

NORTH BATTLEFORD WATER INQUIRY

SUBMISSION ON BEHALF OF THE CITY OF NORTH BATTLEFORD

PRIEL, STEVENSON, HOOD & THORNTON
Barristers & Solicitors
#500 – 321A – 21st Street East
Saskatoon, SK S7K 0C1

INDEX

	<u>Page</u>
I. INTRODUCTION	1
II. LEGAL REGIME FOR WATER MANAGEMENT IN SASKATCHEWAN	2
A. ROLE AND RESPONSIBILITY OF PARTIES	2
B. WATER QUALITY OBJECTIVES	7
C. CONCLUSION	13
III. CONSIDERATION OF TERMS OF REFERENCE	13
A. THE CIRCUMSTANCES THAT LED TO THE CURRENT CONTAMINATION OF THE PUBLIC WATER SUPPLY OF THE CITY OF NORTH BATTLEFORD.	13
(i) Illness In The North Battleford Area	13
(ii) Presence Of <i>Cryptosporidium</i> In Municipal Water	19
B. ADEQUACY AND EFFECTIVENESS OF THE ACTIONS TAKEN BY OFFICIALS OF THE GOVERNMENT OF SASKATCHEWAN, THE BATTLEFORDS DISTRICT HEALTH BOARD AND THE CITY OF NORTH BATTLEFORD LEADING UP TO AND IN RESPONSE TO THE DISCOVERY OF THE CONTAMINATION OF THE PUBLIC WATER SUPPLY IN THE CITY OF NORTH BATTLEFORD.	22
(i) Actions leading up to:	
(A) The Government of Saskatchewan.	22
(B) Battlefords District Health Board	23
(C) The City of North Battleford	28
(I) <u>The operation of Plant January 1 to March 20, 2001.</u>	29
(II) <u>March 20, 2001.</u>	29
(III) <u>March 20 to April 24, 2001.</u>	29
(IV) <u>The Foreman's Position</u>	31
(ii) Response to the Discovery of the Contamination	
(A) The Government of Saskatchewan	31
(B) The Battleford District Health Board	33
(C) The City of North Battleford	33
C. THE EFFECT (IF ANY) OF THE REGULATIONS, BYLAWS, POLICIES, GUIDELINES, PROCEDURES AND PRACTICES OF OR APPLICABLE TO THE GOVERNMENT OF SASKATCHEWAN, THE BATTLEFORD DISTRICT HEALTH BOARD AND THE CITY OF NORTH BATTLEFORD ON THE EVENTS REFERRED TO IN "A" AND "B"	35
(i) <u>Government of Saskatchewan</u>	35
(ii) <u>Battlefords District Health Board</u>	43

(iii)	<u>City of North Battleford</u>	44
(a)	<u>History</u>	44
(b)	<u>Location of Wastewater Treatment Plant</u>	45
(c)	<u>Qualifications of the Director of Public Works</u>	47
(d)	<u>Ivan Katzell</u>	49
(e)	<u>Filling of the Position of Plants Foreman</u>	51
(f)	<u>Prior Knowledge by the City of North Battleford of a risk of a <i>Cryptosporidium</i> outbreak</u>	52
(g)	<u>Previous Contaminations</u>	54
(h)	<u>Support by the City for the Water and Wastewater Treatment Plants</u>	55

D.	ANY OTHER RELEVANT MATTERS THAT THE COMMISSION CONSIDERS NECESSARY TO DETERMINE THAT THE CITY OF NORTH BATTLEFORD'S PUBLIC DRINKING WATER IS SAFE IN THE FUTURE	56
(i)	<u>Steps Taken by the City of North Battleford</u>	56
(ii)	<u>Recommendations</u>	58

IV.	CONCLUSION	61
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I. INTRODUCTION

1. This Commission of Inquiry was established under *The Public Inquiries Act* of the Province of Saskatchewan, by Order in Council dated May 10, 2001. The Order in Council stated that it was deemed advisable and in the public interest that an inquiry be made into the safety of the public drinking water in the City of North Battleford, in the Province of Saskatchewan, with the result that this Commission of Inquiry was established with the following Terms of Reference:

“Terms of Reference:

1. The Commission of Inquiry appointed pursuant to the Order will have the responsibility to inquire into and report on and make findings and recommendations with respect to any and all aspects of the following matters:

- (a) The circumstances that led to the current contamination of the public water supply of the City of North Battleford;
- (b) The adequacy and effectiveness of the actions taken by officials of the Government of Saskatchewan, the Battlefords District Health Board and the City of North Battleford leading up to and in response to the discovery of the contamination of the public water supply in the City of North Battleford;
- (c) The effect, if any, of the regulations, bylaws, policies, guidelines, procedures and practices of or applicable to the Government of Saskatchewan, the Battlefords District Health Board and the City of North Battleford on the events referred to in (a) and (b);
- (d) Any other relevant matters that the Commission considers necessary to determine that the City of North Battlefords public drinking water is safe in the future . . .”

2. It is unfortunate that the Terms of Reference, on the basis of which the Commission was constituted, stated, as a starting point, that the public water supply of the City of North Battleford was contaminated on May 10, 2001. The Reference is to “current contamination of the public water supply at the City of North Battleford”. The Order in Council was issued on May 10, 2001. At that time, there was simply no evidence upon which a reasonable conclusion could be drawn that the public water supply of the City of North Battleford was then contaminated.

3. The City of North Battleford is confident that the Commission will not be affected in its conclusions by assumptions made by the drafter of the Terms of Reference and will be guided only by the evidence presented to the Commission and reasonable conclusions that can be drawn therefrom.

II. LEGAL REGIME FOR WATER MANAGEMENT IN SASKATCHEWAN

A. ROLE AND RESPONSIBILITY OF PARTIES

4. Following the Walkerton incident in May, 2000, SERM, Saskatchewan Water Corporation and Saskatchewan Health, i.e. Government departments with primary and regulatory responsibility for drinking water, prepared a Cabinet Decision Item (“CDI”) for the Cabinet of the Government of Saskatchewan. A draft CDI was prepared dated September 22, 2000 with another draft being prepared dated November 20, 2000. In each of the drafts, SERM, Saskatchewan Health and Saskatchewan Water make the following comment:

“The Government of Saskatchewan had a mandate and obligation to ensure that drinking water is clean, safe and accessible to all residents.”

5. In Figure I of the November 20, 2000 CDI, which appears at Tab 19, Binder B of Exhibit “C43”, the role and responsibilities of Saskatchewan Health, Saskatchewan Water, SERM and Municipalities are dealt with. Some of the more important roles and responsibilities of those parties are described in Figure I as follows:

(a) Saskatchewan Environment and Resource Management:

- “• Has the primary provincial responsibility for drinking water safety for communal and public works.
- Comments on applications to construct for community systems and those private works with an average flow of potable water exceeding 18 cubic meters per day.
- Sets objectives and monitoring guidelines for the Province’s drinking water quality which includes biological, general chemical, health and toxicity related parameters.
- Issues Minister’s orders for monitoring of water works.
- Manages the reporting, notification and follow up of any positive bacteriological and other analytical results for regulated facilities.
- Conducts monitoring and compliance inspections.
- Maintains a database of drinking water quality information including bacteriological, general chemical, physical, health and toxicity, biocide and radiological related parameters.

- Establishes operator certification standards and facility classifications.
 - Review of intensive livestock operations at the request of Agriculture and Food for water quality impacts.”
- (b) Saskatchewan Water:
- “• Issues approvals to construct and operate all municipal and commercial water systems.
 - Reviews and comments on the design of treatment plants.
 - Review of intensive livestock operations at the request of Agriculture and Food for water quality impacts. . . .”
- (c) Saskatchewan Health/Health Districts:
- “• Do not have stand alone regulations that deal with drinking water . . .
 - Require all municipalities (except northern communities) to ensure that there is a supply of potable water for use by the residents of the community.
 - Provide water quality information, interpretation of water quality analysis and advise on any necessary water treatment when approached by an owner/user of private or non-municipal systems with less than 18 cubic meters per day flow rate.
 - Medical health officers act as advisors to SERM on water quality matters that may impact the public’s health as well as the authority to issue emergency boil water orders.
 - Saskatchewan Health’s provincial lab provides most drinking water quality analysis including bacteriological analysis in Saskatchewan.”

6. In Figure I of the CDI under date of November 20, 2000, the role and responsibility of municipalities with respect to drinking water is discussed. The role and responsibility of municipalities in that respect is described as follows:

- “• In general must meet SERM’s and Sask. Water’s regulations governing drinking water and report the status of the operation to SERM.
- Responsible for collection of the water quality samples and submitting the results to SERM.
- Owners of waterworks ensure that the system is operated to meet the criteria outlined by the municipal drinking water quality objectives.

- Owners of waterworks are required to report to SERM if disinfection equipment fails.
- With the exception of northern communities, municipalities are required under *The Public Health Act* to ensure that there is a supply of potable water for use by residents.”

7. It is important to note that in the CDI of November 20, 2000, the drafters of that document, being representatives of SERM, Saskatchewan Health and Saskatchewan Water acknowledged that the Government of Saskatchewan has a mandate and obligation to ensure that drinking water is clean, safe and accessible to all residents. Those same parties describe the responsibility of SERM as being the “primary provincial responsibility” for drinking water safety for communal and public works. SERM is required to set objectives and monitoring guidelines which municipalities are expected to meet. The references in paragraphs 5 & 6 to the role and responsibilities of the parties are also contained in the binder of Bob Ruggles (Exhibit “C-104”).

8. SERM produced a Municipal Drinking Water Safety Report, a draft of which appears under Tab B15 of the binder of Bob Ruggles, which binder was marked as Exhibit “C104”. At page iv of the Executive Summary to that report appears the following statement.

“Safe drinking water is an important goal in the province which is achieved through numerous methods such as regulatory controls, proper systems operations, capital investments, water supplies and training programs. In January, 1991, Saskatchewan Health set an objective of “by the year 2000; one hundred percent of the Saskatchewan population will have access to safe and adequate drinking water”. In March, 1991, Saskatchewan Environment and Resource Management released new objectives for municipal drinking water quality. There was also an announcement that the Government would work with communities to develop strategies for drinking water safety.”

9. In the aforementioned Municipal Drinking Water Safety Report, there is a discussion about how SERM views municipal drinking water quality objectives. At page v of the Executive Summary Report, the Report makes the following point:

“Criteria has been established for surface and ground water treatment works to assess drinking water safety. The province’s municipal drinking water quality objectives are used to assess whether a community’s drinking water quality presents a safety problem. Since zero risk or absolute safety is unachievable, the objectives and treatment are used to assess risks rather than as definitive standards on whether drinking water is safe or unsafe. Communities are expected to employ adequate water treatment works and comply with the municipal drinking water quality objectives over time to minimize health risks.”

10. Professor Marie-Ann Bowden testified before the Commission and provided an opinion as to the legal regime for water management in Saskatchewan, which was received by the Commission as Exhibit “C-116”.

11. Professor Bowden did an analysis of the roles and responsibilities of various Government Departments with respect to water quality issues.

12. At page 5 of her opinion, with reference to Saskatchewan Water, Professor Bowden references Section 41(1) of *The Water Corporation Act*. In referencing that section, Professor Bowden made the following comment:

“Although section 41(1) of *The Water Corporation Act* vests “the property in and right to the use of all ground water and surface water . . . in the Crown”, the responsibility for that resource does not rest solely with Sask. Water. Jurisdiction for water is shared among several Ministers within the province.”

13. Professor Bowden then discussed the role and responsibility of the Minister of Environment and SERM. In doing so, she commented as follows:

“According to *The Environmental Management and Protection Act* (hereafter “EMPA”) the Minister of Environment is responsible for all matters not assigned to any other Minister, department, branch or agency of the Government of Saskatchewan relating to the environment and to enhancing and protecting the quality of the environment. In addition to this wide-ranging power regarding environmental protection, the Minister has “general supervision, control and regulation of all matters concerning water quality and its impairment by pollution”. More specifically, section 14 of EMPA articulates a number of duties of a mandatory nature required by the minister in order to protect water quality as well as a number of discretionary powers. It is important to note that it is the positive responsibility of the Minister of Environment to “undertake and coordinate research, investigations and planning respecting water quality and water pollution” . . .”

14. By virtue of Section 15(1) of the EMPA, SERM has an overall responsibility for the collection, processing and storage of data on the quality of water resources of Saskatchewan.

15. Professor Bowden concluded, and the City of North Battleford urges the Commission to find, that the Minister of Environment and SERM have the legislative mandate and the ability, if they so choose, to assume responsibility for all aspects of water quality management within the borders of the Province of Saskatchewan from source to tap. At page 8 of her presentation, Professor Bowden made the following comment:

“The sum total of these general provisions plus more specific provisions in both EMPA and the regulations relating to specific aspects of water quality management, is that the Minister of Environment is the paramount authority when it comes to the maintenance and enhancement of water quality within the province. Although the possibility for cooperation with other levels of government and other agencies exist, and the regulations specifically charge other stakeholders with duties in relation to particular water uses, arguably, it is the Minister, and his Department, who are the lead parties with respect to the protection of this resource within the borders of the province.”

16. Professor Bowden then considered the responsibility of the Minister of Municipal Affairs and Housing. That Minister is responsible for the administration of *The Water Corporation Act*. Professor Bowden pointed to Section 16(1)(a) of *The Water Corporation Act* to make the following comment:

“In turn, the corporation, Sask. Water, is charged with the responsibility to “manage, administer, develop, control and protect the water and related land resources of Saskatchewan.” In addition, Sask. Water has the power to maintain and enhance the quality of water and related land resources for domestic, agricultural, industrial, recreational and other purposes, to promote the economical and efficient use, distribution and conservation of the water and related land resources of Saskatchewan, and to undertake and coordinate research, investigations, surveys, studies and programs.”

