

THUNDER BAY (LOCH LOMOND) WATER TREATMENT PLANT

DRINKING WATER SURVEILLANCE
PROGRAM

REPORT FOR 1993, 1994 AND 1995

ONTARIO MINISTRY OF ENVIRONMENT
AND ENERGY

DRINKING WATER SURVEILLANCE PROGRAM

THUNDER BAY (LOCH LOMOND) WATER TREATMENT PLANT 1993, 1994 AND 1995 REPORT

INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to include all municipal supplies in Ontario. At the end of 1995, 132 supplies were being monitored.

The DWSP was initiated at the Thunder Bay (Loch Lomond) water treatment plant in May 1988. This is the fifth report and it presents data from 1993 to 1995.

PLANT DESCRIPTION

The Thunder Bay (Loch Lomond) water treatment plant is a treatment facility which partially treats water from Loch Lomond. The process consists of the addition of sodium silicate for corrosion control and disinfection. This plant has a design capacity of 77.2 x 1000 m³/day. The Thunder Bay (Loch Lomond) water treatment plant serves a population of approximately 47,500 in the South zone of Thunder Bay. The Thunder Bay (Loch Lomond) water treatment plant together with the (Bare Point) facility serve a population of 112,000.

SAMPLING AND ANALYSES

Stringent DWSP sampling protocols were followed to ensure uniformity. Sample lines in the plant were flushed prior to sampling to ensure that the water was representative of its origin and not residual water standing in the sample line.

Attempts were made to capture the same block of water at each sampling point by taking the retention time into consideration. Retention time was calculated by dividing the volume of water between two sampling points by sample day flow e.g. if the retention time within the plant was five hours there would be a five hour interval between the raw and treated sampling, similarly, if it was estimated that it took approximately one day for the water to travel from the plant to the distribution system site, this site would be sampled one day after the treated water from the plant.

To obtain a representative raw water sample, free from added chemicals, at plants using chlorine for zebra mussel control, the operator was required to turn off the chlorine feed to the mouth of the intake

and allow enough time for the chlorine free water to reach the sampling site.

Plant operating personnel routinely analyzed parameters for process control.

At all distribution system locations, two types of samples were obtained, standing (water that had been in the household plumbing and service connection for a minimum of six hours) and free flow (fresh water from the distribution system main after the sample tap was flushed for five minutes). The standing samples were used to assess changes in the levels of inorganic compounds and metals due to leaching from, or deposition on, the plumbing system. The only analyses carried out on the standing samples, therefore, were laboratory chemistry and metals.

Raw and treated water at the plant and at two locations in the distribution system was sampled for the presence of approximately 190 parameters divided into the following groups: bacteriological, inorganic and physical (laboratory chemistry, field chemistry and metals), organic (chloroaromatics, chlorophenols, pesticides and PCB, phenolics, polyaromatic hydrocarbons and volatiles) and radiological (radionuclides).

A survey of selected water plants was initiated in late 1994 for N-Nitrosodimethylamine (NDMA) and analysis for a group of disinfection by-products, Haloacetic Acid (HAA) compounds, was added in 1995. Analyses, other than radionuclides, were conducted at the Ministry of the Environment and Energy laboratory in Etobicoke, Ontario. Radionuclides were analyzed by the Ministry of Labour.

RESULTS

Field measurements were recorded on the day of sampling and were entered onto the DWSP database as submitted by plant personnel.

Table 1 provides information on delay time between the raw and treated water sampling, flow rate, and treatment chemical dosages.

Table 2 provides a summary of all results by parameter and by water type. If a parameter was never detected, the total number of samplings is recorded. If a parameter was detected at any level in any sample, the detailed results for all samples are provided.

Results reported without a '<T' remark are greater than the statistical limit of detection for that method as established by the Ministry of the Environment and Energy and are quantifiable. A trace (<T) denotes that the level reported is greater than the method detection limit but cannot be quantified.

Guidelines and detection limits are also reported on Table 2.

DISCUSSION

DISCUSSION IS LIMITED TO:

- RESULTS FOR TREATED AND DISTRIBUTED WATER;
- PARAMETERS WITH CONCENTRATIONS ABOVE GUIDELINE VALUES;
- ORGANICS DETECTED AT SIGNIFICANT LEVELS.

GENERAL

Water quality was judged by comparison with the Ontario Drinking Water Objectives (ODWOs)¹. In the absence of an Ontario Drinking Water Objective (ODWO), guidelines/limits from other agencies were used. These guidelines were obtained from the MOEE's Parameter Listing System database.

BACTERIOLOGICAL

Guidelines for bacteriological sampling and testing of a supply are developed to maintain a proper supervision of its bacteriological quality. Routine monitoring programs by the operating authority usually require that multiple samples be collected in a given system. Full interpretation of bacteriological quality cannot be made on the basis of single samples as taken by DWSP. Standard plate count was the only bacteriological analysis conducted on the treated and distributed water.

Standard plate count is a test used to supplement routine analysis for coliform bacteria. The limit for standard plate count (at 35°C after 48 hours) in the ODWOs is 500 counts/mL (based on a geometric mean of 5 or more samples). DWSP bacteriological analysis of treated and distributed water was limited to standard plate count.

Standard plate count (membrane filtration) levels were below the ODWO Aesthetic Objective of 500 counts/mL in 94% of the treated and distributed water samples.

INORGANIC & PHYSICAL

CHEMISTRY (LABORATORY)

Alkalinity levels were below the ODWO Recommended Operational Guideline range of 30-500 mg/L in all 18 treated and distributed water samples with a minimum reported value of 22.7 mg/L.

Colour in drinking water may be due to the presence of natural or synthetic organic substances as well as certain metallic ions. Colour is measured in True Colour Units (TCU). Colour exceeded the ODWO

¹ Ontario Drinking Water Objectives Revised 1994
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Aesthetic Objective of 5 TCU in all 18 treated and distributed water samples with a maximum reported value of 8.8 TCU.

Dissolved Organic Carbon was below the ODWO Aesthetic Objective of 5 mg/L in 78% of the treated and distributed water samples.

The ODWOs indicate that a hardness level of between 80 and 100 mg/L as calcium carbonate for domestic waters provides an acceptable balance between corrosion and encrustation. Hardness levels were below the ODWO Recommended Operational Guideline of 80-100 mg/L in all 18 treated and distributed water samples with a minimum reported value of 14.7 mg/L.

The lack of physical-chemical treatment means that there is little removal of colour, organic carbon or turbidity from the raw water.

METALS

The results of the metal scan showed that none were detected above a guideline.

The presence of elevated concentrations of metals, such as lead, in the standing samples in the distribution system indicates that household taps should be flushed, until the coolest water temperature is obtained, before water is used for consumption. The concentration of lead and other metals can increase while the water is standing in the service line and home plumbing. The health related ODWO for lead is applied to the free flowing sample.

ORGANIC

CHLOROAROMATICS

The results of the chloroaromatic scan showed that none were detected above trace levels.

CHLOROPHENOLS

2,4,6-Trichlorophenol was found at a positive level in 1 of 7 treated water samples analyzed. The maximum observed level was 300 ng/L. This was below the ODWO Maximum Acceptable Concentration of 5,000 ng/L.

