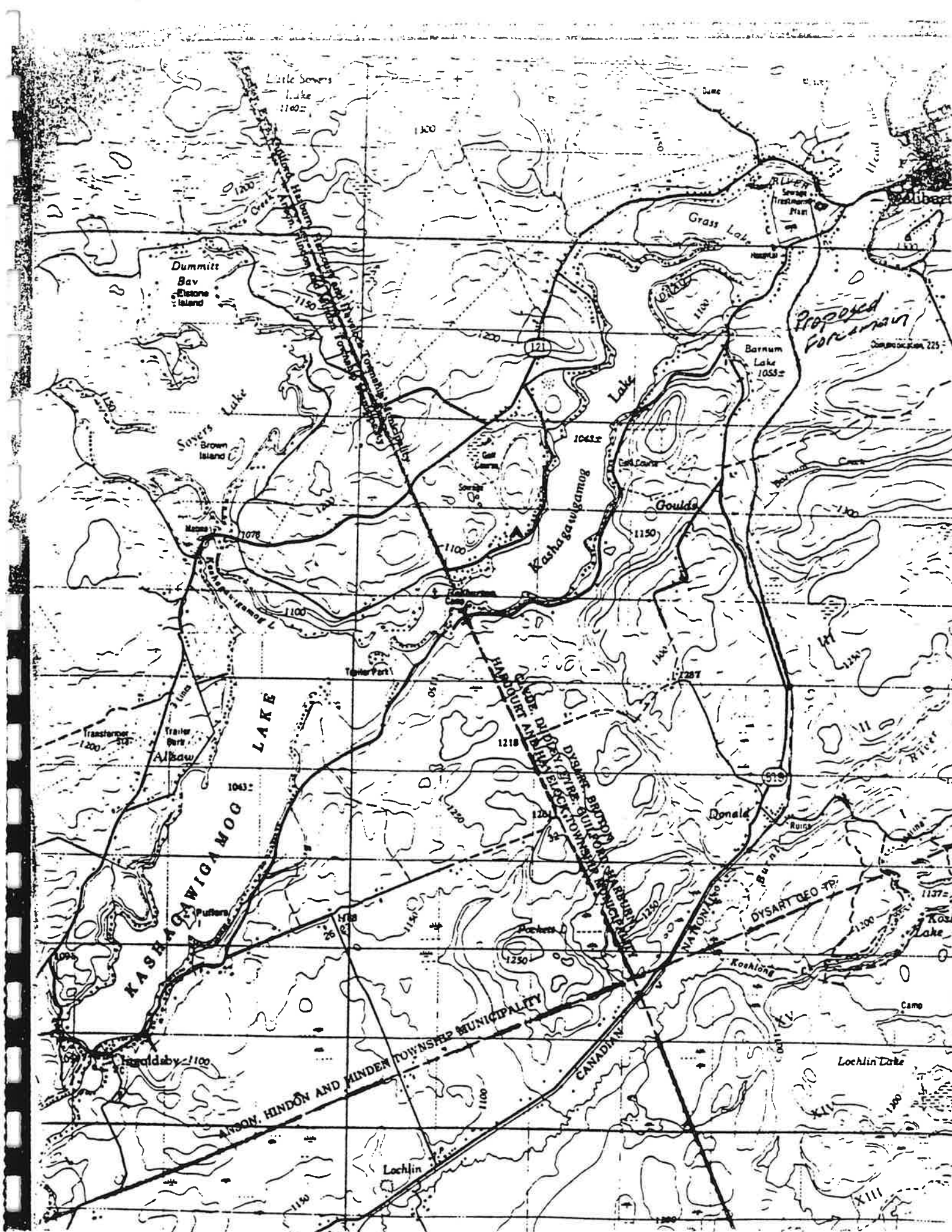
YEAR	CANNING LAKE		SOUTH KASHAGAWIGAMOG		NORTH KASHAGAWIGAMOG	
	Secchi Disc	Chlorophyll a	Secchi Disc	Chlorophyll a	Secchi Disc	Chlorophyll a
P 72	4.6	1.8 A	---	---	4.3	3.2 A
R 73	5.6 avg.	1.8 avg.	4.5 avg.	1.7 avg.	4.6 avg.	2.0 avg.
E 74	4.8	1.6	4.6	1.5	4.4	1.4
75	4.9	1.6	5.2	1.1	4.9	1.7
INTERIM 76	5.5 B	1.95 B	5.0 C	1.8 C	4.4	2.8
77	5.5	---	5.6	---	4.9	---
P 78	4.4	2.3	5.4	1.6	4.1	1.8
O 79	4.3	2.4	4.9	2.3		
S 80	3.8	2.3	4.6	3.2		
T 81	4.2 avg.	2.9 avg.	3.8 avg.	3.5 avg.	avg.	avg.
82	4.4	2.2	3.4	2.6	4.3	2.6
83	4.4	2.2	3.1	2.3		
L 84	4.6 C	3.3 C	3.4 C	3.0		
A 85	4.8	3.1	4.0 B	3.1 B		
N 86	4.5	3.2	3.1	2.6	4.65 D	3.45 D
T 87	4.3	3.7	3.4	3.0	E	E
88						