17. With respect to the role and responsibility of Sask. Health, the Commission’s attention is respectfully directed to the analysis of that role and responsibility contained in the CDI previously referenced.

18. By way of conclusion, the City of North Battleford does not minimize its role as one of a number of players who have responsibility for the maintenance and delivery of safe water to residents of the City of North Battleford. We suggest, however, that an over-arching responsibility lies with the Government of Saskatchewan (SERM in particular) to take a lead role in that respect. SERM has the tools (i.e. the legislative authority) to do so. Water is a renewable natural resource. If the watershed is not protected, water will become less of a renewable resource. We urge the Commission to conclude that the Government of Saskatchewan has a mandate and obligation to ensure that drinking water is clean, safe and accessible to all residents and that that mandate and obligation is a primary one.

B. WATER QUALITY OBJECTIVES

19. Key to a completion of the task of the Commission will be its determination with respect to the question “what were the municipal drinking water quality objectives which the City of North Battleford was required to meet?” at the time of the *Cryptosporidiosis* outbreak.

20. It is clear that SERM expects municipalities, such as the City of North Battleford, to comply with the municipal drinking water quality objectives and that municipalities have, in the past, considered that compliance with municipal drinking water quality objectives was required. Further, municipalities should be free to conclude that by complying with those objectives there was reasonable assurance that the drinking water which was being produced was safe as being free from pathogenic organisms, hazardous chemical and radioactive substances and objectionable colour, odor and taste.

21. Measurement of turbidity in treated drinking water is a very important surrogate parameter used to determine the quality of treated water. Turbidity was never intended to be a test for, nor is it a definite indicator of the potential for parasites.

22. Beginning in 1968, guidelines were developed for Canadian drinking water quality. Beginning in about 1986, there was developed a Federal/Provincial committee on environment and occupational health which had as an obligation the revision and updating of Canadian drinking water guidelines on a continuing basis.

23. In the 1996, 6th Edition of the Guidelines for Canadian Drinking Water Quality, viruses and protozoa are referenced on page 14 in Section 3.3. That Section reads as follows:

“3.3 Viruses and Protozoa

Guidelines for viruses and protozoa are not proposed at this time, but relevant information is currently being reviewed (see Table 5). It is desirable, however, that no viruses or protozoa (e.g. *Giardia*) be detected. A water treatment system that provides effective filtration and disinfection and maintains an adequate disinfectant residual should produce water of an acceptable quality in this regard. Where possible, source protection should also be exercised.”

24. At page 22 (Table 2) in the Guidelines for Canadian Drinking Water Quality, the guideline for turbidity is a maximum acceptable concentration of 1.0 NTU and not greater than 5.0 NTU at the point of consumption.

25. The Guidelines for Canadian Drinking Water Quality were amended effective March of 2001. It should be noted that the amended Guidelines were prepared by the Federal/Provincial Subcommittee on

Drinking Water and that Mr. Thon Phommavong of SERM sits on that subcommittee. At page 3 of the revised Guidelines, Protozoa is dealt with as follows:

“Protozoa

Numerical guidelines for the Protozoa, *Giardia* and *Cryptosporidium* are not proposed at this time. Routine methods available for the detection of protozoan cysts and oocysts suffer from low recovery rates and do not provide any information on their viability or human infectivity. Nevertheless, until better monitoring data and information on the viability and infectivity of cysts and oocysts present in drinking water are available, measures to reduce the risk of illness as much as possible should be implemented. If viable, human infectious cysts or oocysts are present or suspected to be present in source waters or if *Giardia* or *Cryptosporidium* has been responsible for past water-borne outbreaks in a community, a treatment regime and a watershed or well head protection plan (where feasible) or other measures known to reduce the risk of illness should be implemented.”

26. The March, 2001 revised Guidelines for Canadian Drinking Water Quality makes no change from the 1996 Guidelines with respect to the Turbidity parameter. It is still 1.0 NTU with an aesthetic objective of less than 5.0 NTUs at the point of consumption. The 1991 Municipal Drinking Water Quality Objectives produced by SERM deal also with turbidity. The parameter with respect to turbidity in those Objectives read as follows:

“Turbidity

The maximum acceptable concentration for turbidity is one nephelometric turbidity unit (NTU) for water entering a distribution system. A maximum of five NTU may be permitted if it can be demonstrated that disinfection is not compromised by the use of this less stringent value. An aesthetic objective of five NTU has been set for the point of consumption. . . .”

27. Evidence was led through Peter Thiele to the effect that in 1996, the Municipal Drinking Water Quality Objectives were amended and, in particular, the turbidity parameter was amended. The amended objectives are said to appear in Exhibit “C1” under Tab 3. That is a 2-page document which would appear to be little more than a copy of a poster. The reference to turbidity in that document shows that the maximum acceptable concentration for turbidity is one NTU with an aesthetic objective of five NTU. The footnote reads as follows:

“(1) Turbidity – The MAC of one NTU applies to water in the water distribution system. A maximum of five NTU may be permitted if it can be demonstrated that disinfection is not compromised by the less stringent value.”

28. The change to the turbidity parameter is stated to be in the footnote wherein it is apparently provided that the maximum acceptable concentration of one NTU applies to water in the distribution

system whereas it had previously been provided that the maximum acceptable concentration of one NTU applies to water entering the distribution system. The issue becomes important because North Battleford had a mixture of surface water and ground water in its distribution system. Ground water often has a turbidity level greater than one NTU because of the iron and other minerals present in that water.

29. There is an issue about whether or not there was an actual change to the turbidity parameter in 1996 and, if there was, whether the reference to the turbidity parameter being a maximum acceptable concentration of one NTU applying to water in the distribution system was nothing more than a typographical error and the word “in” should have read “entering”. Whether or not there was a change in the turbidity parameter, the Commission will have to consider notice, or lack thereof, given to municipalities such as the City of North Battleford of the alleged change.

30. With respect to the above-noted issues, it is useful to have regard for the following facts:

- (a) In 1991, when the Municipal Drinking Water Quality Objectives were published by SERM, it was a rather lengthy document which specifically provided that the 1991 document replaced the June, 1980 Municipal Drinking Water Quality Objectives.
- (b) The only evidence before the Commission with respect to the 1996 Municipal Drinking Water Quality Objectives is a copy of a poster containing some parameters with a handwritten note on the bottom “March, 1996”. There is no indication in that document that the document was intended to replace the 1991 Objectives, and no evidence of any backup documents or evidence of consultation undertaken prior to an amendment, nor was any evidence produced of ministerial approval for any such change.
- (c) Reference should be had to “Policy and Operations Binder “A” ”, i.e. Exhibit “C42”, Tab 4. There appears at that point, the March, 1996 Municipal Drinking Water Quality Monitoring Guidelines dated March, 1996. At page 3 of that document, reference is made to the March, 1991 Drinking Water Quality Objectives. The Monitoring Guidelines are dated March, 1996, i.e. the date written on the poster referred to in paragraph (b). No mention is made of any revised 1996 Water Quality Objectives.
- (d) Government witnesses were pressed, in cross-examination by counsel for the City of North Battleford, to produce background documents relating to the alleged amendments to the Municipal Drinking Water Quality Objectives in 1996. No such documents were produced. At page 186 of the evidence of Bob Ruggles (lines 10 to 21) appears the following questions and answers:

“Q: Okay, because you know, I have been asking for it for about a month now and no one’s given it to me. So in any event, so there is such a new document and you can produce it for the inquiry?”

A: If I may, there is a document that was used to produce the 1996 updated Drinking Water Objectives for the Province. That document is actually the National Drinking Water Guideline document that was produced in 1996.

Q: Okay.

A: So we didn't in the province, produce a separate document like we did in 91. We used the .. the actual .. the national document for 1996."

Mr. Ruggles, previously in his testimony, indicated that what was intended in 1996 was to simply adopt the Federal Guidelines.

- (e) The only notice of 1996 Provincial/Municipal Drinking Water Quality Objectives were references to it in the "Clearwater Reporter" and whoever was on the distribution list for that publication. No document was produced by the department, issued by the Minister, saying as it had said in 1991, that the 1996 Objectives were replacing the 1991 Objectives. With the exception of the "Clearwater Reporter" references, nothing was said to municipalities, in particular. nothing was said to the City of North Battleford about that. Publication of the "Clearwater Reporter" ended in 1997.
- (f) The Commission's attention is respectfully directed to Exhibit "C57". That Exhibit contains a number of documents beginning as early as April 27, 1988. What the documents are, are a series of letters from the Data Management Unit, Environmental Protection Branch of SERM directed to the City of North Battleford containing a computer printout of the constituents analyzed in the samples submitted to SERM of the municipal treated drinking water together with a comparison of those constituents as they relate to the Municipal Drinking Water Quality Objectives. In each case, turbidity is referenced. Between 1988 and 1998, in these documents, SERM consistently told the City that the Municipal Drinking Water Quality Objectives called for a turbidity level of 5.0. During the years 1998 and 1999, references on the documents to turbidity and all other constituents were simply left blank. Beginning in 1999, immediately after the Walkerton incident, a letter dated June 7, 2000, makes reference to the Municipal Drinking Water Quality Objectives and an objective of 5.0 with respect to turbidity. The last letter the City received from SERM commenting on the treated drinking water sample provided for analysis, was dated November 5, 2001 and on that document reference is made to a Municipal Drinking Water Quality Objective of 1.0.
- (g) In Exhibit "C-85", the binder of Rodger A. McDonald, has a reference in it, under Tab 21, to the boil water order removal information submission of the City of North Battleford dated July 17, 2001. Contained in that submission is the protocol for removal of the boil water order. That protocol was signed by the City under the hand of Wayne Ray, by Sask. Health under the hand of Dr. Butler-Jones, by the Battlefords Health District under the hand of Dr. Shauna Hudson, and by SERM under the hand of Mark Getzlaf. The Commission's attention is respectfully directed to paragraph 1(a) on page 2 of that protocol, which reads as follows:

"1(a) Surface Water Treatment Plant

The safety of the surface water supply can be demonstrated by turbidity, free and total chlorine residuals, total coliform and fecal coliform levels which meet SERM's Objectives/Regulations for safe drinking water. The water must also be free *Cryptosporidium* and *Giardia* organisms. This must be demonstrated by sampling according to the attached sampling schedule. **(emphasis added)**

Continuous turbidity monitoring recorded hourly during plant operation. Hourly readings of the effluent directed to clear well

from filter banks one and two as well as three and four must be less than 0.30 NTU for 12 consecutive hours over the operating day and at no time greater than 1.0 NTU for the two week period prior to rescinding the EBWO.”

- (h) Rodger McDonald testified that, as an expert operating in the area of water and waste water treatment and having been engaged by SERM on a number of occasions for advice and assistance, he knew nothing about alleged amendments made in 1996 to the Municipal Drinking Water Quality Objectives.
- (i) In the information package provided by Mr. McDonald to SERM with respect to the removal of the boil water order, Mr. McDonald attached as a schedule a copy of a 1991 Drinking Water Quality Objectives. It is interesting to note that at no time did anyone from SERM take exception to the references by Mr. McDonald to the 1991 Drinking Water Quality Objectives. No one told him and no one raised as an issue the fact that the 1991 Drinking Water Quality Objectives were no longer applicable and one should be looking at 1996 Objectives.

31. It can only be concluded that what SERM intended to do in 1996 was to simply adopt as its own the Guidelines for Canadian Drinking Water Quality. There was no evidence of any consultation, and no evidence of notification given by SERM to anyone with reference to any alleged changes with the exception of the copy of the poster entered in evidence together with references to the Municipal Drinking Water Quality Objectives in the “Clearwater Reporter”. Alternatively, we suggest it would be fair to conclude from all of the evidence that the reference to an alleged change in the turbidity from 1.0 entering the distribution system to 1.0 in the distribution system is nothing more than a typographical error in a poster. There was never any intention to change the Objective with respect to turbidity. Certainly, the correspondence between SERM and the City of North Battleford with reference to the municipal treated drinking water samples would lead the City clearly to the conclusion that the people in SERM responsible for advising municipalities with respect to the constituents analyzed in the drinking water sample and how they compare to the Municipal Drinking Water Quality Objectives understood as late as June of the year 2000, that the Municipal Drinking Water Quality Objectives with respect to the City of North Battleford was 5.0. We suggest that given the representations made by SERM to the City of North Battleford in Exhibit “C57”, SERM is estopped from taking a contrary position in these proceedings.

C. CONCLUSION

32. By way of conclusion, it is fair to say that the City of North Battleford, like all other municipalities, should be entitled to conclude, in the words of the boil water order removal criteria “the safety of the surface water supply can be demonstrated by turbidity, free and total chlorine residuals, total coliform and fecal coliform levels which meet SERM’s Objectives/Regulations for safe drinking water.” Certainly, the City of North Battleford recognizes that it is advisable to produce treated drinking water from its surface water treatment plant with a low turbidity level. The lower the turbidity level, the less risk there is of contamination of the treated drinking water. A municipality is, however, entitled to rely upon the

objectives/regulations of the regulator, SERM, and is entitled to consider whether or not it meets those regulations/objectives, as an indicator of whether or not safe water is being produced. If it meets the objectives/regulations, it ought to be able to conclude that the treated drinking water is safe.