No other parameters in the chlorophenol scan were detected in the treated water.

HALOACETIC ACIDS

Analysis of routine DWSP samples started in 1995. Haloacetic Acids (HAAs) is one of a group of compounds which are referred to as disinfection by-products (DBP). Chlorine, which is used as a disinfectant in the water treatment process, reacts with naturally occurring organic matter (humic acid) to form disinfection by-products. These compounds include trihalomethanes, haloacetic acids and haloacetonitriles.

Haloacetic acids are comprised of Monochloroacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid, Monobromoacetic Acid, Bromochloroacetic Acid, Dibromoacetic Acid and Total Haloacetic Acids.

Total Haloacetic Acids were detected in all treated and distributed water samples in 1995 to a maximum level of 108.0 ug/L. There is presently no ODWO for HAAs. The United States Environmental Protection Agency (USEPA) has proposed a Maximum Contaminant Level (MCL) of 60 ug/L.

N-NITROSODIMETHYLAMINE

N-Nitrosodimethylamine (NDMA) is an organic compound and a by-product of some industrial processes employing nitrites or amines under acidic conditions. It can also occur during the water treatment process if the precursor 'dimethylamine' is present and reacts with chlorine.

A special survey of selected DWSP plants was initiated in late 1994. The results of the NDMA test showed that none was detected.

ORGANICS / PESTICIDES / PCB

The results of the organic/pesticide/PCB scan showed that none were detected above trace levels.

POLYNUCLEAR AROMATIC HYDROCARBONS

Phenanthrene was detected at a positive level in 1 of 4 treated water samples in the distribution. The maximum observed level was 123 ng/L. There is no guideline available for this parameter.

No other parameter in the polynuclear aromatic hydrocarbon scan was detected above a trace level.

SPECIFIC PESTICIDES

The results of the specific pesticide scan showed that none were detected.

VOLATILES

The detection of benzene, ethylbenzene, toluene and xylenes at low, trace levels may be a laboratory artifact derived from the analytical methodology. Trace levels of styrene are considered to be laboratory artifacts resulting from the sample shipping containers.

Trihalomethanes (THMs) are produced during the water treatment process and will always occur in chlorinated waters. THMs are comprised of chloroform, chlorodibromomethane, dichlorobromomethane and bromoform which occurs occasionally. While results are reported for the individual compounds only total THM results are discussed.

Samples from the distribution system were quenched with sodium thiosulphate to stop the further production of THMs in the sample bottle thus providing a more representative estimation of the THMs consumed in tap water.

Total trihalomethanes were detected in all treated and distributed water samples to a maximum level of 132.5 ug/L in the treated water and 100.3 ug/L in the distributed water. This was below the ODWO Maximum Acceptable Concentration (MAC) of 350 ug/L.

RADIOLOGICAL

RADIONUCLIDES

There are more than 200 radionuclides, some occur naturally, others are man-made. The radionuclides of interest based on health effect are tritium, strontium-90, iodine-131, cesium-137 and radium-226. The gross beta and gross alpha determinations are suitable for preliminary screening except for tritium which must be measured separately. Radionuclides are measured in becquerels per litre (Bq/L). No results were above the available guidelines.

CONCLUSIONS

No known health related guidelines were exceeded.

The Thunder Bay (Loch Lomond) water treatment plant, for the sample years 1993, 1994 and 1995, produced acceptable quality water and this was maintained in the distribution system.

TABLE 1
 DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND) WTP SAMPLE DAY CONDITIONS
 AND TREATMENT CHEMICAL DOSAGES FOR 1993, 1994 AND 1995

DATE	DELAY * TIME(HRS)	PRE CHLORINATION CHLORINE FLOW (1000M3)		CORROSION CONTROL SODIUM SILICATE
93 FEB 08	2.00	-	2.93	13.88
93 NOV 08	1.06	34.000	3.51	14.07
94 FEB 15	2.64	33.000	2.84	13.93
94 MAY 10	1.75	34.000	1.91	13.59
94 AUG 09	2.70	32.200	2.35	14.30
94 NOV 14	1.80	33.300	3.40	13.71
95 FEB 07	1.40	32.000	1.98	13.85
95 MAY 08	3.24	26.900	3.00	13.40
95 AUG 10	1.25	24.870	2.00	14.60
95 NOV 14	1.00	23.010	3.15	13.30

* THE DELAY TIME BETWEEN THE RAW AND TREATED WATER SAMPLING, SHOULD ESTIMATE THE RETENTION TIME.

KEY TO TABLE 2

- A ONTARIO DRINKING WATER OBJECTIVES (ODWO)
1. Maximum Acceptable Concentration (MAC)
1+. MAC for Total Trihalomethanes
2. Interim Maximum Acceptable Concentration (IMAC)
3. Aesthetic Objective (AO)
3*. AO for Total Xylenes
4. Recommended Operational Guideline
5. Health Related Guidance Value
- B HEALTH & WELFARE CANADA (H&W)
1. Maximum Acceptable Concentration (MAC)
2. Proposed MAC
3. Interim MAC
4. Aesthetic Objective (AO)
- C WORLD HEALTH ORGANIZATION (WHO)
1. Guideline Value (GV)
2. Tentative GV
3. Aesthetic GV
- D US ENVIRONMENTAL PROTECTION AGENCY (EPA)
1. Maximum Contaminant Level (MCL)
2. Suggested No-Adverse Effect Level (SNAEL)
3. Lifetime Health Advisory
4. EPA Ambient Water Quality Criteria
- F EUROPEAN ECONOMIC COMMUNITY (EEC)
1. Health Related Guideline Level
2. Aesthetic Guideline Level
3. Maximum Admissable Concentration (MADC)
- G CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE
- I NEW YORK STATE AMBIENT WATER GUIDELINE
- N/A NONE AVAILABLE

NOTE: - Parts per million (ppm) is equivalent to mg/L.
 - Parts per billion (ppb) is equivalent to ug/L.
 - Parts per trillion (ppt) is equivalent to ng/L.

LABORATORY RESULTS, REMARK DESCRIPTIONS

. No Sample Taken

BDL Below Detection Limit/Minimum Measurement Amount

<T Greater Than Detection Limit But Not Confident
(SEE INTERPRETATION OF RESULTS ABOVE)

<TE Greater Than Detection Limit But Not Confident
(SEE INTERPRETATION OF RESULTS ABOVE)