Pre-Plant to Post-Plant Changes:

- 12% + 65% - 19% + 93% (- 7%) (+ 24%)

NOTES:

- A "Corrected" values, after removal of single anomalous data points -- Canning Lake 10/9 and Kashagawigamog 5/8, in MOE's "Thirteen Lakes" report of 1973. Note: The 1972 data for "Kashagawigamog" is assumed to be the north basin.
- B Average of Self-Help and MOE data
- C Less than 6 samples
- D MOE data (average)
- E "Venture Bay" data for the north basin deleted



HALIBURTON SEWAGE TREATMENT PLANT EXPANSION
CLASS ENVIRONMENTAL ASSESSMENT PHASE I AND II REPORTS
MOE PROJECT #3-0706

F. Reply to Submission of Data and Comments by Kevin Walters dated May 23, 1989 (Exhibit F)

F.1

Mr. Walters makes observations about the deterioration of water quality, appearance of filamentous algae and weed growth in Kashagawigamog and Canning Lakes. Respecting these observations, it should be noted that considerable research with regard to the effect of nutrient loading on macrophyte (filamentous algae, rooted algae, weeds) growth has been carried out by numerous investigators. In this regard, Dr. P. Dillon and Mr. K. Nichols of the Ontario Ministry of the Environment were contacted to establish the current understanding in the scientific community. To date, limnologists have been unable to establish any quantitative relationship between phosphorus loading and macrophyte growth. The more recent invasion of lakes by previously unknown macrophytes, such as the Eurasian milfoil, is not related to phosphorus loading. The accidental introduction of this weed occurred some 10 years ago. The weed proliferated very rapidly. However, it is no longer spreading, in fact, it is reported to be dying out at some locations.

F.2

Mr. Walters concludes from an analysis of data collected under the Cottager's Self Help Program that the South Basin of Kashagawigamog Lake has experienced an overall (19%) reduction of Secchi disk transparency since pre-plant days and that this trend is continuing. As a first point, it should be noted that Secchi disk depth readings typically are not regarded as the primary indicator of water quality deterioration. The concentration of total phosphorus and, to a lesser extent, the chlorophyll-a level are more reliable indicators. Accepting the validity of the data however, the decline in Secchi disk depth occurred between 1979 and 1982. Since 1982, the Secchi disk depth readings show no time dependent trend.

F.3

The observation is made by Mr. Walters from an analysis of the data referenced above that chlorophyll-a values have increased 93% over pre-plant data in the same basin. Furthermore, the author states that selected values have been corrected by removing anomalous data points. We assume that this refers to the selective removal of data showing high chlorophyll-a levels, for example, the data given by M.F.P. Michalski in the report entitled "*Enrichment Status of Thirteen Lakes*" (1973). It is important to note, that such data management should be carried out with outmost caution. Michalski (1973) noted that "concern is expressed relative to the occasional high values (of chlorophyll-a) recorded for Canning, Kashagawigamog, and Moore's Lake during the later summer". Thus, the exclusion of high chlorophyll-a values in calculating seasonal averages is unwarranted unless some measurement error is beyond any doubt. The inherent problem of excluding high values can be illustrated, for example in the case of Kashagawigamog Lake midlake chlorophyll-a values. The artificial exclusion of "high" chlorophyll-a values results in a decline of the annual mean by as much as 0.5 µg/L.

F.4

Mr. Walters suggests that the Secchi depth and chlorophyll-a data indicate worsening trends in water quality. Assuming that the data reported in his letter are indeed unbiased, then it can be shown, that the apparent increase in chlorophyll-a levels in South Kashagawigamog occurred between 1979 and 1981. It is unlikely that the effluent from the sewage treatment plant was the principal cause of the deteriorating trend. The hydrology and the dynamics of the lake system are such that the changes should have occurred between 1977 and 1978 as the plant was placed in operation in 1976. It may be noted that since 1981 there has been no apparent trend in chlorophyll-a levels. In fact, linear regression of the chlorophyll-a data in South Kashagawigamog Lake between 1981 and 1988 yields a negative coefficient (-0.73), which would indicate that water quality improved rather than deteriorated since 1981. This coefficient, however, is not statistically significant, hence, the proper conclusion is that there has been no change in water quality since 1981.