33. If a municipality is required to say that, in effect, SERM's Objectives/Regulations for safe drinking water must be ignored and a much more stringent set of rules must be applied, then there is only one conclusion to which one can come, and that is that SERM's Objectives/Regulations for safe drinking water are wholly inadequate. It should be noted that although settling in the solids contact unit was the subject of much discussion in this case, settling percentages are not the subject of regulations or objectives.

III. CONSIDERATION OF TERMS OF REFERENCE

A. THE CIRCUMSTANCES THAT LED TO THE CURRENT CONTAMINATION OF THE PUBLIC WATER SUPPLY OF THE CITY OF NORTH BATTLEFORD.

(i) Illness In The North Battleford Area

34. The epidemiological evidence of the case – series study is that onset dates of illness ranged from January 1 to May 23, 2001 within the Battlefords Health Service Area. A total of 1,039 persons became ill after March 20. Of these persons, 110 (11%) had *Cryptosporidium* oocysts identified in their stool. One hundred nineteen individuals reported diarrhea onset prior to March 21. Of these, 10 (8%) had *Cryptosporidium* oocysts identified in their stool.

35. The case-series study outside the Battlefords Health Service Area disclosed symptom onset dates for visitors from February 1 to May 30; the majority of the cases were observed from April 15 to April 30. A total of 955 persons became ill; of these, 868 identified symptom onset subsequent to March 20 and 22 identified symptom onset prior to March 20; another 45 cases had an unknown date of onset. Of the 868 individuals who met the case definition, 218 submitted a stool sample and 165 (19.1%) were laboratory confirmed. There is no evidence as to any submission of stool samples or lab results in respect of the 21 individuals with diarrhea onset prior to March 21. Random sampling in stool specimens submitted from persons associated with the outbreak identified *Cryptosporidium* as the only pathogen present; there was no finding of the presence of *Giardia*.

36. The Epidemiological Cross-sectional Study involved telephone interviews of 259 households, comprising 652 individuals. The survey included 161 households who, from February 14 to April 25 used North Battleford municipal water as the sole source of tap water. Of the 652 persons, 314 (48.2%) were asymptomatic; 338 persons (51.8%) were symptomatic and of these, 289 (44.3%) had diarrhea. Two hundred fifty-seven had diarrhea onset March 21 or later; 32 had diarrhea onset prior to March 21. Of

these, 21 individuals had onsets between February 14 and March 20 and 11 had onsets prior to February 14 (Exhibit C12, Tab 1, p.38).

37. There were 196 individuals who met the definition of a primary case and 51 individuals who met the secondary case definition (Exhibit C12, Tab 2, p.18). The study defined a primary case as one which occurred subsequent to March 20. The first primary case occurred March 21 with the peak in primary cases per day occurring April 13. The median date of onset of primary cases occurred April 10. The first secondary case occurred April 6 with the peak in secondary cases on April 15.

38. Dr. Ellis' evidence is that the incubation for *Cryptosporidium* ranges between 1 to 12 days with an average period being 7 days. Dr. Ellis' evidence is that the minimum human dose to establish an infection would be approximately 10 oocysts.

39. Dr. Belosovic testified that the incubation period is typically 5/7 to 10 days, however, if you have an immunocompromised individual, it could be as little as 2 days. Dr. Belosovic also stated that the period of incubation will be dependent upon the number of parasites to which the individual is exposed as it takes time for the parasites to multiply before they can be seen in the feces. Dr. Belosovic's evidence is that an infectious dose is approximately 130 oocysts; Infectious Dose 50 (ID50) is the dose required to infect 50% of the population. According to Dr. Belosovic, in an outbreak of this nature, some individuals would present with symptoms at 5 days and others with symptoms at 20 days. We submit that Dr. Belosovic's evidence is more detailed, thorough and credible.

40. Dr. Ellis' evidence is that the increase in gastroenteritis in the community coincided with the breakdown of the Solids Contact Unit (SCU). Dr. Ellis' report relies upon the increase in the finished water turbidity as evidence that the SCU had an impact on the quality of the drinking water and by inference that the *Cryptosporidium* must have entered the water system during the period of higher turbidity. No attempt was made to quantify the level at which this might occur. Dr. Ellis is not an engineer nor is she qualified in water treatment and relationship of turbidity to provide an opinion that higher turbidity had a direct impact on the quality of drinking water and in particular, that higher turbidity had any relationship to the presence or absence of *Cryptosporidium*.

41. Rodger McDonald testified that turbidity is not a test for parasites; nor is it a definitive surrogate indicator for potential parasites. Dr. Belosovic was of the opinion that you could not make a direct parallel between turbidity and the presence of parasites. In his opinion a low level of turbidity would not be an absolute indicator that parasites would not be there. We suggest that a reasonable conclusion to be drawn from the evidence is that, at best, turbidity is a surrogate parameter that is not and was never intended to act as a measurement to detect the presence/ absence or, if present, the level, of protozoa. The best that can be

said is that a higher or lower level of turbidity would allow one to conclude only that there is a higher or lower (as the case may be) risk of the presence of protozoa. Obviously, a turbidity level of 0.3 ntu, or less, means that there is less risk that protozoa the size of *Cryptosporidium*, i.e. 2 to 5 microns, would enter the system. At low turbidity levels (0.3 ntu or less) in the treated water, a particle counter may well register 30 per m.l. particles of the size of *Cryptosporidium* oocysts. That would mean there would be 30,000 such particles in a litre and 3,000,000 such particles in 100 litres. Normally, a test for *Cryptosporidium* would involve a determination of the number of such oocysts in a quantity of 100 litres of water. The conclusion one comes to is that in 100 litres of treated water, there may be 3,000,000 particles the size of *Cryptosporidium* oocysts in which water has a turbidity level that is very acceptable. It should be noted that Alberta has or is considering regulations which would prescribe a particle count requirement of 50 m.l. The point, therefore, is that those numbers will not preclude the presence of *Cryptosporidium* oocysts in the treated water.

42. Dr. Ellis acknowledges that the association of exposure to North Battleford municipal water with illness is not as strong as seen in other waterborne outbreaks. Further, Dr. Ellis acknowledges that it is difficult to assess the significance of laboratory confirmed *Cryptosporidiosis* infections with reported symptom onsets before March 21. It must be noted that Dr. Ellis was engaged by the Province of Saskatchewan, one of the parties to this proceeding.

43. It is submitted that Dr. Ellis' attempts to rationalize and disregard such lab-confirmed results is a rationalization made to permit her to ignore such cases as potentially being explained by recall bias, subsequent infection or infection from another source. Dr. Ellis acknowledges that it is difficult to determine the exact date of the outbreak. The *Cryptosporidiosis* log maintained for the Battlefords Health District Service Area identifies a number of individuals whose stool tested positive for *Cryptosporidium* and whose symptom onset date preceded March 21, 2001 (Exhibit C16, Tab B-4).

<u>Patient Number</u>	<u>Onset Date</u>	<u>Patient Number</u>	<u>Onset Date</u>
61	01/02/	140	20/20 (typo)
62	01/03/22	145	2001- 03/19
63	01/03/18	172	2001 – 03/05
65	01/03/01	197	2001 – 03/15
66	01/03/26	201	2001 – 03/26
71	01/02/19	202	2001 – 03/26
76	01/01/	218	2001 – 02/07
82	01/03/24		

Dr. Ellis has simply chosen to ignore the very plausible explanation that *Cryptosporidium* was present in the North Battleford drinking water prior to March 20 and at a time when the Water Treatment Plant was

operating optimally with full function of the multi-barrier approach including coagulation, flocculation and sedimentation in the SCU. Ten (8%) of the 119 individuals who had the onset of diarrhea prior to March 21 were lab-confirmed positive for *Cryptosporidiosis*. This fact cannot simply be ignored or explained away by recall bias or history. If recall bias and history exists, then the same should be factored into those individuals who reported onset of symptoms subsequent to March 21. In respect of the individuals outside the Battleford Health Service Area, 21 reported diarrhea prior to March 20, however no results are given as to whether or not there were positive lab findings of *Cryptosporidium*.

44. The cross-sectional study similarly ignored the 32 individuals (11% of those with confirmed diarrhea) who had onset of symptoms prior to March 21. Dr. Ellis asserts that the first primary case occurred on March 21. It is stretching plausibility to relate this case to sub-optimal performance of the SCU. When the SCU was repaired, it was not brought back into service until late afternoon on March 20. The daily plant log for March 20 (Exhibit C-7), shows that the plant started at 19:27 and stopped at 20:23 having produced 66,542 imperial gallons of water which would have been pumped into the clear well and eventually to the reservoirs and distribution system which holds at least 2.5 million gallons of water.

45. The plant was started by Robert Borne on the direction of Peter Allen. Mr. Allen's direction to Mr. Borne was that at a launder turbidity of 5 the filters would be able to finish it. Mr. Allen also advised that the significant thing was to have free chlorine residual of 0.2 or more. These conditions were met by Mr. Borne. The turbidity of the finished water on March 20 is recorded as 0.19 during the time the plant operated.

46. For the first primary case to have been substantiated on March 21 and attributed to the municipal water produced after the SCU was serviced, the water produced had to be pumped into the distribution system, the individual would have to have consumed water subsequent to 4:00 p.m. and become ill within 24 hours. This is unrealistic having regard to the 5/7 to 10 day incubation period and Infectious Dose 50 evidenced by Dr. Belosovic.

47. If *Cryptosporidium* was in the municipal water supply on March 20, it was present at a time when the treated water turbidity was at 0.19. Turbidity of the treated water remained at or below 0.2 from March 20 until 09:17 on March 27 when the turbidity rose to 0.35. Between March 27 and April 25, the turbidity in the treated water was variable and fluctuated between 0.3 upwards to 0.6 with an occasional reading in excess of 0.6. At no time did the turbidity exceed 1.0 NTU (Exhibit C7 – Daily Plant Logs). During this period of time, the plant operators were qualified and experienced operators (Messrs. Allen, Fluney, Hollman and Wicks).

48. These experienced operators were aware of the fact that there was little or no settling in the SCU, but were satisfied that the water met the Provincial Objective of 1.0 NTU; turbidity was one of the surrogate parameters available by which to judge the quality of the water in conjunction with maintaining adequate chlorine residuals. The actions of the plant operators must be assessed having regard to the fact that the Surface Water Treatment Plant had previously (including February 1999) operated without incident and produced water while the SCU was not in service. It is accepted that there was a loss of efficiency of treatment related to the SCU being down and filter performance.

(ii) Presence Of *Cryptosporidium* In Municipal Water

49. This Inquiry has been conducted around an assumption that there was contamination of the public water supply of the City of North Battleford by the presence of *Cryptosporidium*. It must be clearly borne in mind that in the eighteen (18) tests taken on the treated water from the Surface Water Treatment Plant between April 24 and May 10, the following are the test results:

Filters 3 & 4 <u>Date/# of liters</u>	Crypto-ocysts Detected		
	<u>Dead</u>	<u>Viable</u>	<u>Total/100 l.</u>
April 24 – 400 l.	6	1	1.8
April 30 – 25 l.	1	0	4.0

Treated Water
Chemical Storage Room Area

<u>Date/# of liters</u>	<u>Dead</u>	<u>Viable</u>	<u>Total/100 l.</u>
April 24/25 – 1,000 l.	4	2	0.6
April 25 – 1,000 l.	1	3	0.4
April 25 – 1,000 l.	1	1	0.2

50. Tests in the distribution system were conducted from June 15 through to July 11. Other than the finding of one (1) dead *Crypto* oocyst (0.1/100 l.) at 2244 Douglas Avenue on June 22, no other *Cryptosporidium* was found in the North Battleford distribution system. Four subsequent tests at 2244 Douglas Avenue conducted on June 23, 28, 29 and 30 were each negative for the presence of any *Crypto* oocysts.

51. Twenty-two tests for *Cryptosporidium* in the raw water at the Surface Water Treatment Plant were conducted between April 24, 2001 and October 16, 2001. The only positive findings of *Crypto* oocysts were made on April 26 and May 8 in the raw water as follows:

<u>Date / # of liters</u>	<u>Dead</u>	<u>Viable</u>	<u>Total/100 l.</u>
April 26 – 10 l.	1	2	30.0
April 26 – 10 l.	0	5	50.0
May 8 - 378 l.	0	1	10.6

(Reference – Data Summary included in Exhibit C85 – Rodger McDonald – Tab B6).

There is no direct evidence that *Cryptosporidium* was present in the North Battleford treated drinking water on any occasion either prior to March 20 or subsequent to March 20 except for the limited presence on April 24, 25 and 30 as noted above. On April 24, raw water turbidity was 16/17; treated water turbidity ranged between 0.39 and 0.61. On April 25, river water turbidity was 37; turbidity in the finished water was 0.50 to 0.52. On April 30 raw water turbidity was 13; treated water turbidity ranged between 0.39 and a spike of 0.76. No tests of the treated water were taken on April 26 when there was *Crypto* in the raw surface water.

52. Once *Cryptosporidium* has entered the distribution system, it can remain for an indefinite period within the lines, reservoirs and the water tower and result in infection well beyond the point in time when it entered the system.

53. The evidence is that *Crypto* are known to be in the North Saskatchewan River; there is evidence of high concentrations of *Crypto* in the river in Alberta. Concentrations of *Cryptosporidium* are higher in the Spring break-up and run-off. Times of low-flow tend to concentrate *Cryptosporidium*. The tests taken of the raw water on April 26 and May 8 show that there were *Cryptosporidium* in the raw water at the Surface Water Treatment Plant.