<RD Below Reported Detection Limit

> Results Are Greater Than The Upper Limit

< Results Are Less Than The Lower Limit

<=> Approximate Result

!48 No Data: Sample Age Exceeded 48 Hours

!AR No Data: No Numeric Results

!AW No Data: Analysis Withdrawn

!BT No Data: Sample Broken In Transit

!CR No Data: Confirming Reanalysis Not Performed

!CS No Data: Contamination Suspected

!EF No Data: Laboratory Equipment Failure

!FC No Data: Foil Cap Contaminated Sample

!IC No Data: Improper Sample Container

!ID No Data: Insufficient Data To Perform Calculation

!IR No Data: Insufficient Sample

!IS No Data: Insufficient Sample

!LA No Data: Laboratory Accident

!LP No Data: Perishable Test Queued Late

!MT No Data: Sample Missing In Transit

!NA No Data: No Authorization To Perform Analysis

!ND No Data: Not Analyzed

!NP No Data: No Procedure

!NR No Data: Sample Not Received

!OP No Data: Obscured Plate

!PE No Data: Procedure Error: Sample Discarded

!PR No Data: Preservative Required

!QU No Data: Quality Control Unacceptable

!RE No Data: Received Empty

!RN No Data: No Numeric Results

!RO No Data: No Numeric Results

!RR No Data: No Numeric Results

!RS No Data: No Numeric Results

!SF No Data: Sample Frozen

!SM No Data: Sample Missing

!SS No Data: Sample Improperly Preserved

!ST No Data: No Numeric Results

!TE No Data: Turbidity Limit For Colour Exceeded

!U No Data: Sample Unsuitable For Analysis

!UB No Data: Bottle Broken

!UI No Data: Undetermined Interference

!UN No Data: Result Unreliable

!UR No Data: Unpreserved Sample Required

!WP No Data: Wrong Preservative Used

A Approximate Value

A3C Approximate, Total Count Exceeded 300 Colonies

A> Approximate Value, Exceeded Normal Range

APL Additional Peak, Greater Than, Not Priority Pollutant

APS Additional Peak, Less Than, Not Priority Pollutant

AR> Approximate Value, Exceeded Normal Range

ARO Additional Information In Laboratory Report

CID Calculated Data

CMS	Identity Confirmed By GC/MS
CRO	Calculated Result Only
EDC	Exceeds ODWO
NAF	Not All Required Tests Found
PSS	Particulate Present In Sample
RID	Ioncal Calculated on Incomplete Data Set
RMP	P and M-Xylene Not Separated
RRR	Result Obtained by Repeat Analysis
RRV	Rerun Verification
S24	Sample Settled 20-40% During One Minute Test Period
S46	Sample Settled 40-60% During One Minute Test Period
S6+	Sample Settled Over 60% During One Minute Test Period
SFA	Sample Filtered: Filtrate Analyzed
SIL	Sample Incorrectly Labelled
SPS	Several Peaks, Small, Not Priority Pollutant
U48	Unreliable: Sample Age Exceeded 48 Hours
UAL	Unreliable: Sample Age Exceeded Limit
UAU	Unreliable: Sample Age Unknown
UCS	Unreliable: Contamination Suspected
UIP	Unreliable: Insufficient Preservative Used
UNF	Unreliable: Container Not Filled To Top
UNH	Unreliable: Sample Not Homogeneous
UQC	Unreliable: Laboratory Quality Control Problem
UST	Unreliable: Sample Bottle Leaked In Transit
WQA	Water Quality Analysis Section Result
WSD	Wrong Sample Description On Bottle

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S	EDWARD ST S	THISTLE CR	MCKENZIE ST	MCKENZIE ST
	FREE FLOW	STANDING	FREE FLOW	FREE FLOW	STANDING	
BACTERIOLOGICAL						
FECAL COLIFORM MF / E COLI MF (CT/100ML)		DET'N LIMIT = 2.000		GUIDELINE = 0 (A1)		
12 SAMPLES	BDL					
STANDRD PLATE CNT MF (CT/ML)		DET'N LIMIT =		GUIDELINE = 500 (A3)		
1993 FEB	0					
1993 MAY	0			1000 >		
1993 AUG	0			2 <=>		
1994 FEB	1					
1994 MAY	0	5 <=>				
1994 AUG	47	25				
1994 NOV	5					
1994 NOV	5					
1995 FEB	2		3			
1995 MAY	2					
1995 AUG	4	8				
TOTAL COLIFORM MF (CT/100ML)		DET'N LIMIT = 2.000		GUIDELINE = 5/100ML (A1)		
11 SAMPLES	BDL					
T COLIFORM BCKGRD MF (CT/100ML)		DET'N LIMIT =		GUIDELINE = N/A		
1994 FEB	BDL					
1994 MAY	32					
1994 AUG	40					
1994 NOV	BDL					
1994 NOV	BDL					
1995 FEB	BDL					
1995 MAY	BDL					
1995 AUG	120					

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	TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
	RAW	TREATED	EDWARD ST S FREE FLOW	EDWARD ST S STANDING	THISTLE CR FREE FLOW	MCKENZIE ST FREE FLOW	MCKENZIE ST STANDING

CHEMISTRY (FIELD)							
FLD CHLORINE (COMB) (MG/L)		DET'N LIMIT =		GUIDELINE = N/A			
1993 FEB	.200	.	.	.	.	.	.
1993 MAY	.	.	.	.	.200	.000	.
1993 AUG	.	.	.	.	.100	.	.
1993 NOV	.230	.200	.	.	.	.	.
1994 FEB	.140	.160	.	1.000	.	.	.
1994 MAY	.	.170	.080	.200	.	.	.
1994 AUG	.	.150	.000	.000	.	.	.
1994 NOV	.	.190	.	.	.	.	.
1995 FEB	.210	.170	.	.	.	.	.
1995 MAY	.	.140	.	.	.	.	.
1995 AUG	.	.140	1.000	.200	.	.	.
1995 NOV	.	.150	.	.	.	.	.

FLD CHLORINE FREE (MG/L)		DET'N LIMIT =		GUIDELINE = N/A			
1993 FEB	1.200	.	.	.	.	.	.
1993 MAY	.	.	.	.	.200	.200	.
1993 AUG	.	.	.	.	.400	.200	.
1993 NOV	2.090	1.980	.	.	.	.	.
1994 FEB	1.350	1.280	.	.800	.	.	.
1994 MAY	.	1.740	.800	.200	.	.	.
1994 AUG	.	2.200	1.000	.800	.	.	.
1994 NOV	.	1.630	.	.	.	.	.
1995 FEB	1.770	1.520	.600	.200	.	.	.
1995 MAY	.	1.640	.	.	.	.	.
1995 AUG	.	1.860	.200	.200	.	.	.
1995 NOV	.	1.820	.	.	.	.	.

FLD CHLORINE (TOTAL) (MG/L)		DET'N LIMIT =		GUIDELINE = N/A			
1993 FEB	1.400	.	.	.	.	.	.
1993 MAY	.	.	.	.	.400	.200	.
1993 AUG	.	.	.	.	.500	.200	.
1993 NOV	2.320	2.180	.	.	.	.	.