F.5

The report by Mr. Walters implies that deteriorating water quality in South Kashawigamog and Canning Lakes is the result of the discharge from the existing sewage treatment plant. Most scientists regard phosphorus as the limiting nutrient. The estimated phosphorus discharge in 1985 from the Haliburton sewage treatment plant was 54.4 kg per year. The total estimated phosphorous load from all sources to the south basin of Lake Kashagawigamog was 1,393 kg per year during the same period. Assuming that 100% of the phosphorus from the sewage treatment plant reaches the south basin, the load from the treatment plant amounts to a mere 3.9% of the total phosphorus budget. The elimination of the sewage treatment plant discharge would cause no more than a 3% reduction in the phosphorus concentration in South Kashagawigamog. This cannot be considered a significant reduction.

If the Haliburton sewage treatment plant was the major cause for water quality change between 1972 and 1988, more dramatic changes would have been expected to occur in the north basin of Kashagawigamog Lake rather than in the south basin. The data put forward by Mr. Walters indicate the least relative deterioration in North Kashagawigamog.

F.6

Mr. Walters states that "mesotrophic South Kashagawigamog is now approaching an eutrophic state". Although authorities do not necessarily agree on what constitutes eutrophy, the following table has been compiled from Rechow, K.H. and Chapra, S.C., *Engineering Approaches for Lake Management*, (1983).

TABLE 1

TROPHIC STATUS VS CHLOROPHYLL-A CONCENTRATION

<u>Trophic State</u>	<u>Chlorophyll-a ($\mu\text{g/L}$)</u>		
	<u>Academy</u>	<u>Dobson</u>	<u>EPA-NES</u>
Oligotrophic	0-4	0-4.3	<7
Mesotrophic	4-10	4.3-8.8	7-12
Eutrophic	>10	>8.8	>12

According to the above table, South Kashagawigamog Lake is barely mesotrophic (i.e. late oligotrophic) and does not begin to approach eutrophic conditions by these ranking schemes.

According to the lake's enrichment status guideline published by the Ontario Ministry of the Environment (*Cottage Country, An Environmental Manual for the Cottager*, Second Edition, 1982), the lakes appear to be definitely mesotrophic and their trophic status has not undergone significant change.

1207 Garthdale Court
Oakville, Ontario
L6H 2M1
August 6, 1989

The Honourable James Bradley
Minister of the Environment
135 St. Clair Avenue West
Toronto, Ontario

Dear Mr. Bradley:

This letter concerns the environmental assessment of Grass Lake, at the head of Lake Kashagawigamog, in the Municipality of Dysart, Haliburton County. We are owners of cottage property on this lake, and are becoming concerned about its water quality.

I request that the present method---class environmental study---be bumped up to an individual environmental assessment.

Many thanks for your attention in this matter.

Yours Sincerely

A handwritten signature in dark ink, appearing to read 'Rhodes Arnold', with a stylized flourish at the end.

Rhodes Arnold



Office of the
Minister

Ministry
of the
Environment

135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5
416/323-4359

09M1123

OCT 0 4 1989

Mr. Rhodes Arnold
1207 Garthdale Court
Oakville, Ontario
L6H 2M1

Dear Arnold:

Thank you for your recent letter expressing concerns with the expansion of the Haliburton Sewage Treatment Plant proposed by the Township of Dysart et al.

It is premature to decide on the need for an individual environmental assessment as the municipality is still planning.

The planning process outlined in the Class Environmental Assessment for Municipal Sewage and Water Projects (Class EA) requires that the municipality provide at least three opportunities for public and government agency input. The last opportunity is at the completion of planning a project. At that point, an Environmental Study Report (ESR) must be prepared detailing the municipality's planning, the reasons for selecting a preferred alternative and any mitigation measures proposed. I have been advised that an ESR for this project will be completed by mid-October 1989. The ESR must be placed with the Municipal Clerk for 30 days. Then, you may review the report and raise any concerns you feel the municipality has not addressed.

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Mr. Rhodes Arnold
Page 2

If you believe your concerns have still not been adequately resolved, you may request that the project be "bumped-up" to an individual environmental assessment.

I encourage you to participate in all forums provided by the municipality, and make your concerns known. I expect municipal staff to work with you to resolve outstanding issues. Mr. Robert Winson, (416) 440-3482, is available to provide you with detailed help.

I thank you for your interest in protecting Ontario's environment.

Sincerely yours,

Original signed by Minister

Jim Bradley
Minister

cc: Dr. Philip Byer
Chairman
Environmental Assessment
Advisory Committee

Mrs. D.L. McCallum
Township of Dysart et al.

Mr. R. Baker
Totten Sims Hubicki Associates