54. On the totality of the evidence, including the illness of casual visitors, the epidemiological survey and the limited findings of *Cryptosporidium* in the treated water on April 24 and 30, the water supply is one plausible source of the *Cryptosporidium*. It is interesting to note that tests of the raw water supply at the Surface Water Treatment Plant between April 26 and June 12 as well as one on September 17, 2001 showed there to be a significant amount of *Giardia* in the raw water supply. Random tests on stool samples at the lab failed to disclose any pathogen other than *Cryptosporidium* (evidence Dr. Ellis). There were no findings of *Giardia* in the stool samples.

55. There is no evidence that there is a relationship between the potential presence of *Cryptosporidium* and higher turbidity levels. There is no evidence that the presence of *Cryptosporidium* would cause a turbidity increase. There is evidence of Rodger McDonald and Dr. Belosovic that *Cryptosporidium* could enter the water system during optimized treatment and with the existence of lower turbidity. The evidence

is that even if the SCU was operating optimally, *Cryptosporidium* may not have been removed by an effectively working multi-barrier system operating within the required objectives.

56. Dr. Belosovic's position was that with a multi-barrier process, you would probably need to do some chemical inactivation in terms of protozoan parasites which is known to work; just having a number of barriers that have marginal removal capacity may not necessarily satisfy the quality of the finished water. (Dr. Belosovic's evidence pp.132-133).

57. Dr. Belosovic agreed that removal of one of the barriers may increase the risk, of parasitic materials getting through. Dr. Belosovic's evidence is that if in a filtration/coagulation/flocculation system, the filtration process was not operating or was operating on a sub-standard basis, there would be a higher risk of having *Cryptosporidium* in the finished water, but that you need to know the total number of parasites in the source water (no such knowledge is available). Dr. Belosovic testified that flocculation/sedimentation is a barrier which can remove a significant number of organisms if the system is working properly and result in the reduction of the number of infectious forms. Dr. Belosovic testified that a filter is not an absolute barrier and that sand filters are a Volkswagon filtering system, compared to Cadillac - reverse osmosis.

58. Dr. Belosovic's evidence is that *Cryptosporidium* oocysts are 2 to 5 microns across. Due to their size, they are incredibly difficult to remove. The evidence of relevant witnesses agree that the standards set for turbidity of 1.0 NTU entering the distribution system were not set with the objective or goal of assessing the removal of protozoa. The evidence of Dr. Belosovic being that even in the full performance of a coagulation/flocculation/filtration treatment, there is no guarantee that protozoa would not pass through.

B. ADEQUACY AND EFFECTIVENESS OF THE ACTIONS TAKEN BY OFFICIALS OF THE GOVERNMENT OF SASKATCHEWAN, THE BATTLEFORDS DISTRICT HEALTH BOARD AND THE CITY OF NORTH BATTLEFORD LEADING UP TO AND IN RESPONSE TO THE DISCOVERY OF THE CONTAMINATION OF THE PUBLIC WATER SUPPLY IN THE CITY OF NORTH BATTLEFORD.

(i) Actions leading up to:

(A) The Government of Saskatchewan.

59. There were little or no action taken by officials of the Government of Saskatchewan leading up to the discovery of the contamination. The Government, neither through SERM nor Sask. Health fulfilled an active role in inspecting or monitoring the performance or compliance of the North Battleford Municipal Waterworks nor any waterworks in the Province.

60. The adequacy and effectiveness of the Government's actions can best be summarized as the fulfillment and realization of SERM's risk management strategy. The strategy was that the Government's role was to do nothing to ensure production of safe water except to respond if a health-related risk was identified.

61. Until the Walkerton incident, neither SERM or Sask. Health adequately or effectively responded to compliance or water safety issues. SERM took no steps to use surveillance and assessment information as an aid to obtaining improved water quality in the City of North Battleford or other communities in Saskatchewan. Government officials had no concern as to whether or not there was compliance with Provincial objectives, guidelines or regulations

62. In April 2001, Government officials at SERM and Health only responded in the face of a clearly identified health issue. Once a serious health issue had been identified (here the existence of 10 or more positive lab results for *Cryptosporidium* from the North Battleford Health Service Area), then Sask. Health officials responded to assist the Battleford Health District. When SERM was notified of the potential contamination in the City of North Battleford, it mobilized resources to respond very aggressively including seeking of assistance from the City of Saskatoon to obtain water samples from the municipal water systems in the City of North Battleford and the Town of Battleford.

(B) Battlefords District Health Board

63. Battleford District Health Board (BDHB or District) is responsible for the health of the population within its boundaries; a primary role in this regard is played by its Medical Health Officer who is also to be an advisor to SERM on health-related matters.

64. The actions of the officials of BDHB were both inadequate and ineffective to respond in a timely fashion to what was a very serious outbreak of gastroenteritis and *Cryptosporidiosis* in The Battlefords. The evidence establishes that in part, the adequacy and effectiveness of the District's response was due to funding and staffing. A shortage of Public Health Inspectors (PHI) had been a long-standing problem. This was identified in Exhibit C23, a May 31, 2001 letter to Dr. Benade, which notes a 20% vacancy rate among public health inspectors, including a vacancy in Meadow Lake since July 2000 and identifies that the wages are among the lowest in the country and much lower than neighboring provinces. It is noted that the problem is complicated by SERM now trying to hire PHIs. SERM will pay them more.

65. The adequacy and effectiveness of the actions of District officials must be assessed against the knowledge that District officials, including the Chief Executive Officer and the Medical Health Officer, had as to the current role being played by SERM. On May 30, 2000, Dr. Benade sent a memorandum co-authored by himself and Richard Koroluk, Senior PHI, to Mr. Yarske, CEO of the District (Exhibit C16,

Tab 6). The memo identified two issues which are significant for the Inquiry and assist in assessing the adequacy and effectiveness of the actions of District officials.

66. The memorandum states that SERM has shifted its focus to conservation from public safety and was scaling back its involvement in inspection and monitoring and increasingly placing responsibilities on municipalities through water treatment/sewage treatment plant operator certification process. The memo also recognized that the District would not be aware that there was a problem with a municipal water supply until an outbreak occurred, at which point, the damage may have been done.

67. With this background knowledge, it is apparent that the District officials, including the MHO and the PHIs, including Mr. Koroluk, ought to have been much more sensitive to the issue of a potential water problem, having regard to SERM's abandonment of its role and their knowledge that they were the only ones that would have the opportunity to address health issues.

68. The need for additional resources and the identification of the potential health issues was transmitted to Mr. Duncombe, a senior official in Sask. Health and Dr. Eric Young (See Exhibit C16, Tabs 7 and 8). These memos reflect the District's concerns in relation to water quality monitoring and risk management in what is noted to be a particularly vulnerable situation and knowledge of the Government of Saskatchewan of the deficiencies in public water quality monitoring.

69. Officials of the District failed to recognize and respond to significant illness present in the Battlefords in March and April 2001. There is no evidence that there was in place any adequate monitoring of the records of illnesses and associated reasons therefore in the District. There is evidence that there was substantial gastroenteritis in The Battlefords. Dr. Benade was well aware that such medical condition was typically grossly under-reported or diagnosed. Dr. Benade and District officials failed to have established or to consider the background rate which might be appropriate for gastroenteritis and more particularly for *Cryptosporidiosis*.

70. Significantly, Dr. Benade did not monitor or seek any information concerning the sales of anti-diarrheals prior to the advice from Dr. Lipsett that a local pharmacy said they could not keep anti-diarrheals on the shelves. It would have been appropriate for there to be in place a process for communication and reporting between local pharmacies and the Medical Health Officer; this is particularly so having regard to the significant amount of non-reporting or self-treatment of gastroenteritis. The District failed to have in place any system of monitoring and reporting through local schools, day-cares and nursing homes.

71. The District failed to have in place an appropriate process to handle reports of enteric communicable diseases received from the Provincial Lab. In April, 2001, delays in receiving this

information and conducting the appropriate follow-up investigation could occur as a result of this information being processed through only one employee. The process was further delayed by the information then being provided to the senior PHI who would decide when and to whom the investigation would be assigned.

72. There was no adequate exchange of information between PHIs. Mr. Piatt received and followed-up in relation to the first lab positive *Cryptosporidium* report received in the District on April 4. On April 10, Mr. Piatt gave to Mr. Startup the second lab positive report received in the District on April 5. Significantly, Mr. Piatt failed to advise Mr. Startup that he had just days earlier investigated a positive *Cryptosporidium* report. This is significant in view of the fact that we are dealing with winter months when there is little likelihood of *Cryptosporidiosis* and the virtual non-existence of *Cryptosporidiosis* in the Battlefords Service Area in the preceding two years. The evidence is that for three weeks, Mr. Startup was unaware that Mr. Piatt had received and investigated a positive case of *Cryptosporidiosis*.

73. Officials of the District failed to respond adequately, effectively, or in a timely fashion to the positive lab findings of *Cryptosporidiosis*. The evidence is that in the Battlefords Service Area, the incidence of *Cryptosporidiosis* was low. In 1999 there was only one case; in 2000 there were only two cases, and prior to April 2001, there were no reported cases. Within a period of less than one week at the beginning of April there were two reported cases of *Cryptosporidiosis*. Dr. Benade was unaware of these cases. His first knowledge of *Cryptosporidiosis* in The Battlefords was the advice by Dr. Lipsett on the night of April 12. On Friday the 13th, Dr. Benade checked the CD log and learned of the one prior case.

74. It is appropriate to examine how the reports of *Cryptosporidiosis* were investigated and what was known. The report of patient #1, a 9-year old boy, was received in the District on April 4. Follow-up was by Mr. Piatt and confirmed that the individual lived on a farm eight miles out of North Battleford. This patient's stool was collected March 27. The onset of symptoms was noted to be February 2001. Patient #2, Dr. Lipsett's patient, a 9-year old girl, was confirmed positive with the District on April 5. This patient's stool had been collected on March 27 and the onset of symptoms was reported as March 22.

75. The next significant information received by the District came during Dr. Lipsett's April 12 telephone conversation with Dr. Benade. Dr. Lipsett is a Family Physician without any specialized epidemiological training or training as a Medical Health Officer. Dr. Benade acknowledges that Dr. Lipsett advised that he had a patient who had tested positive for *Cryptosporidiosis* and that a local pharmacy found a high demand for anti-diarrheals. Dr. Benade acknowledges that he was advised that the patient lived in the Town of Battleford, other family members had gastroenteritis as well, but neither they or the patient were severely ill. Dr. Benade says that he asked about bloody diarrhea and potential sources such as international travel and public functions.

76. Dr. Lipsett's evidence is that his patient reported on March 26 with stomach cramps and diarrhea for the past six days; diarrhea twelve times a day. A stool sample was collected on March 27; the results confirmed positive for *Cryptosporidium* on April 4. On April 12, Dr. Lipsett saw the sibling of Patient #2 who had diarrhea six times on the 11th and at least five times on the 12th. Dr. Lipsett diagnosed the sibling as having *Cryptosporidiosis*. Dr. Lipsett phoned Wal-mart pharmacy and was advised by the pharmacist that she couldn't keep the shelves stocked with anti-diarrheal medication. Dr. Lipsett then called Dr. Benade late in the evening on April 12. He advised Dr. Benade of the background and told him "... probably it was part of a bigger problem." Dr. Lipsett did not know whether he used the word 'epidemic', but in his evidence, he testified that the word 'epidemic' and 'bigger problem' were the same thing.

77. Dr. Benade failed to perceive there to be a significant problem. He was unaware of the other positive diagnosis of *Cryptosporidium*. Dr. Benade found nothing unusual about the reporting of gastroenteritis during the Easter weekend nor from looking at records of the emergency room. Over the Easter weekend, nothing substantively was done for four days until on April 17 where a third positive lab report was received. It was determined that Patient #3 lived in the Town of Battleford but attended Pope John II School in the City of North Battleford. It was also learned that at the school there were increased cases of diarrhea illness. It was learned also that this patient's mother had an illness with similar symptoms plus the patient's older sister and family were ill. Patient #3's onset date was March 18; it was noted that the mother had similar symptoms one week before March 18.

78. Dr. Benade asked Mr. Startup to review emergency room records for April and to check on the water supply in the Town of Battleford where there were rumors of gastroenteritis. Mr. Startup's evidence was that at the meeting of the 17th, Dr. Benade noted that his family had experienced diarrhea as had another person in the office who lived in the Town, as did Mr. Startup's wife. Dr. Benade also noted that a physician had reported that there had been increased diarrhea in The Battlefords.

79. Mr. Startup contacted the plant operator at the Town of Battleford water supply and was advised that all was going well, chlorine residuals were good and the last bacteriological sample on March 26 had 'nil' results. Mr. Startup inquired about chlorine residuals; he did this not in respect of *Cryptosporidium*, but for incidence of diarrhea caused by bacteria and viruses which would likely be controlled by adequate chlorine.

80. No similar follow-up or investigation was made in respect of the water supply for the City of North Battleford. There is no satisfactory explanation as to why. The Battlefords is a single community with mobility for business employment, schooling and pleasure occurring daily; such was the situation for staff within the District office. The failure to pursue an inquiry in respect of the condition of the City of

North Battleford water treatment is difficult to understand in light of the presence of *Cryptosporidium* which was known to exist in surface waters rather than in ground water as used by the Town of Battleford and having regard to the District's knowledge from September 2000 that the City historically had low chlorine residuals in its distribution system water.