1994 FEB	1.490	1.440	.	1.800	.	.	.
1994 MAY	.	1.910	.880	.220	.	.	.
1994 AUG	.	2.350	1.000	.800	.	.	.
1994 NOV	.	1.820	.	.	.	.	.
1995 FEB	1.980	1.690	.600	.200	.	.	.
1995 MAY	.	1.780
1995 AUG	.	2.000	1.200	.400	.	.	.
1995 NOV	.	1.970

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	TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM		DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
	RAW	TREATED	EDWARD ST S FREE FLOW	EDWARD ST S STANDING	THISTLE CR FREE FLOW	MCKENZIE ST FREE FLOW	MCKENZIE ST STANDING

CHEMISTRY (FIELD)							
FLD PH (DMNSLESS)			DET'N LIMIT =		GUIDELINE = 6.5-8.5 (A4)		
1993 FEB	7.100	7.700	.	.	.	.	.
1993 MAY	.	.	.	.	7.000	7.000	.
1993 AUG	7.200	.	.	.	7.000	7.000	.
1993 NOV	7.100	7.500	.	.	.	.	.
1994 FEB	7.200	7.700	.	7.200	.	.	.
1994 MAY	7.100	7.500	7.400	7.000	.	.	.
1994 AUG	7.400	7.600	7.500	7.400	.	.	.
1994 NOV	7.300	7.700	.	.	.	.	.
1995 FEB	7.300	7.800	7.200	7.200	.	.	.
1995 MAY	7.300	7.500	.	.	.	.	.
1995 NOV	7.200	7.500	.	.	.	.	.

FLD TEMPERATURE (DEG.C)			DET'N LIMIT =		GUIDELINE = 15 (A3)		
1993 FEB	3.000	3.000	.	.	.	.	.
1993 MAY	.	.	.	.	5.000	14.000	.
1993 AUG	11.500	.	.	.	14.300	25.500	.
1993 NOV	7.000	7.000	.	.	.	.	.
1994 FEB	3.000	3.000	.	3.000	.	.	.
1994 MAY	5.000	5.000	5.200	16.600	.	.	.
1994 AUG	10.000	10.000	13.000	15.000	.	.	.
1994 NOV	8.500	8.500	.	.	.	.	.
1995 FEB	3.000	3.000	3.000	3.000	.	.	.
1995 MAY	5.000	5.000	.	.	.	.	.
1995 AUG	13.000	13.000	.	16.000	.	.	.
1995 NOV	7.000	7.000	.	.	.	.	.

FLD TURBIDITY (FTU)			DET'N LIMIT =		GUIDELINE = 1.0 (A1)		
1993 FEB	.160	.150	.	.	.	.	.
1993 NOV	.300	.310	.	.	.	.	.
1994 FEB	.110	.110	.	.	.	.	.
1994 MAY	.400	.420	.	.	.	.	.
1994 AUG	.850	.850	.	.	.	.	.

1994 NOV	.340	.330
1995 FEB	.270	.230
1995 MAY	.180	.160
1995 AUG	.780	.	.800
1995 NOV	.670	.730

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TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S	EDWARD ST S	THISTLE CR	MCKENZIE ST	MCKENZIE ST
		FREE FLOW	STANDING	FREE FLOW	FREE FLOW	STANDING

CHEMISTRY (LAB)						
ALKALINITY (MG/L)		DET'N LIMIT = .200		GUIDELINE = 30-500 (A4)		
1993 FEB	21.000	24.100	.	.	.	.
1993 MAY	21.000	23.400	.	.	24.200	24.400
1993 AUG	21.200	.	.	.	24.200	26.100
1993 NOV	22.600	23.500	.	.	.	.
1994 FEB	22.700	25.400	25.500	25.700	.	.
1994 MAY	21.300	23.700	24.600	24.200	.	.
1994 AUG	21.300	22.700	23.200	23.400	.	.
1994 NOV	22.200	24.600	.	.	.	.
1995 FEB	22.600	25.000	24.700	25.700	.	.
1995 MAY	.	24.900	.	.	.	.
1995 AUG	22.000	23.200	23.600	24.800	.	.
1995 NOV	22.800	24.000	.	.	.	.

CALCIUM (MG/L)		DET'N LIMIT = .050		GUIDELINE = 100 (F2)		
1993 FEB	6.000	6.000	.	.	.	.
1993 MAY	5.750	5.800	.	.	5.800	5.950
1993 AUG	5.600	.	.	.	5.750	6.050
1993 NOV	5.900	5.800	.	.	.	.
1994 FEB	6.300	6.300	6.250	6.450	.	.
1994 MAY	5.750	5.800	5.900	6.000	.	.
1994 AUG	6.000	6.050	6.150	6.100	.	.
1994 NOV	6.220	6.300	.	.	.	.
1995 FEB	6.000	5.950	5.900	6.070	.	.
1995 MAY	.	5.940	.	.	.	.
1995 AUG	5.800	5.600	5.600	6.000	.	.
1995 NOV	5.600	5.600	.	.	.	.

CYANIDE (MG/L)		DET'N LIMIT = .001		GUIDELINE = 0.2 (A1)		
11 SAMPLES	.	BDL	.	.	.	.

CHLORIDE (MG/L)		DET'N LIMIT = .200		GUIDELINE = 250 (A3)		

1993 FEB	.400 <T	2.700	.	.	.	.	.
1993 MAY	.300 <T	2.500	.	.	.	2.600	2.700
1993 AUG	.200 <T	.	.	.	.	3.400	3.700
1993 NOV	.200 <T	3.100	.	.	.	.	.
1994 FEB	.400 <T	2.600	2.800	3.000	.	.	.
1994 MAY	.400 <T	2.800	1.500	3.100	.	.	.
1994 AUG	.400 <T	3.600	3.400	3.400	.	.	.
1994 NOV	.400 <T	2.900	.	.	.	.	.
1995 FEB	.400 <T	2.800	2.900	3.000	.	.	.
1995 MAY	.	1.500
1995 AUG	.400 <T	3.200	3.200	3.400	.	.	.
1995 NOV	.400 <T	3.200

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	RAW	TREATED	EDWARD ST S FREE FLOW	EDWARD ST S STANDING	THISTLE CR FREE FLOW	MCKENZIE ST FREE FLOW	MCKENZIE ST STANDING

CHEMISTRY (LAB)							
COLOUR (TCU)			DET'N LIMIT = .200		GUIDELINE = 5 (A3)		
1993 FEB	12.500	7.500	.	.	.	.	.
1993 MAY	13.500	7.500	.	.	8.500	9.000	.
1993 AUG	13.200	.	.	.	7.600	6.400	.
1993 NOV	12.000	5.600	.	.	.	.	.
1994 FEB	12.000	7.000	7.400	9.000	.	.	.
1994 MAY	13.200	7.200	7.400	8.800	.	.	.
1994 AUG	12.800	5.600	7.200	7.400	.	.	.
1994 NOV	11.400	7.200	.	.	.	.	.
1995 FEB	12.400	7.400	8.800	9.000	.	.	.
1995 MAY	.	6.800	.	.	.	.	.
1995 AUG	11.800	6.200	8.000	8.200	.	.	.
1995 NOV	12.800	6.600	.	.	.	.	.

CONDUCTIVITY (UMHO/CM)			DET'N LIMIT = 1.000		GUIDELINE = 400 (F2)		
1993 FEB	59	71	.	.	.	.	.
1993 MAY	57	70	.	.	71	73	.
1993 AUG	58	.	.	.	73	75	.
1993 NOV	60	72	.	.	.	.	.
1994 FEB	60	72	73	75	.	.	.
1994 MAY	55	69	70	70	.	.	.
1994 AUG	58	72	71	72	.	.	.
1994 NOV	58	72	.	.	.	.	.
1995 FEB	59	71	71	73	.	.	.
1995 MAY	.	70	.	.	.	.	.
1995 AUG	59	72	72	74	.	.	.
1995 NOV	60	72	.	.	.	.	.