81. Unfortunately, Mr. Startup was off work with an illness until April 23. Mr. Piatt was also absent from work. There was no ongoing investigation until April 23 when Mr. Startup, in speaking with Dr. Benade, learned of the increase in diarrhea reported in the emergency room and became aware of Patient #1. Finally, on April 24, Dr. Benade suggested that Mr. Startup should contact the City of North Battleford in respect of its water supply. This is the first occasion on which the City was notified of any illnesses in the community including the positive findings of *Cryptosporidium*. Mr. Strelieff, according to Mr. Startup, advised Mr. Startup that he was not aware of any problems with the Water Treatment Plants other than difficulty in forming floc. There was no follow-up to determine how long the situation had existed and whether it would affect water quality. Late in the day on April 24 and thereafter, more appropriate action was taken when it became apparent that there was now a total of 8 to 10 confirmed cases of *Cryptosporidium* in the North Battleford area.

82. Dr. Ellis' evidence is that the outbreak of *Cryptosporidium* peaked during the Easter weekend of April 13. Those responsible for monitoring the health of the community had failed to recognize that there was an outbreak until approximately ten days after the original peaking of that outbreak. In part, the failure to recognize the outbreak was contributed to by not properly considering the background rate for *Cryptosporidiosis* in the North Battleford Service Area and in part by the fact that the vast majority of *Cryptosporidium* cases are mild to moderate and self-limiting unless the patient is seriously ill. Dr. Benade and the PHIs seemed to focus more on the existence of gastroenteritis and be looking for other explanations when there was evidence of positive findings of *Cryptosporidium* which would be responsible for causing severe diarrhea, demand on anti-diarrheals and illness in the schools.

(C) The City of North Battleford

83. The issue of the adequacy and effectiveness of the actions of the officials of the City of North Battleford leading up to the discovery of the contamination essentially focuses on the operation of the Surface Water Treatment Plant as well as the actions of the City in respect of filling the vacant foreman's position.

(I) The operation of Plant January 1 to March 20, 2001.

84. A review of the operating records and the evidence discloses that between January 1 and March 20 the Plant was operating optimally in accordance with long-term operating procedures. The Plant was producing water with a turbidity which, throughout most of this period, was below 0.2 NTU. The turbidity achievement was consistently in this range and well below the Provincial objective of 1.0 NTU. The evidence is that throughout this period of time, chlorine residuals for water entering the distribution system were consistently well above those required by the Provincial regulations, namely, 0.1 free chlorine.

(II) March 20, 2001.

85. The evidence establishes that on March 20 Plant Operators undertook a planned cleaning, flushing, maintenance and inspection of the SCU. The maintenance involved a complete removal of the floc, slurry and residual sediment in the SCU. The repairs were completed in an orderly and timely fashion; the SCU was filled and placed back into service in the afternoon of March 20. On that date, the records show that the Plant operated for approximately 56 minutes producing 66,542 Imperial gallons of water with turbidity in the finished water being recorded as 0.19 NTU.

(III) March 20 to April 24, 2001.

86. Following the servicing of the SCU, the Plant Operators experienced difficulty in the development of a floc. In the past, the formation of floc had been delayed sometimes for a number of hours or days. The development of floc was made more difficult as a result of the low turbidity (3-4.0 NTU) and the cold temperature of the raw water.

87. Between March 20 and 26, although no settling was being achieved in the SCU, the Plant produced treated water with a turbidity of .20 or less on a consistent basis.

88. Throughout the period from March 27 to April 24 the Plant Operators experienced an increase in turbidity levels. The first increase in turbidity occurred on March 27 at 09:17 when turbidity rose to 0.35. Thereafter there were variations including increases in the level of turbidity of the treated water. During this period, the plant continued to be operated by experienced Plant Operators who made adjustments in an attempt to achieve an increased settling in the SCU and to decrease the turbidity of the finished water. As a result of carry-over of pin floc, the Plant Operators did backwash the filters somewhat more frequently than they would have during times when satisfactory settling was achieved in the SCU.

89. In the absence of a Plant's Foreman, the lack of settling in the SCU was on April 9 brought to the attention of Randy Strelieff. Mr. Strelieff did not have extensive background or knowledge of water

treatment. Mr. Strelieff contacted Clear Tech, a supplier of water treatment products, in an attempt to obtain advice and guidance in how to achieve greater coagulation/flocculation. He was told to use bentonite clay. He passed that information on to Mr. Allen. Turbidity began to increase in the river, on April 5 it increased to 5.0 and thereafter up to 30 on April 20.

90. Throughout this period turbidity in the treated water, at all times, remained below the Provincial objective of 1.0 NTU. There was a suggestion that the turbidity may have reached or exceeded 1.0 NTU on April 3. The evidence establishes that the maximum turbidity reached on that date was 0.94 NTU and dropped to 0.73. It is recognized that for brief periods of time, objectives may be exceeded.

91. During this period of no/low settling, the Plant Operators recognized that there was not an optimization of the water treatment process; it was recognized that there was a decrease in the effectiveness of water treatment, however, the Plant Operators were throughout conscious of the need to produce treated water with turbidity as low as possible and within the Provincial objective of 1.0 NTU.

92. The Plant Operators did not identify that the operation of the Plant with no/low settling was a potentially serious problem nor that such operation would affect the safety of the drinking water. This position on behalf of the Plant Operators was not unreasonable having regard to past experiences with the SCU not being operational and the Plant still achieving a production of safe water with turbidity well within the Provincial objective. In February/March, 1999, the Plant had operated under the direction of Mr. Katzell when the vari-drive had been removed and no settling was occurring in the SCU. The key element for each of the Plant Operators was that turbidity was within the objectives and disinfection continued to be achieved through chlorination. It should also be noted that throughout this period of time the City continued to achieve the appropriate chlorine residuals in the distribution system and there were no positive bacti results, and no complaints of *Cryptosporidiosis*.

(IV) The Foreman's Position

93. Mr. Katzell's resignation was effective December 31, 2000. City Officials made serious and dedicated attempts to fill the foreman's position. The position was offered to a qualified candidate on January 18, 2001; unfortunately, after having had accepted the position, the candidate declined. On February 15, the foreman's position was offered to Plant Operator, Lloyd Serool. Mr. Serool actually started in this position on February 19, unfortunately after 8 days in the position, he advised that he wished to return to his in-scope position as a Plant Operator. Thereafter the City reviewed the position. The decision was made to reclassify the position as a Manager's position and to increase the salary. The position was then advertised with the closing date for applications being April 19. It was subsequently filled in August, 2001.

(ii) Response to the Discovery of the Contamination

(A) The Government of Saskatchewan

94. On April 24, SERM became aware of the potential that the treated water of the City of North Battleford might be contaminated. SERM immediately took steps to determine if the City of Saskatoon Waterworks lab could attend to conduct testing in The Battlefords. SERM immediately mobilized its personnel with water treatment background, knowledge and experience to conduct extensive inspections of the City's water treatment plants and wastewater treatment facility. SERM also set upon reviewing the design and operation of the water treatment facilities and associated documentation and records.

95. The actions of SERM following the potential discovery of the contamination were an exercise of the full power and authority that SERM had as a regulatory body prior to the discovery of the contamination. The inspections carried out and the requests made extended beyond addressing issues solely related to the contamination but were nonetheless within the powers of SERM. SERM recommended that the City retain the services of an engineering consultant; when the consultant was in place, SERM was willing to work reasonably with the consultant to rely upon the advice of Rodger McDonald.

96. The Government moved quickly to engage the assistance of Health Canada to complete an epidemiological study. SERM played an active role along with Sask. Health and Battlefords District Health Board in the development of protocol for the removal of the emergency Boil Water Order. The first draft of the protocol was made on May 4th; the same was not finalized until June 19. This extended period of time occurred as a result of there not having been in existence a protocol which could have been relied upon to guide SERM, Health and the City to address such contamination issues.

97. As a requirement for the removal of the Boil Water Order, the Government required operating conditions of the City which were much more stringent than those which were previously contained in the Minister's Permit. While these conditions were required for the removal of the Boil Water Order, they do not continue as conditions of the City's Permit. Generally, SERM and Health personnel required the City to demonstrate its capabilities to operate the water treatment and distribution system in a safe manner so that confidence would be restored in the City's operations.

98. It is important to note that there was extensive co-operation with Government agencies and personnel with City and District officials in addressing the contamination issues, the implementation of a precautionary Boil Water Advisory, the placing of the emergency Boil Water Order and the successful development of the protocol and ultimate removal of the Boil Water Order.

(B) The Battleford District Health Board

99. The District Health Board, Dr. Benade and the Public Health Inspectors worked closely with City officials, Sask. Health and SERM officials in an attempt to, in an orderly and reasonable way, bring to the public's attention the potential contamination of the water supply. Through the actions of the District and the co-operation of all parties, the matter moved forward to a precautionary drinking water advisory and to an emergency Boil Water Order. The District and all parties co-operated in providing the citizens of The North Battleford's community with ongoing information through regular media and public releases of information. The District and its officials also co-operated extensively in providing assistance to the Government in the completion of an epidemiological study in conjunction with Health Canada.

(C) The City of North Battleford

100. Immediately upon receiving advice that there was a potential contamination of its water supply, the City engaged representatives of the City of Saskatoon in order to conduct sampling for *Cryptosporidium* in the City's water on the night of April 24. The City acknowledges the co-operation and assistance given to it by the City of Saskatoon and in particular, the co-operation of Bruce Clark and his staff in arranging to have the samples taken, tested and transported to the Hyperion lab in Medicine Hat for the testing by Peter Wallis.

101. Immediately upon being advised by District officials that there was a potential that the City's water supply was contaminated, City officials at the highest levels were involved in meetings and discussions related to the health of the citizens, the potential involvement of the water system and addressing actions and steps to be taken including the issuance of the precautionary drinking water advisory and emergency Boil Water Order and the early getting of information to the residents of the City of North Battleford concerning the potential issue. In this process the City was open and fully shared data and information with SERM, Sask. Health and the District.

102. It is important that the Commission view the actions of the City rather than the perception of others as to the willingness of the City to fully co-operate. The actions of City officials must be viewed against the background that it was not until the night of April 24 that Mayor Ray and Commissioner Toyne were made aware of widespread illness in the community and the suggestion by District and Health representatives that the City's water supply might have been a source of the illness and *Cryptosporidium*. City's response must be remembered in the context that District officials throughout March and April were aware of the level of illness in The Battlefords. District officials were aware of cases of *Cryptosporidium* in The Battlefords as early as April 4. On April 17 with the number of people ill and on a review of the emergency room records and three positive *Cryptosporidium* lab tests, District officials were not of the opinion that the City's water supply could be implicated. Such implication was not considered until April 24, when Ken Startup called Mr. Strelloff. It was not until late on April 24 when Sask. Health officials

became involved that District officials were willing to implicate or consider the potential that the City's water supply might have been involved. It was certainly reasonable and to be expected that City officials would ask questions in an attempt to be satisfied of the potential involvement of the City's involvement. Once City officials received the answers, they were fully co-operative.

103. City officials fully co-operated with SERM in the inspection and investigation of the water treatment facilities. The City reacted immediately to SERM's suggestion that they hire a consultant. The City moved immediately to respond with interim improvements as recommended by SERM and the consultant. Throughout this period, the City co-operated in the development of the protocol for the removal of the Boil Water Order. The City co-operated and addressed all of the issues raised by SERM and Mr. McDonald.

104. The City moved actively and quickly to fulfill the conditions of the protocol to rescind the Boil Water Order. Although the City's response was quick, delays were experienced in having the Order rescinded; many of these were delays due to the flushing of the City's water distribution system and line breaks which occurred.

105. The City, as part of the protocol for the removal of the Boil Water Order, agreed that it would operate the Surface Water Treatment Plant on a 0.3 turbidity and restricted operating conditions. The City has agreed to operate under these conditions subsequent to the removal of the Boil Water Order.

106. The City was part of an active team to keep the public informed in respect of matters related to the water supply. The City took active steps to provide a temporary water supply for its residents including home deliveries as required.

C. THE EFFECT (IF ANY) OF THE REGULATIONS, BYLAWS, POLICIES, GUIDELINES, PROCEDURES AND PRACTICES OF OR APPLICABLE TO THE GOVERNMENT OF SASKATCHEWAN, THE BATTLEFORD DISTRICT HEALTH BOARD AND THE CITY OF NORTH BATTLEFORD ON THE EVENTS REFERRED TO IN "A" AND "B"

(i) Government of Saskatchewan

107. The Government of Saskatchewan, through Saskatchewan Water Corporation, issues approvals to construct and operate all municipal and commercial water systems and reviews and comments on the design of treatment plants. The surface water treatment plant in North Battleford was constructed by Saskatchewan Health initially to service the Saskatchewan Hospital. It was constructed in about 1951. In about 1960, it was transferred to the City of North Battleford, part of the consideration being an

undertaking by the City to continue to provide treated water for use by the Hospital. The wastewater treatment plant of the City had been in existence for many years before the surface water treatment plant was constructed by Saskatchewan Health. The placement of the surface water treatment plant downstream from the wastewater treatment plant was a decision made by the Government of Saskatchewan, through Saskatchewan Health.

108. Saskatchewan Water Corporation, or its predecessor regulator, approved the construction and operation of the water and wastewater treatment plants of the City of North Battleford including any of the improvements which were made from time to time to those plants.

109. SERM issues Minister's Orders for the operations of waterworks facilities, i.e. such facilities as the surface water treatment plant and groundwater treatment plant of the City of North Battleford. SERM also issues permits for the operation of wastewater treatment plants. At all times material to the Terms of Reference of the Commission of Inquiry, the two water treatment plants of the City of North Battleford were operating pursuant to valid, current Minister's Orders issued by SERM. At all times material to the Terms of Reference of this Commission of Inquiry, the City of North Battleford operated its wastewater treatment plant pursuant to a current and valid permit issued by SERM.

110. To the extent that the wastewater treatment plant of the City of North Battleford is relevant to these proceedings and we suggest, with respect, that it is not, it is clear that SERM encouraged the City of North Battleford to review its wastewater treatment plant and consider an upgrade of the existing plant or a reconstruction and relocation of the plant. The City of North Battleford recognized that such a review was necessary. Reid Crowther and Partners Limited was engaged as a consultant on the project. The first meeting with Reid Crowther and Partners Limited was held on September 26, 1995, with a further meeting held on November 29, 1995. The final report of Reid Crowther was received by the City on February 12, 1997. The final report was shared with SERM. At that point in time, as is clear from the evidence of Scott Meekma, SERM was satisfied that a reasonable response to the Reid Crowther Report by the City would see construction undertaken on a new and relocated plant, or on an upgrade of the existing facility, in a two to six-year time span. The City will meet that expectation. Plans to do so were firmly in place before March/April, 2001.

111. A brief overview of some of the activities of the Government of Saskatchewan with reference to water quality issues is as follows:

- Prior to 1984, training activities with respect to operators and technical assistance activities in the field with respect to water and wastewater plants was delivered by the Department of Health.
- In 1984, *The Environmental Protection Act* was enacted and within that legislation, the responsibility for water and wastewater systems was assigned to the Minister of the Environment. When the

Department of Health had been responsible for water and wastewater treatment plants, at least annual on-site inspections were conducted by the Department of Health.

- Notwithstanding the transfer of responsibilities to SERM, the Department of Health retained responsibility with respect to systems with less than 18 cubic meters per day flow rate.
- With the transfer of responsibility to SERM, that responsibility was delegated to municipal environment officers, each of whom had between 60 and 70 communities to service in terms of the community water and wastewater systems. Some of the Environment Officers were very well trained and capable and had strong technical backgrounds in water and wastewater treatment. Others were new and needed to be trained. They were trained. Don Hilsendager was the Environment Officer responsible for the City of North Battleford between 1984 and 1996.
- Some of the Municipal Environment Officers were available to assist with voluntary training of Plant Operators.
- The primary responsibility of the Environment Officers was to ensure compliance with regulations and objectives at both wastewater and water treatment works through a variety of activities including inspection work and the provision of technical assistance when needed.
- Environment Officers visited each system one or two times per year.
- The initial target for field visits by Environment Officers was two field visits per year to each water treatment plant and at least one field visit per year to each wastewater treatment plant. At the outset, the Environment Officers were close to meeting those targets.
- In 1986-87, a reorganization took place within SERM that resulted in the creation of the Environmental Protection Division.
- Staffing levels and functions remained the same notwithstanding the creation of the Environmental Protection Division.
- In 1992-93, Saskatchewan Environment and Public Safety delivered the Government's Primary Environmental Protection Mandate which included the Municipal Drinking Water Program.
- In March, 1993, Saskatchewan Environment and Public Safety was amalgamated with Saskatchewan Natural Resources creating a new department called Saskatchewan Environment and Resource Management (SERM).

- The result of the foregoing amalgamation was that a total reduction of 63 full-time equivalent positions occurred. That must have adversely affected the Municipal Drinking Water Program.
- SERM operated two data systems. The first is called “ESQUADAT” which stands for Environment Saskatchewan Quality Data. That data system contains all water, wastewater, surface water, ground water and some industrial affluent data. The second database is called “WINDAT” which stands for Works Information Data and that was a repository for information on actual water and wastewater systems.
- The two data systems were not able to be accessed by the public or by other Government departments.
- The only constituent in water which was dealt with by regulation was a requirement to maintain a free chlorine residual of not less than 0.1 milligrams per liter in the water entering a distribution system; and a total chlorine residual of not less than 0.5 milligrams per liter or a free chlorine residual of not less than 0.1 milligrams per liter in the water throughout the distribution system.
- The balance of the levels of constituents in treated water were dealt with as objectives contained in Municipal Drinking Water Objectives published by SERM.
- SERM expected municipalities to comply with the Objectives and the Regulations. Municipalities could reasonably conclude that drinking water produced by a municipality which met the Regulations and Objectives was safe water.
- In 1991, there was added to the workload of the Regional Environment Officers all licensed and private government works in addition to the municipal works. When SERM was created in 1993, the municipal branch of SERM acquired the responsibility for water and wastewater systems. At that time, the Regional Environment Officers were assigned responsibility for the inspection and evaluation of municipal solid waste systems, i.e. landfills. In the Province of Saskatchewan, there are over 1,000 landfills.
- Further, the Environment Officers were given the responsibility of dealing with liquid waste haulers.
- The eight Regional Environment Officers were no longer solely dedicated to the water and wastewater program.
- No additional staff was assigned to the municipal branch to attend to the new responsibilities. The resources of the Environment Officers, which had been dedicated strictly to water and wastewater programs, were reduced in order that they could deal with solid waste facilities, liquid waste haulers, and all licensed private and government works.

- In March of 1992, a client service survey had been conducted by SERM, the results of which included a conclusion that the survey return rate was extremely good and the results were representative of the provincial situation. It was further concluded that an overall satisfaction rate existed of 95.7%, indicating that SERM's Environment Officers were providing excellent service to external clients and were achieving a high degree of success in carrying out the mandate of the Department.
- SERM produced a Municipal Drinking Water Safety Report which ended up being finalized in 1995 but was available to SERM in draft form in June of 1994. The Report, appearing under Tab B-15 of the Bob Ruggles Binder (Exhibit "C-104") begins with a repeat of the January, 1991, Saskatchewan Health objective of "By the year 2000, 100% of the Saskatchewan population will have access to safe and adequate drinking water". The results of the 1994 assessment were that approximately 75% of the population served by community supplies received water that met the Municipal Drinking Water Quality Objectives and had adequate treatment. However, about 50% of the communities did not meet the Objectives or lacked adequate water treatment. About 50% of those communities which did not meet the Objectives, had adequate treatment in place and only required optimizing the performance of operations. Some "strategies" suggested to meet these problems included the following:
 - (i) SERM should shift existing resources in the regulation of municipal water systems to provide additional technical advice to communities toward optimizing performance of their water treatment and distribution works;
 - (ii) Operator training should be emphasized;
 - (iii) Communication with the public on drinking water risks should be an integral part of decisions on the implementation of strategic options.
- The focus of SERM, by 1995, shifted from a prevention focus to a problem-response focus. In water and wastewater matters, SERM narrowed its focus to responding to the most extreme problems only.
- Blaine Ganong, in a summary of a quarterly report under date of May 1, 1995 (Bob Ruggles Binder, Tab B-22), made the following comment:

"This information can be used as a warning signal to our department. A lack of surveillance at the water works facilities will very quickly lead to a deterioration in monitoring by the communities. The next item to deteriorate could be the proper operations of these facilities which could lead to a deterioration in drinking water quality throughout the province. It is imperative that we give drinking water quality a high priority. If we do not, drinking water quality problems will quickly increase to levels experienced prior to the staffing of the M.E.O.'s."

- By a letter under date of April 18, 1995 (Bob Ruggles Binder, Tab A-17), Peter Thiele made the following comment:

“It is obvious from this quarterly report that our recent reduction in attention to waterworks has had a dramatic negative impact. Similarly, we can see a positive impact Wrt WDGs. We expected this would happen, and because of our goals for this coming fy, the trend will most likely continue. (We plan to inspect 50% - W, 50% - SW, 100% - WDGs).”

- The 1994-1995 Municipal Drinking Water Safety Report, the comments of Messrs. Ganong and Thiele, were brought to the attention of the Minister responsible for SERM.
- Notwithstanding the information brought to the attention of the Minister, no steps were taken to add any resources, financial or otherwise, to the water-wastewater program.
- By 1996, SERM was downsized and there was a re-design of environment protection activities.
- A Drinking Water Compliance Report for the period of time April, 1994 to March, 1995, was completed which showed that: (1) 53% of communities did not meet the minimum free chlorine residuals; (2) 71% of the communities did not maintain total chlorine residuals; and, (3) 38% did not meet the turbidity objective. The report was not made public.
- Between 1992 and 1996, the budget for the municipal department of SERM dropped from \$113 million to \$84.9 million dollars.
- What followed was significant downsizing in 1996, SERM moved to divide the province into five ecological regions. Employees placed in charge of these regions had little or no water and wastewater treatment education, training or experience. Site inspection ceased. There were severe employee cutbacks.
- As was the case previously, there was no compliance enforcement by SERM of its Regulations or Objectives. SERM received information with respect to compliance, or lack thereof, which was stored on the ESQUADAT system but nothing was done with it in terms of assessing whether or not communities complied with Regulations and Objectives.
- In January, 1999, SERM was instrumental in the preparation of a document entitled “Water Management Framework”. It was supposed to be a comprehensive strategy involving 9 goals, 16 objectives and 58 actions. One of the goals was access to safe and reliable supply of drinking water and to achieve that goal, an objective of the enhancement of the safety of municipal and domestic drinking water supplies was stated to be the objective. To achieve that objective, an action of

mandatory operator training and certification and review of municipal water and wastewater treatment operations and monitoring practices and the provision of support and advice, as appropriate, was recommended. Nothing was done. Steps were taken with respect to mandatory operator certification.

- A 1999-2000 Drinking Water Compliance Report was prepared. That report showed that only 54% of municipal water treatment facilities complied with the turbidity requirements of the municipal drinking water quality objectives. 44% of municipal water treatment facilities did not meet the free chlorine residual requirements of the Regulations and 76% of municipal water treatment facilities did not meet the total chlorine levels required by the Regulations.
- By late 1999, in particular in December of 1999, SERM proposed to the Treasury Board that it withdraw entirely from setting and monitoring drinking water standards. The Department of Finance proposed to the Treasury Board the following recommendation:

“Finance recommends Treasury Board tentatively approve the elimination of the drinking water standard program which will provide a cost savings of \$350 K and 6 FTEs pending advice from Sask. Water, Health, and Municipal Affairs, Culture and Housing.”

- The foregoing recommendation was approved by the Treasury Board. This action was directly contrary to the strategy which only months earlier was adopted in the Water Management Framework.
- Very serious objections were raised to the proposal from the Department of Health. No evidence was provided of any prior consultation with municipalities concerning this off-loading.
- What underpinned the off-loading was the belief that mandatory water and wastewater operator certification would provide sufficient protection that the public would receive safe water.
- The proposal by SERM to abandon the drinking water standards program did not proceed.
- The Walkerton incident occurred in May 2000.
- SERM, which had been largely inactive in the water safety field for almost a decade, suddenly became very pro-active. Within a matter of days, a Cabinet Information Item was prepared under date of June 9, 2000. The Cabinet Information Item of June 9, 2000 appears in the Policy and Operations Documents Binder “B” (Exhibit “C-43), Tab B-17.
- The Cabinet Information Item of June, 2000, was followed by a CDI drafted in September of 2000 and finalized for presentation to Cabinet in November of 2000. Table 1 on page 8 of both drafts of the CDI

show a comparison between Alberta's Drinking Water Program responsibilities and that of Saskatchewan. The Alberta Program is clearly far superior to that of Saskatchewan.

- Page 9 of the Detailed Analysis on the November, 2000 CDI makes the following comment:

“In short, the legal role and responsibility of the Minister of SERM, as assigned by law, is that of supervision and enforcement, and to a lesser extent guidance and instruction.

In light of the existing regulatory framework, Saskatchewan Justice advises that the Provincial Government could be exposed to potential claims for damages if a person(s) suffers injury or loss stemming from SERM's failure to regulate in these assigned areas.”

- The Cabinet Information Item and the two drafts of the CDI are very instructive of the view taken by SERM, Sask. Water and Sask. Health with respect to the lack of action taken by the Government in respect of water safety issues during the 1990's.

112. It is clear that the Regulations and the Objectives set by the Government of Saskatchewan to control the constituents in treated drinking water were inadequate. Municipalities had for some years been reliant upon inspections and technical assistance received from SERM employees with respect to their water and wastewater treatment plants. The ability to receive that advice and assistance was essentially removed in 1991. Between 1991 and 2001, SERM employees visited the water and wastewater treatment plants in North Battleford twice, that is, twice over a 10-year period of time. The municipalities were entitled to conclude that if they operated their plants, complying with the Regulations and Municipal Drinking Water Quality Objectives, they would produce safe water. That proved not to be the case and the only conclusion one can come to is that the Objectives with respect to turbidity were totally inadequate.

(ii) Battlefords District Health Board

113. The effect of the policies, procedures and practices of the Battlefords District Health Board on the events referred to in the first and second Terms of Reference have been dealt with previously in this submission with respect to the second term of reference and does not need to be repeated at this point.

(iii) City of North Battleford

114. The City of North Battleford takes the view that none of its regulations, bylaws, policies, guidelines, procedures and practices had any material effect upon the events referred to in subparagraphs (a) and (b) of the Terms of Reference of the Commission.