EST CONDUCTIVITY (UMHO/CM)			DET'N LIMIT = N/A		GUIDELINE = N/A		
1995 MAY	.	72.600	.	.	.	.	.
1995 AUG	!!ID	!!ID	!!ID	!!ID	.	.	.

DIS INORGANIC CARBON (MG/L)			DET'N LIMIT = .200		GUIDELINE = N/A		

1994 NOV	4.800	5.200	.	.	.	.	.
1995 FEB	5.000	5.400	5.200	5.400	.	.	.
1995 MAY	.	5.200	.	.	.	.	.
1995 AUG	5.200	5.200	5.000	5.400	.	.	.
1995 NOV	5.000	5.200	.	.	.	.	.

TABLE 2
DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

	TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM		DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
	RAW	TREATED	EDWARD ST S FREE FLOW	EDWARD ST S STANDING	THISTLE CR FREE FLOW	MCKENZIE ST FREE FLOW	MCKENZIE ST STANDING

CHEMISTRY (LAB)							
DISS ORG CARBON (MG/L)		DET'N LIMIT = .100		GUIDELINE = 5.0 (A3)			
1993 FEB	4.800	4.900	.	.	.	.	.
1993 MAY	4.700	4.900	.	.	4.700	4.800	.
1993 AUG	5.100	.	.	.	5.000	4.500	.
1993 NOV	4.900	4.900	.	.	.	.	.
1994 FEB	5.100	5.200	5.200	5.300	.	.	.
1994 MAY	4.800	4.700	4.800	5.000	.	.	.
1994 AUG	4.800	4.900	5.000	4.900	.	.	.
1994 NOV	5.200	5.100	.	.	.	.	.
1995 FEB	5.000	4.900	4.700	4.600	.	.	.
1995 MAY	.	4.900	.	.	.	.	.
1995 AUG	5.200	5.100	4.900	4.800	.	.	.
1995 NOV	4.800	4.900	.	.	.	.	.

FLUORIDE (MG/L)		DET'N LIMIT = .010		GUIDELINE = 1.5 (A1)			
1993 FEB	.020 <T	BDL	.	.	.	.	.
1993 MAY	.020 <T	.020 <T	.	.	BDL	.020 <T	.
1993 AUG	.040 <T	.	.	.	.040 <T	.040 <T	.
1993 NOV	.020 <T	.020 <T	.	.	.	.	.
1994 FEB	.020 <T	BDL	BDL	BDL	.	.	.
1994 MAY	.020 <T	.020 <T	.020 <T	BDL	.	.	.
1994 AUG	.030 <T	.050	.040 <T	.050	.	.	.
1994 NOV	BDL	.030 <T	.	.	.	.	.
1995 FEB	.030 <T	.040 <T	.040 <T	.040 <T	.	.	.
1995 MAY	.	.050 <T	.	.	.	.	.
1995 AUG	.020 <T	.050	.040 <T	.050	.	.	.
1995 NOV	.030 <T	.060	.	.	.	.	.

HARDNESS (MG/L)		DET'N LIMIT = .200		GUIDELINE = 80-100 (A4)*			
1993 FEB	25.300	25.300	.	.	.	.	.
1993 MAY	24.520	24.550	.	.	24.680	25.240	.
1993 AUG	23.800	.	.	.	24.300	25.200	.
1993 NOV	24.940	24.850	.	.	.	.	.

1994 FEB	26.200	26.200	26.300	26.800	.	.	.
1994 MAY	24.070	24.130	24.360	24.820	.	.	.
1994 AUG	25.070	25.180	25.460	25.490	.	.	.
1994 NOV	25.800	26.100	.	.	.	.	.
1995 FEB	15.000	14.900	14.700	15.200	.	.	.
1995 MAY	.	25.000	.	.	.	.	.
1995 AUG	19.000	24.000	24.000	24.500	.	.	.
1995 NOV	24.000	24.000	.	.	.	.	.

* ODWO indicates water supplies with hardness > 200 mg/L are considered tolerable; hardness > 500 mg/L in drinking water is unacceptable for most domestic purposes.

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM		DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S	EDWARD ST S	THISTLE CR	MCKENZIE ST	MCKENZIE ST	
		FREE FLOW	STANDING	FREE FLOW	FREE FLOW	STANDING	

CHEMISTRY (LAB)							
IONCAL (DMNSLESS)		DET'N LIMIT =		GUIDELINE = N/A			
1993 FEB	2.121	1.080	.	.	.	.	.
1993 MAY	.563	1.080	.	.	.653	1.391	.
1993 AUG	3.729	.	.	.	.641	4.890	.
1993 NOV	4.065	.857	.	.	.	.	.
1994 FEB	1.849	.908	.378	.640	.	.	.
1994 MAY	1.942	1.199	3.707	2.003	.	.	.
1994 AUG	.763	2.699	2.123	1.550	.	.	.
1995 AUG	IID	IID	IID	IID	.	.	.

POTASSIUM (MG/L)		DET'N LIMIT = .010		GUIDELINE = 10 (F2)			
1993 FEB	.533	.527	.	.	.	.	.
1993 MAY	.502	.516	.	.	.545	.580	.
1993 AUG	.509	.	.	.	.505	.540	.
1993 NOV	.557	.545	.	.	.	.	.
1994 FEB	.554	.546	.551	.586	.	.	.
1994 MAY	.549	.547	.552	.550	.	.	.
1994 AUG	.520	.527	.529	.529	.	.	.
1994 NOV	.530	.536	.	.	.	.	.
1995 FEB	.528	.532	.527	.538	.	.	.
1995 MAY	.	.554	.	.	.	.	.
1995 AUG	.550	.550	.550	.550	.	.	.
1995 NOV	.550	.550	.	.	.	.	.

LANGELIERS INDEX (DMNSLESS)		DET'N LIMIT =		GUIDELINE = N/A			
1993 FEB	-1.778	-1.604	.	.	.	.	.
1993 MAY	-1.946	-1.751	.	.	-1.717	-1.703	.
1993 AUG	-1.844	.	.	.	-1.632	-1.568	.
1993 NOV	-1.544	-1.630	.	.	.	.	.
1994 FEB	-1.554	-1.441	-1.443	-1.457	.	.	.
1994 MAY	-1.649	-1.555	-1.502	-1.522	.	.	.
1994 AUG	-1.772	-1.687	-1.630	-1.630	.	.	.
1994 NOV	-1.490	-1.420	.	.	.	.	.