115. Some of the more relevant facts which we ask the Commission to take into account with respect to this issue are as follows:

(a) **History**

- The City of North Battleford first constructed a wastewater treatment facility at its current location many years before the construction of the surface water treatment plant, that is water treatment plant #2.
- Water treatment plant #2 was constructed by the Department of Health in about 1951, that is by the Government of Saskatchewan, at its current location to provide treated water to the Saskatchewan Hospital. It was subsequently transferred in about 1960 to the City of North Battleford and part of the consideration for the transfer was the undertaking by the City to continue to provide treated water to the Saskatchewan Hospital.
- Water Treatment Plant #2, that is the surface water treatment plant, had improvements made to it from time to time, including the addition of the solids contact unit in 1981 and a new raw water intake which was installed in about 1990.
- At the time the solids contact unit was installed, filters 3 and 4 were installed. Filters 3 and 4 were constructed such that they could not be run to waste following back washing.
- All improvements which were made to the water treatment and wastewater treatment plants were approved by the regulating authority. At no time prior to the *Cryptosporidium* incident was there any requirement that the City of North Battleford install particle counters, turbidimeters for both banks of filters, ultraviolet disinfection, a process for the flash mixing of chemicals, changes in chemical injection points, and piping changes to allow the ability to pump to waste from the solids contact unit and from both filter banks.

(b) **Location of Wastewater Treatment Plant**

- There is no evidence that the location of the wastewater treatment plant of the City of North Battleford was a contributing factor to the *Cryptosporidium* outbreak. There is evidence of positive *Cryptosporidium* tests in samples taken from the effluent of the wastewater treatment plant. At times, those findings are significant in terms of numbers but the only positive tests for *Cryptosporidium* in the raw water at the surface water treatment plant occurred on April 26th where there were two positive tests, and May 8th where there was one positive test. There were no positive tests for *Cryptosporidium* in the treated water of the City of North Battleford after April 30, 2001, with the exception of the finding of one non-viable *Cryptosporidium* oocyst at a test point on Douglas Avenue on the 22nd of June. Four subsequent tests at that location were negative.

- The conclusions to which one is driven by the evidence with respect to the impact of the location of the wastewater treatment plant on the *Cryptosporidium* outbreak is as follows:
 - (1) By way of background, it is not surprising that there should be high concentrations of *Cryptosporidium* oocysts in the wastewater treatment plant effluent given the number of people who were ill in the community.
 - (2) Given the high concentration of *Cryptosporidium* oocysts in the wastewater treatment plant effluent and the very low concentration of *Cryptosporidium* oocysts at the raw water intake of water treatment plant #2, one must conclude that the location of the wastewater treatment plant has very little influence on the quality of the raw water at the raw water intake of water treatment plant #2.
 - (3) Given the continued existence of positive tests for *Cryptosporidium* oocysts in the wastewater treatment plant effluent after April 30th, and given the lack of positive tests in the treated water after April 30th, one must conclude that water treatment plant #2 was successfully removing the parasites from the water.
- The City of North Battleford, in the early 1990's, recognized that its wastewater treatment plant was challenged. Steps were taken to try to determine what, if any, impact the location of the wastewater treatment plant had on the raw water intake at water treatment plant #2. A plume study was conducted which determined that the impact of the effluent from the wastewater treatment plant on the raw water intake at water treatment plant #2 was minimal.
- The City of North Battleford recognized that the location of the wastewater treatment plant was a concern. The advisability of continuing at the same location was raised by SERM. SERM continued, however, to issue a permit for the operation of the wastewater treatment plant and at no time did SERM consider the location to be a risk which would justify or require special conditions in the permit to operate.
- The location of the wastewater treatment plant upstream from the raw water intake of water treatment plant #2 did not result in SERM making any special terms or placing any special requirements on the City in either the Minister's Order governing the operation of water treatment plant #2 nor in the permit governing the operation of the wastewater treatment plant.
- Beginning in the fall of 1995, during the time that Bob Berry was in the position of Director of Public Works, Reid Crowther and Partners Limited were engaged to do a study and provide advice to the City with respect to the wastewater treatment plant. The final report of Reid Crowther and Partners Limited

was delivered to the City in February of 1997. City officials considered the report after it was received.

- A copy of the Reid Crowther final report was shared with SERM. SERM's position was that a satisfactory response by the City would be seen in the start of construction either for a new and relocated plant, or an improved plant at the current location, within a period of two to six years.
- The decision the City had to make was whether a new plant should be constructed or whether an improved plant at the present location should be constructed. In large measure, that decision was dependent upon whether the City was of the view that its population would continue to grow.
- Initially, Doug McEwen, the then City Commissioner, made provision in the City's five-year capital plan, for significant capital expenditures with respect to the wastewater treatment plant in the nature of improvements. Those capital expenditures were forecast to exceed \$3.5 million.
- Certain safety issues which Reid Crowther and Partners Limited identified were budgeted for and dealt with.
- \$65,000.00 was budgeted for a site selection study in 1997. The site selection study was undertaken after Randy Strelieff assumed the role of Director of Public Works. A copy of the draft report has been filed with the Commission.
- After Randy Strelieff assumed the position of Director of Public Works, he came to the conclusion that the wisest course of action was to relocate and rebuild the wastewater treatment plant.
- In the year 2000 capital plan, Mr. Strelieff budgeted for \$200,000.00 to be spent in the year 2001 with respect to a preliminary design, \$1.1 million to be spent in the year 2001 with respect to a detailed design, with at least \$6 million to be spent in each of the next two years on construction, with the plant to be in operation in the year 2004.
- The City's response to the Reid Crowther report meet the expectations of SERM.

(c) Qualifications of the Director of Public Works

- Randy Strelieff assumed responsibility as the Director of Public Works and Engineering for the City of North Battleford on November 15, 1999. He is not an Engineer.
- The immediate predecessor of Mr. Strelieff was Robert Berry and his predecessor was Derek Plummer. Both Mr. Plummer and Mr. Berry were Engineers.

- There is no evidence before the Commission with respect to the qualifications of Derek Plummer in terms of whether or not he had any particular training and expertise in the area of water and wastewater treatment. There is evidence before the Commission that Mr. Berry had no education, training or experience in the area of water and wastewater treatment.
- The Director of Public Works and Engineering of the City of North Battleford is a position which places the incumbent in a position of responsibility for the following Departments:
 - (a) Urban Planning & Development;
 - (b) Building and Licensing;
 - (c) Roads, both construction and maintenance;
 - (d) Underground infrastructure;
 - (e) Water and wastewater plants including reservoirs and lift stations;
 - (f) Public works fleet;
 - (g) Engineering coordination section;
 - (h) Airport;
 - (i) Waste management.
- The City of North Battleford has a population base of 15,000 people. It is not reasonable nor is it necessary that the City should engage a person as Director of Public Works and Engineering who is educated, trained and experienced to be an expert in all of the areas for which that person is responsible.
- The City of North Battleford has, over the years, made extensive use of consultants. It is sufficient that the incumbent in the position of the Director of Public Works and Engineering be allowed access to consultants, including consulting engineers, in order that the incumbent can receive the technical advice necessary to reasonably carry out his duties.
- It is interesting to note that Mr. Berry, the former Director of Public Works and Engineering, was a qualified Engineer. Notwithstanding that fact, Mr. Berry, in his evidence indicated that he was not aware of the purpose for the use of alum in the water treatment process, nor did he indicate that his training and expertise as an engineer caused him to have any concern in 1999 with respect to the vari-drive incident.
- It is fair to say that Mr. Berry relied upon Mr. Katzell to deal with any technical issues arising with respect to water and wastewater treatment.
- The reliance upon Mr. Katzell continued during the tenure of Mr. Strelieff. Mr. Katzell testified that so far as the treatment plants were concerned, nothing changed after Mr. Strelieff took over as the

Director of Public Works. He was able to converse with Mr. Strelloff with reference to issues involving the plants and while it might take him a bit longer to explain the problems to Mr. Strelloff, there was never any problem with Mr. Strelloff grasping the problem and cooperating in dealing with it.

- A great deal of attention was focused on the lack of technical knowledge and expertise of Mr. Strelloff with respect to water and wastewater treatment. When he was hired, the City was not looking for someone with that kind of expertise. It was looking for a Manager, not an Engineer. The City engaged Mr. Strelloff because they felt he could successfully carry out the duties of the Director of Public Works. The City has concluded that he has done so satisfactorily.
- By way of conclusion on this issue, it is the view of the City of North Battleford that if the Manager of the water and wastewater treatment plants is qualified, and if he has reasonable access to consultants, for example, consulting engineers who have training and expertise in the area of water and wastewater treatment, the safety of the drinking water produced for the citizens of North Battleford is reasonably attended to.
- We urge the Commission to conclude that if one looks at the facts of this case without being influenced by the benefit of hindsight, it cannot reasonably be suggested that a lack of training, education and expertise on the part of the Director of Public Works was a material factor in the *Cryptosporidium* outbreak.

(d) Ivan Katzell

- Mr. Katzell began work with the City of North Battleford in 1973 as a Plants Operator and was Plants Foreman from 1981 to December 31, 2000. Mr. Katzell was certified by the Operators Certification Board as a Class 3 Operator. There is no doubt that he possessed the training and experience necessary to satisfactorily carry out his duties.
- Mr. Katzell provided the Commission with a good deal of history with respect to the water and wastewater treatment plants in the City of North Battleford. He was a good and valued employee of the City. At times, he was emotional about his job and passionate in advocating on behalf of his department. He acknowledged that in doing so, he was not terribly objective. He agreed that other foremen in other departments may have had similar concerns. He further agreed that the Plants Department did not suffer while other departments prospered.
- Mr. Katzell further testified that in terms of budget items, he was satisfied that the things that were necessary for his department were budgeted for and received.

- There is no doubt that Mr. Katzell advocated strenuously on behalf of the Plants Department in memos that he gave from time to time to the Director of Public Works and, in particular, to the incoming Directors such as Mr. Berry and Mr. Strelloff. There is also no doubt that he at times felt that the Plants Department would have been better served by increased staffing and more money.
- The fact that Mr. Katzell was less than objective in his analysis of the degree of support that the Plants Department received from the City is best shown in his rather emotional letter of resignation which was tendered some six months after the City had approved an overall plan to spend in excess of \$13 million on a new wastewater treatment plant.
- Further, there is no evidence which would reasonably allow one to conclude that staffing shortages in the Plants Department had any bearing whatsoever on the *Cryptosporidium* outbreak in the spring of 2001.
- Mr. Katzell, in his evidence, was questioned in some detail with respect to the chlorine residual levels maintained in the distribution system for some years and also with respect to chlorine tests that were conducted following the contamination in September of 2000.
- Mr. Katzell testified that for many years, in fact for most of his tenure as Plants Foreman, the chlorine levels that he maintained in the distribution system were less than the chlorine levels required by the regulations of SERM. He testified that SERM officials were aware of the low chlorine levels that he maintained and encouraged him to increase them. He testified that his response was that he would do so as best he could while maintaining customer satisfaction. What he had in mind was attempting to avoid complaints about the water which came with increased chlorine levels.
- The chlorine levels maintained by the City for the better part of two decades, i.e. 19 years, which were lower than the regulations required, were known to SERM. During that period of time, Mr. Katzell testified that there were no repeat positive bacteriological tests. At no time did SERM take any steps to force the City to increase the chlorine residuals until September of 2000. There is no evidence that the low chlorine residuals maintained by the City before September of 2000 had any impact whatsoever on the *Cryptosporidium* outbreak.
- Following the September, 2000 contamination, the City was required to test at 15 different sites rather than the 6 test sites that had been previously used. He received instructions from Mr. Strelloff following the September contamination to increase the chlorine levels to a level that would comply with the regulations. Mr. Katzell did so.
- A great deal of attention was directed to how Mr. Katzell conducted chlorine residual tests in the distribution system following the 2000 contamination. Mr. Katzell testified that how he conducted the

tests was known to and approved by Mr. Meekma of SERM. While the Commission may or may not agree with how the tests were conducted, it is clear that the City was entitled to rely upon the advice and direction of the regulator, SERM, in terms of how those tests were to be conducted. The City did rely upon the advice and direction of SERM and ought not to be criticized for doing so.

- Mr. Katzell retired effective December 31, 2000. The *Cryptosporidium* problem arose some four months later. He had no direct or indirect impact on the outbreak.

(e) **Filling of the Position of Plants Foreman**

- Mr. Katzell tendered his letter of resignation July 31, 2000.
- Mr. Strelieff did not anticipate that he would have any difficulty in filling the position. He took steps to post the position and to advertise the position on December 2, 2000. The position was posted internally November 30, 2000. Two applications for the position were received. One of the applicants was interviewed on January 18, 2001, and following the interview, he was offered and accepted the position. The following day, the applicant contacted Mr. Strelieff and declined to take the position. In early February, Mr. Strelieff spoke with Lloyd Serool. Mr. Serool indicated an interest in the position. He was offered the position on February 15th and accepted the position commencing February 19th. By a memo dated February 27th, Mr. Serool indicated that he did not wish to continue in the position effective March 4th. Mr. Strelieff then took steps to arrange to change the name of the position from Plants Foreman to Plants Manager and sought approval by City Council to increase the salary by about \$6,500.00 per annum. The job was re-advertised March 26th with a closing date for applications of April 19th. Eleven applications were received for the position. A number of applicants were interviewed. At that time, SERM was advertising for people to fill positions in the water and wastewater treatment field. Mr. Strelieff offered the position to two people who declined to take the position because they wanted to get a position with SERM if that was possible. The position was offered to Frank Hollmann by a letter under date of July 4, 2001. Mr. Hollmann declined the position. A short time later, Mike Rathwell, the current Plants Manager and the person to whom Mr. Strelieff first offered the job in June, 2001, indicated a desire to accept the job and was hired starting August 13, 2001.
- There is no doubt that it would have been preferable had a Plants Manager been in place on January 1, 2001. There is, however, no evidence from which one can reasonably conclude that the absence of a Manager of the Plants Department had any direct or indirect bearing on the *Cryptosporidium* outbreak or the response to it by the City.

(f) **Prior Knowledge by the City of North Battleford of a risk of a *Cryptosporidium* outbreak**

116. In his testimony, Peter Allen attempted to leave the impression with the Commission that he had provided to the City warnings of the potential of a *Cryptosporidium* outbreak. The City takes serious issue with that conclusion. In that respect, the Commission's attention is directed to the following:

- A review of the evidence of Mr. Allen indicates that at no time whatsoever did he testify that he, at any time, warned any of his superiors that there was a potential for an outbreak of *Cryptosporidium* from the surface water treatment plant.
- If Mr. Allen had been warning his superiors of such a catastrophe, surely he would have made comments to his fellow operators. None of his fellow operators testified that he had given them any kinds of warnings.
- Mr. Allen was the operator of water treatment plant #2 for the majority of the time between March 20, 2001 and the end of April, 2001. It would stretch credibility to the breaking point to conclude that Mr. Allen honestly felt that there was a safety risk and yet continued to operate the surface water treatment plant. Mr. Allen testified that he continued to operate the plant because he wanted to get the Plants Foreman position. He operated the plant the majority of the time from March 20, 2001, but didn't apply for the Plants Foreman position until the 12th of April, 2001.
- Mr. Strelieff, Mr. Katzell and Mr. McEwen all testified that Mr. Allen, in speaking with them, only used the subject matter of *Cryptosporidium* in an attempt to acquire something from the City. For example, Mr. Katzell testified that Mr. Allen used the subject matter of *Cryptosporidium* as a form of blackmail and intimidation. He testified that on the 20th of January, 1999, in a conversation with Mr. Allen, Mr. Allen advised him that he (Mr. Allen) had the power to affect negotiations through the Union by being the shop steward. He further told Mr. Katzell that it was possible that *Cryptosporidium* could be in the City's ground water and that he was prepared to use that information so that the City would listen to him in negotiations. That was typical of the dealings the City had with Mr. Allen.
- At no time did Mr. Allen, Mr. Fluney or any other operator contact Randy Strelieff and advise him that they were in any way concerned that a safety risk existed at the surface water treatment plant as a result of the low settling following the March 20, 2001 shutdown. The only contact Mr. Strelieff had was two conversations with Peter Allen on or about the 9th of April, 2001, when Mr. Allen inquired about an aid to assist in the formation of the floc. The fact that the bentonite which Mr. Strelieff assisted in obtaining did not solve the problem was not brought to Mr. Strelieff's attention.
- The City suggests that the evidence, if looked at reasonably, would cause one to conclude that the outbreak began well before March 20, 2001 during a period of time when the City was generally

maintaining very acceptable turbidity levels, certainly well within the Provincial/Municipal Drinking Water Objectives.

(g) Previous Contaminations

- During the hearings, correspondence directed to or received by the City in the fall of 1994, was filed. On September 26, 1994, the City was advised by Sask Health that on that day, water samples were taken at the surface water treatment plant which were forwarded to the Provincial Lab for testing for *Cryptosporidium*.
- The Provincial Lab advised Sask Health, by letter under date of October 19, 1994, that the sample tested negative. A copy of the letter of October 19, 1994, was sent to the City and received three and a half months later on February 3, 1995. We suggest that nothing whatsoever can be read into that correspondence. To suggest that the letter of October 19, 1994 is anything other than notice that the sample from North Battleford tested negative for *Cryptosporidium* would be to unreasonably stretch the phraseology of the October 19th letter to the point of speculation.
- The City, the Battlefords District Health Board, and SERM, dealt with a positive bacteriological test in the month of September, 2000. Notwithstanding attempts to characterize it otherwise, we suggest that the City fully and completely cooperated with the District Health Board and with SERM in the fall of 2000 to deal with the bacteriological contamination.
- We suggest that the correspondence of 1994, and the contamination of September, 2000, had nothing whatever to do with the *Cryptosporidium* outbreak in the spring of 2001.

(h) Support by the City for the Water and Wastewater Treatment Plants

117. A significant amount of attention was directed to this topic in the evidence. In dealing with this issue, we ask the Commission to take into account the following facts:

- The City responded reasonably, and certainly within a timeframe acceptable to SERM, to the Reid Crowther Report.
- The City produced, appearing under Tab A-25 of Exhibit C-64, a list of the training given to operators over the years. It is suggested that that evidence, combined with the evidence of Mr. Strelieff and Mr. Katzell, should allow the Commission to reasonably conclude that the City did take reasonable steps to advance the training and knowledge of its operators.
- The City received a letter from the operators under date of January 12, 2001. There is no evidence that the letter was considered by City Council. Not all Councillors received it. Mr. Toye testified that he

could not recall how it was dealt with but his recollection is that it probably would have been turned over to Mr. Strelieff. Mr. Strelieff could not recall how it was dealt with but testified that it was probably turned over to him. The letter was received on January 12th. On January 13th and 14th, City Council conducted a retreat. At that retreat, the City renewed its commitment to the construction and financing of a new wastewater treatment plant. On January 17, 2001, an Occupational Health and Safety Committee meeting was held at which a total of 32 items of new business were discussed. On January 18th, Mr. Strelieff offered the Plants Foreman position to a candidate who had applied for it. We suggest it can be reasonably concluded that while the City did not respond to the January 12th letter by correspondence, it certainly did respond by action and attention to the issues raised.

- The Commission's attention is respectfully directed to Exhibit C-93, Tab 2. That document indicates that in the 10-year period between 1984-85 and 1995, the City of North Battleford spent \$4,874,094.00 on water and sewer major capital works. Of those monies, \$2,025,841.00 was spent on water and sewer main expansions and replacements. In addition to the foregoing capital expenditures, significant funds were spent on operations and maintenance. The balance of \$2,848,253.00 was spent on the water and wastewater treatment plants, reservoirs and lift stations. Monies spent on capital and special maintenance projects by the City of North Battleford between 1996 and the year 2001 are shown in Exhibit C-93, Tab 1.
- In considering the City's action, one must keep in mind that in 1986, the share of the City's unconditional revenue sharing with the Province of Saskatchewan was \$1,257,655.00. Between 1997 and the year 2001, the amount received by the City, per year, was \$453,733.00, i.e. about one-third of what was available in the mid-1980's.
- The City did not ignore its water treatment and wastewater treatment plants. We suggest that the City's #2 water plant, for the most part, met and exceeded the Provincial/Municipal Drinking Water Objectives with respect to turbidity as is evidenced by the records prepared by Judy Szuch which appear in Exhibit C-65, Tab 13.

118. By way of conclusion, we suggest that the regulations, bylaws, policies, guidelines, procedures and practices of or applicable to the City of North Battleford did not affect the contamination or the adequacy and effectiveness of the actions taken by any of the parties leading up to or in response to the discovery of any contamination.

D. ANY OTHER RELEVANT MATTERS THAT THE COMMISSION CONSIDERS NECESSARY TO DETERMINE THAT THE CITY OF NORTH BATTLEFORD'S PUBLIC DRINKING WATER IS SAFE IN THE FUTURE

(i) **Steps Taken by the City of North Battleford**

119. The City of North Battleford has undertaken a number of initiatives to ensure that its public drinking water is safe in the future. The City has voluntarily undertaken to maintain a turbidity level of 0.3 ntu in the treated drinking water from the surface water treatment plant. The present Municipal Drinking Water Quality Objectives, in the view of the City, require a maximum acceptable concentration with respect to turbidity of 1.0 with respect to water entering the distribution system. Accordingly, the City has adopted an obligation significantly greater than the Objectives require and, more importantly, a turbidity level which has the approval of SERM, Sask Health and the Battlefords District Health Board.

120. Upgrades by the City to its surface water treatment plant include, but are not limited to, particle counters and turbidimeters for both banks of filters, a change in the chemical injection points of the process, changes to allow an ability to pump to waste from the solids contact unit and from both filter banks. Ultraviolet disinfection units are being installed as a supplemental barrier.

121. There is an improved management of the system. There exists procedures for operation and manuals. A program is in place for the better management of the reservoir system. Essentially, that program will be such that there will no longer be water sitting in reservoirs for extended periods of time. Water from the reservoirs will be used regularly and replenished regularly. That will also allow for more efficient operation of the surface water treatment plant in terms of having to shut it down and start it up less often. It will be able to run perhaps less often but for greater periods of time.

122. The City maintains its chlorine residual levels at, at least, the levels required by the Regulations. A protocol for the testing for chlorine residuals has been agreed to between the City and SERM. There should be no more cause for concern about how testing for chlorine residuals is conducted and how and when test samples ought to be submitted.

123. A procedure is in place which will result in the shutdown of water treatment plant #2 if there is a bypass at the wastewater treatment plant.

124. The City is irrevocably committed to the relocation and construction of a new wastewater treatment plant.

125. Steps have been taken by the City which will, in the final analysis, result in a centralization of the instrumentation and controls with respect to its water treatment plants and reservoirs.

(ii) **Recommendations**

126. The City of North Battleford recognizes that it has a part to play and some responsibility for the delivery of a safe public water supply. The City, however, takes the view that the overarching responsibility for the protection and proper regulation of drinking water must rest with the Provincial Government which must not only have the ability through legislation and regulations but also the necessary resources, both in terms of financing and personnel, to adequately carry out its responsibilities. In addition, any necessary legislative and regulatory reforms required to allow the Province to carry out its responsibilities should be put in place.

127. The City of North Battleford suggests that the Commission make, at a minimum, the following recommendations in its report:

(1) Protection of watersheds and well fields.

Saskatchewan must take the steps necessary to ensure protection for watersheds and well fields from which Saskatchewan residents draw their raw water for treatment and distribution as drinking water. We suggest that the steps to be taken should include an assessment of current and potential risks to drinking water quality. Steps should be taken to control land use in areas that would influence drinking water supplies.

It is unreasonable and illogical to require municipalities to take steps which may involve the expenditure of millions of dollars to treat drinking water when the need for such treatment may be aggravated by failure by the Province to protect watersheds and well fields that serve as a source for the supply of drinking water.

(2) Drinking Water Standards.

The Province of Saskatchewan should, at a minimum, require the legal compliance by municipalities and other water treatment plant operators with the Guidelines for Canadian Drinking Water Quality for health-related parameters.

The Province of Saskatchewan should itself review the Guidelines for Canadian Drinking Water Quality and if those Guidelines are not adequate to reasonably protect against public health risks, then the Guidelines should be adjusted to a level sufficient to reasonably protect against those risks.

The Province of Saskatchewan should further require regular reviews of the Guidelines.

The Province of Saskatchewan should further take reasonable steps to enforce the Guidelines with which it requires owners and operators of water treatment and wastewater treatment plants to comply.

(3) Mandatory Operator Certification.

That the Province of Saskatchewan proceed with mandatory operator certification but that steps be taken to extend the time within which operators currently employed may take their exams and qualify under the program.

Further, we suggest that steps be taken to amend the program to avoid a situation where virtually none of the operators of a water treatment or wastewater treatment plant need be certified so long as they have access to a certified operator.

(4) The Provincial Laboratory.

The City of North Battleford suggests that the Province of Saskatchewan should expand and enhance the services available through its Provincial Laboratory and take the steps necessary to ensure that the laboratory is accredited. The Provincial Laboratory should be expanded such that all water testing is able to be performed at that lab, with testing costs to be subsidized by the Provincial Government.

(5) Test Results.

The Province of Saskatchewan should enact legally binding requirements with respect to the reporting of test results. Test results which do not meet the legally binding standards should be reported to SERM and the medical health officer of the local District Health Board.

The Province of Saskatchewan must consider whether testing for protozoa such as *Cryptosporidium* and *Giardia* should be made a legal requirement. Whether or not it is made a legal requirement, the Provincial Laboratory ought to be in a position where it is able to perform those tests within a reasonable timeframe. The City of North Battleford will comply with whatever testing may be required.

(6) Information.

Steps should be taken by the Provincial Government to ensure that information in its possession with respect to water quality issues and risks be shared with the public and all owners of water and wastewater treatment facilities.

(7) Water and Wastewater Treatment Facilities.

That the Province of Saskatchewan put in place legally binding minimum requirements with respect to the construction (design, etc.) and operation of water and wastewater treatment facilities and distribution systems. Further, that the Province of Saskatchewan make available to owners of such facilities infrastructure funding to enable them to meet those standards.

(8) Role and Responsibility of SERM.

That the Province of Saskatchewan recognize and take steps to allow the agency responsible for water safety (SERM) to adopt a lead role on water safety issues. This would involve placing sufficient funds and personnel at the disposal of SERM to assume such a lead role.

(9) Inspections, Advice and Assistance.

That SERM conduct random site inspections of water and wastewater treatment facilities to ensure compliance with the binding regulations and take appropriate measures to deal with violations.

Further, that SERM make available to owners and operators of water treatment and wastewater treatment facilities reasonable advice and assistance to allow the owners and operators to comply with the legally binding requirements placed upon them.

(10) Protocol.

That SERM, Sask Health and representatives of municipalities meet and develop protocols to deal with the efficient and effective management of public health problems which may arise relative to drinking water.

(11) Working Group.

That a multi-disciplinary working group be established, comprised of local representatives of SERM, Sask Water, Sask Health, the City and the Town, to review, on a regular basis, data pertinent to the community, relative to drinking water.

IV. CONCLUSION

128. The City of North Battleford will adopt and comply with recommendations made by the Commission which relate to the City. The City wishes to express its appreciation to the Commission for having heard and considered its evidence and submissions.

ALL OF WHICH IS RESPECTFULLY SUBMITTED this 9th day of January, 2002.

PRIEL, STEVENSON, HOOD & THORNTON

Per: "L. Ted Priel"
Solicitors for the City of North Battleford