1995 FEB	-1.620	-1.500	-1.530	-1.580	.	.	.
1995 MAY	.	-1.500	.	.	.	.	.

TABLE 2
DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S	EDWARD ST S	THISTLE CR	MCKENZIE ST	MCKENZIE ST
		FREE FLOW	STANDING	FREE FLOW	FREE FLOW	STANDING

CHEMISTRY (LAB)						
MAGNESIUM (MG/L)		DET'N LIMIT = .020		GUIDELINE = 30.0 (F2)		
1993 FEB	2.500	2.500	.	.	.	.
1993 MAY	2.480	2.440	.	.	2.490	2.510
1993 AUG	2.380	.	.	.	2.430	2.460
1993 NOV	2.480	2.520	.	.	.	.
1994 FEB	2.550	2.550	2.590	2.600	.	.
1994 MAY	2.360	2.350	2.340	2.390	.	.
1994 AUG	2.450	2.460	2.460	2.480	.	.
1994 NOV	2.490	2.520	.	.	.	.
1995 FEB	2.550	2.540	2.550	2.580	.	.
1995 MAY	.	2.480	.	.	.	.
1995 AUG	1.150	2.350	2.350	2.400	.	.
1995 NOV	2.450	2.450	.	.	.	.

SODIUM (MG/L)		DET'N LIMIT = .020		GUIDELINE = 200 (A3)		
1993 FEB	1.130	3.940	.	.	.	.
1993 MAY	1.110	4.000	.	.	4.040	4.070
1993 AUG	1.090	.	.	.	4.280	4.330
1993 NOV	1.040	3.850	.	.	.	.
1994 FEB	1.140	3.890	4.190	4.050	.	.
1994 MAY	1.140	3.870	3.980	3.840	.	.
1994 AUG	1.090	3.990	3.940	3.950	.	.
1994 NOV	1.120	4.000	.	.	.	.
1995 FEB	1.110	3.950	3.850	3.950	.	.
1995 MAY	.	3.940	.	.	.	.
1995 AUG	.800 <T	3.400	3.200	3.200	.	.
1995 NOV	1.200	3.600	.	.	.	.

AMMONIUM TOTAL (MG/L)		DET'N LIMIT = .002		GUIDELINE = 1.5 (C3)		
1993 FEB	.004 <T	.012	.	.	.	.
1993 MAY	.004 <T	.008 <T	.	.	.018	.026
1993 AUG	BDL	.	.	.	.010	.018
1993 NOV	BDL	.002 <T	.	.	.	.

1994 FEB	BDL	.004 <T	.012	.018	.	.	.
1994 MAY	BDL	.006 <T	.012	.006 <T	.	.	.
1994 AUG	.022	.028	.022	.016	.	.	.
1994 NOV	.004 <T	.004 <T	.	.	.	.	.
1995 FEB	.012	.016	.018	.018	.	.	.
1995 MAY	.	.012	.	.	.	.	.
1995 AUG	.004 <T	BDL	.012	.012	.	.	.
1995 NOV	.020	.012	.	.	.	.	.

TABLE 2
DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

	TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM		DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
	RAW	TREATED	EDWARD ST S FREE FLOW	EDWARD ST S STANDING	THISTLE CR FREE FLOW	MCKENZIE ST FREE FLOW	MCKENZIE ST STANDING

CHEMISTRY (LAB)							
NITRITE (MG/L)			DET'N LIMIT = .001		GUIDELINE = 1.0 (A1)		
1993 FEB	.003 <T	.003 <T	.	.	.	.	.
1993 MAY	.003 <T	.002 <T	.	.	.	.004 <T	.005
1993 AUG	.003 <T	.	.	.	.	.003 <T	.004 <T
1993 NOV	BDL	BDL	.	.	.	.	.
1994 FEB	.001 <T	.002 <T	.004 <T	.003 <T	.	.	.
1994 MAY	.001 <T	.002 <T	.003 <T	.002 <T	.	.	.
1994 AUG	.006	.006	.006	.004 <T	.	.	.
1994 NOV	.002 <T	.002 <T	.	.	.	.	.
1995 FEB	.003 <T	.002 <T	BDL	.004 <T	.	.	.
1995 MAY	.	.002 <T	.	.	.	.	.
1995 AUG	.003 <T	.002 <T	.004 <T	.004 <T	.	.	.
1995 NOV	BDL	BDL	.	.	.	.	.

NITRATE (TOTAL) (MG/L)			DET'N LIMIT = .005		GUIDELINE = 10.0 (A1)		
1993 FEB	.080	.085	.	.	.	.	.
1993 MAY	.065	.075	.	.	.	.075	.075
1993 AUG	.050	.	.	.	.	.045	.040
1993 NOV	.060	.055	.	.	.	.	.
1994 FEB	.080	.080	.090	.105	.	.	.
1994 MAY	.070	.070	.070	.070	.	.	.
1994 AUG	.065	.055	.060	.055	.	.	.
1994 NOV	BDL	BDL	.	.	.	.	.
1995 FEB	BDL	BDL	BDL	BDL	.	.	.
1995 MAY	.	BDL	.	.	.	.	.
1995 AUG	BDL	BDL	BDL	BDL	.	.	.
1995 NOV	BDL	BDL	.	.	.	.	.

NITROGEN TOT KJELD (MG/L)			DET'N LIMIT = .020		GUIDELINE = N/A		
1993 FEB	.210	.210	.	.	.	.	.
1993 MAY	.260	.260	.	.	.	.280	.320
1993 AUG	.260	.	.	.	.	.240	.260
1993 NOV	.235	.200	.	.	.	.	.

1994 FEB	.200	.260	.260	.300	.	.	.
1994 MAY	.240	.220	.220	.220	.	.	.
1994 AUG	.280	.280	.280	.280	.	.	.
1994 NOV	.280	.260	.	.	.	.	.
1995 FEB	.260	.240	.240	.260	.	.	.
1995 MAY	.	.240	.	.	.	.	.
1995 AUG	.260	.240	.240	.220	.	.	.
1995 NOV	.240	.240	.	.	.	.	.

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

	TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM		DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
	RAW	TREATED	EDWARD ST S FREE FLOW	EDWARD ST S STANDING	THISTLE CR FREE FLOW	MCKENZIE ST FREE FLOW	MCKENZIE ST STANDING

CHEMISTRY (LAB)							
PH (DMNSLESS)			DET'N LIMIT =		GUIDELINE = 6.5-8.5 (A4)		
1993 FEB	7.460	7.580	.	.	.	.	.
1993 MAY	7.310	7.460	.	.	7.480	7.480	.
1993 AUG	7.420	.	.	.	7.570	7.580	.
1993 NOV	7.670	7.580	.	.	.	.	.
1994 FEB	7.630	7.700	7.700	7.670	.	.	.
1994 MAY	7.600	7.650	7.680	7.660	.	.	.
1994 AUG	7.460	7.520	7.560	7.560	.	.	.
1994 NOV	7.710	7.740	.	.	.	.	.
1995 FEB	7.590	7.670	7.650	7.570	.	.	.
1995 MAY	.	7.670	.	.	.	.	.
1995 AUG	7.750	7.780	7.760	7.810	.	.	.
1995 NOV	7.650	7.680	.	.	.	.	.

PHOSPHORUS FIL REACT (MG/L)			DET'N LIMIT = .001		GUIDELINE = N/A		
1993 FEB	BDL	BDL	.	.	.	.	.
1993 MAY	.001 <T	.001 <T	.	.	.	.	.
1993 AUG	.005	.	.	.	.	.	.
1993 NOV	BDL	.001 <T	.	.	.	.	.
1994 FEB	BDL	.001 <T	.	.	.	.	.
1994 MAY	BDL	BDL	.	.	.	.	.
1994 AUG	.001 <T	.004 <T	.	.	.	.	.
1994 NOV	BDL	.001 <T	.	.	.	.	.
1995 FEB	BDL	BDL	BDL	BDL	.	.	.
1995 MAY	.	BDL	.	.	.	.	.
1995 AUG	BDL	.000 <T	BDL	BDL	.	.	.
1995 NOV	.063	BDL	.	.	.	.	.

PHOSPHORUS TOTAL (MG/L)			DET'N LIMIT = .002		GUIDELINE = 0.40 (F2)		
1993 FEB	BDL	.003 <T	.	.	.	.	.
1993 MAY	.006 <T	.010	.	.	.	.	.
1993 AUG	.008 <T	.	.	.	.	.	.
1993 NOV	.005 <T	.006 <T	.	.	.	.	.

1994 FEB	.002 <T	.004 <T	.	.	.	.	.
1994 MAY	.002 <T	.006 <T	.	.	.	.	.
1994 AUG	.008 <T	.006 <T	.	.	.	.	.
1994 NOV	.006 <T	.006 <T	.	.	.	.	.
1995 FEB	.004 <T	.006 <T	.004 <T	.004 <T	.	.	.
1995 MAY	.	.010 <T	.	.	.	.	.
1995 AUG	.006 <T	.006 <T	.002 <T	.002 <T	.	.	.
1995 NOV	.004 <T	.006 <T	.	.	.	.	.

TABLE 2
DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S	EDWARD ST S	THISTLE CR	MCKENZIE ST	MCKENZIE ST
		FREE FLOW	STANDING	FREE FLOW	FREE FLOW	STANDING

CHEMISTRY (LAB)						
RESIDUE FILTRATE (MG/L)		DET'N LIMIT = 2.000		GUIDELINE = 500 (A3)		
1993 FEB	38.400 CRO	46.400 CRO	.	.	.	.
1993 MAY	37.200 CRO	45.400 CRO	.	.	46.000 CRO	47.400 CRO
1993 AUG	37.800 CRO	.	.	.	47.200 CRO	49.000 CRO
1993 NOV	39.200 CRO	46.600 CRO	.	.	.	.
1994 FEB	39.000 CRO	47.000 CRO	48.000 CRO	49.000 CRO	.	.
1994 MAY	37.200 CRO	44.800 CRO	45.400 CRO	45.800 CRO	.	.
1994 AUG	37.400 CRO	46.600 CRO	46.400 CRO	46.800 CRO	.	.
1994 NOV	38.200	47.100	.	.	.	.
1995 FEB	38.300	46.500	46.500	47.500	.	.
1995 MAY	.	46.100	.	.	.	.
1995 AUG	38.000	46.000	46.000	48.000	.	.
1995 NOV	38.000	46.000	.	.	.	.

SILICATES (MG/L)		DET'N LIMIT = .020		GUIDELINE = N/A		
1993 FEB	1.660	7.460	.	.	.	.
1993 MAY	1.660	7.460	.	.	7.480	7.640
1993 AUG	1.640	.	.	.	7.960	8.120
1993 NOV	1.680	7.380	.	.	.	.
1994 FEB	1.760	7.260	7.700	7.240	.	.
1994 MAY	1.720	7.260	7.620	7.260	.	.
1994 AUG	1.620	7.300	7.120	7.220	.	.
1994 NOV	1.580	7.260	.	.	.	.
1995 FEB	1.700	7.160	6.960	6.900	.	.
1995 MAY	.	7.320	.	.	.	.
1995 AUG	1.620	6.780	6.760	6.820	.	.
1995 NOV	1.680	6.720	.	.	.	.

SULPHATE (MG/L)		DET'N LIMIT = .500		GUIDELINE = 500 (A3)		
1993 FEB	5.740	5.730	.	.	.	.
1993 MAY	5.890	6.100	.	.	6.110	5.680
1993 AUG	5.890	.	.	.	5.190	5.440
1993 NOV	5.700	5.900	.	.	.	.

1994 FEB	6.140	6.100	6.220	6.090	.	.	.
1994 MAY	5.430	5.550	5.360	5.510	.	.	.
1994 AUG	5.630	5.560	5.630	5.600	.	.	.
1994 NOV	5.468	5.430	.	.	.	.	.
1995 FEB	5.707	5.855	5.621	5.559	.	.	.
1995 MAY	.	6.180	.	.	.	.	.
1995 AUG	8.000	8.000	8.000	8.000	.	.	.
1995 NOV	6.500	7.000	.	.	.	.	.

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

	TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM		DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
	RAW	TREATED	EDWARD ST S FREE FLOW	EDWARD ST S STANDING	THISTLE CR FREE FLOW	MCKENZIE ST FREE FLOW	MCKENZIE ST STANDING

	CHEMISTRY (LAB)						
TURBIDITY (FTU)			DET'N LIMIT = .010		GUIDELINE = 1.0 (A1)		
1993 FEB	.350	.280	.	.	.	.	.
1993 MAY	.420	.480	.	.	.	.560	.890
1993 AUG	.570	.	.	.	.	.650	.950
1993 NOV	.370	.420	.	.	.	.	.
1994 FEB	.270	.210 S24	.260	.250 S24	.	.	.
1994 MAY	.390	.360	.440	.510	.	.	.
1994 AUG	.640	.580	.540	.730	.	.	.
1994 NOV	.470	.400	.	.	.	.	.
1995 FEB	.150	.140	.150	.240	.	.	.
1995 MAY	.	.220	.	.	.	.	.
1995 AUG	.530	.410	.360	.390	.	.	.
1995 NOV	.310	.290	.	.	.	.	.

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S	EDWARD ST S	THISTLE CR	MCKENZIE ST	MCKENZIE ST
		FREE FLOW	STANDING	FREE FLOW	FREE FLOW	STANDING

METALS						
SILVER (UG/L)		DET'N LIMIT = .050		GUIDELINE = 200 (D3)		
36 SAMPLES	BDL	BDL	BDL	BDL	BDL	BDL

ALUMINUM (UG/L)		DET'N LIMIT = .100		GUIDELINE = 100 (A4)		
1993 FEB	6.600	11.000	.	.	.	.
1993 MAY	10.000	15.000	.	.	8.600 UIP	16.000
1993 AUG	IWP	.	.	.	11.000	8.800
1993 NOV	9.700	15.000	.	.	.	.
1994 FEB	4.500	8.500	7.900	8.800	.	.
1994 MAY	9.700	18.000	18.000	13.000 UIP	.	.
1994 AUG	9.500	16.000	14.000	18.000	.	.
1994 NOV	7.080	11.120	.	.	.	.
1995 FEB	7.330	12.340	10.120	9.410	.	.
1995 MAY	4.250	8.330	.	.	.	.
1995 AUG	8.000	12.000	9.900	9.700	.	.
1995 NOV	7.500	15.000	.	.	.	.

ARSENIC (UG/L)		DET'N LIMIT = .100		GUIDELINE = 25 (A2)		
1993 FEB	.250 <T	.240 <T	.	.	.	.
1993 MAY	BDL	BDL	.	.	BDL	BDL
1993 AUG	IWP	.	.	.	.240 <T	1.200
1993 NOV	.430 <T	.330 <T	.	.	.	.
1994 FEB	.230 <T	.220 <T	.250 <T	.260 <T	.	.
1994 MAY	.210 <T	.220 <T	.300 <T	.240 <T	.	.
1994 AUG	.220 <T	.220 <T	.230 <T	.260 <T	.	.
1994 NOV	.250 <T	.510 <T	.	.	.	.
1995 FEB	.340 <T	.350 <T	.290 <T	.320 <T	.	.
1995 MAY	.260 <T	.220 <T	.	.	.	.
1995 AUG	.300 <T	.300 <T	.300 <T	.300 <T	.	.
1995 NOV	.300 <T	.200 <T	.	.	.	.

BARIUM (UG/L)		DET'N LIMIT = .050		GUIDELINE = 1000 (A1)		

1993 FEB	5.100	5.600	.	.	.	.	.
1993 MAY	5.300	5.400	.	.	.	4.700 UIP	5.600
1993 AUG	IWP	.	.	.	.	6.900	8.200
1993 NOV	5.500	5.500	.	.	.	.	.
1994 FEB	5.200	5.400	4.700	5.600	.	.	.
1994 MAY	5.400	5.400	5.500	5.900 UIP	.	.	.
1994 AUG	5.400	5.600	6.200	7.300	.	.	.
1994 NOV	5.240	5.280	.	.	.	.	.
1995 FEB	5.860	6.010	5.960	7.600	.	.	.
1995 MAY	5.140	5.160	.	.	.	.	.
1995 AUG	5.300	5.300	5.800	6.800	.	.	.
1995 NOV	5.200	5.100	.	.	.	.	.

TABLE 2
DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

	TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
	RAW	TREATED	EDWARD ST S FREE FLOW	EDWARD ST S STANDING	THISTLE CR FREE FLOW	MCKENZIE ST FREE FLOW	MCKENZIE ST STANDING

METALS							
BORON (UG/L)			DET'N LIMIT = 2.000		GUIDELINE = 5000 (A2)		
1993 FEB	6.700 <T	6.500 <T	.	.	.	.	.
1993 MAY	8.900 <T	8.700 <T	.	.	.	11.000 <T	10.000 <T
1993 AUG	!WP	.	.	.	.	5.600 <T	6.200 <T
1993 NOV	6.600 <T	6.400 <T	.	.	.	.	.
1994 FEB	5.900 <T	6.200 <T	5.900 <T	6.100 <T	.	.	.
1994 MAY	6.200 <T	6.500 <T	6.200 <T	8.900 <T	.	.	.
1994 AUG	6.900 <T	7.300 <T	7.400 <T	7.100 <T	.	.	.
1994 NOV	5.500 <T	5.150 <T	.	.	.	.	.
1995 FEB	7.700 <T	7.320 <T	6.460 <T	7.270 <T	.	.	.
1995 MAY	5.800 <T	5.760 <T	.	.	.	.	.
1995 AUG	8.000 <T	8.000 <T	8.000 <T	8.000 <T	.	.	.
1995 NOV	6.000 <T	6.000 <T	.	.	.	.	.

BERYLLIUM (UG/L)			DET'N LIMIT = .050		GUIDELINE = 4 (D1)		
1993 FEB	BDL	BDL	.	.	.	.	.
1993 MAY	BDL	BDL	.	.	.	BDL	BDL
1993 AUG	!WP	.	.	.	.	BDL	.190 <T
1993 NOV	BDL	BDL	.	.	.	.	.
1994 FEB	BDL	BDL	BDL	BDL	.	.	.
1994 MAY	BDL	BDL	BDL	BDL	.	.	.
1994 AUG	BDL	BDL	BDL	BDL	.	.	.
1994 NOV	BDL	BDL	.	.	.	.	.
1995 FEB	BDL	BDL	BDL	BDL	.	.	.
1995 MAY	BDL	BDL	.	.	.	.	.
1995 AUG	BDL	BDL	BDL	BDL	.	.	.
1995 NOV	BDL	BDL	.	.	.	.	.

CADMIUM (UG/L)			DET'N LIMIT = .050		GUIDELINE = 5.0 (A1)		
1993 FEB	BDL	.070 <T	.	.	.	.	.
1993 MAY	BDL	BDL	.	.	.	BDL	.060 <T
1993 AUG	!WP	.	.	.	.	BDL	BDL
1993 NOV	BDL	BDL	.	.	.	.	.

1994 FEB	BDL	BDL	BDL	.120 <T	.	.	.
1994 MAY	BDL	BDL	BDL	.080 <T	.	.	.
1994 AUG	BDL	BDL	BDL	BDL	.	.	.
1994 NOV	BDL	BDL	.	.	.	.	.
1995 FEB	BDL	.090 <T	.070 <T	.100 <T	.	.	.
1995 MAY	BDL	BDL	.	.	.	.	.
1995 AUG	BDL	BDL	BDL	BDL	.	.	.
1995 NOV	BDL	BDL	.	.	.	.	.

TABLE 2
DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S	EDWARD ST S	THISTLE CR	MCKENZIE ST	MCKENZIE ST
	FREE FLOW	STANDING	FREE FLOW	FREE FLOW	STANDING	

METALS						
COBALT (UG/L)		DET'N LIMIT = .020	GUIDELINE = N/A			
1993 FEB	.060 <T	.070 <T	.	.	.	.
1993 MAY	.090 <T	.070 <T	.	.	.030 <T	.170 <T
1993 AUG	!WP	.	.	.	.080 <T	.330 <T
1993 NOV	.040 <T	.050 <T	.	.	.	.
1994 FEB	BDL	.070 <T	.040 <T	.070 <T	.	.
1994 MAY	BDL	BDL	BDL	BDL	.	.
1994 AUG	.060 <T	.050 <T	.060 <T	.050 <T	.	.
1994 NOV	.110 <T	.090 <T	.	.	.	.
1995 FEB	BDL	BDL	BDL	BDL	.	.
1995 MAY	.040 <T	BDL	.	.	.	.
1995 AUG	.040 <T	.060 <T	.040 <T	.040 <T	.	.
1995 NOV	.060 <T	.060 <T	.	.	.	.

CHROMIUM (UG/L)		DET'N LIMIT = .500	GUIDELINE = 50.0 (A1)			
1993 FEB	1.400 <T	1.300 <T	.	.	.	.
1993 MAY	.730 <T	BDL	.	.	1.100 <T	.850 <T
1993 AUG	!WP	.	.	.	.620 <T	.660 <T
1993 NOV	BDL	BDL	.	.	.	.
1994 FEB	BDL	.530 <T	BDL	BDL	.	.
1994 MAY	BDL	BDL	BDL	.530 <T	.	.
1994 AUG	.570 <T	.550 <T	.650 <T	BDL	.	.
1994 NOV	BDL	BDL	.	.	.	.
1995 FEB	BDL	BDL	BDL	BDL	.	.
1995 MAY	BDL	BDL	.	.	.	.
1995 AUG	BDL	BDL	BDL	BDL	.	.
1995 NOV	BDL	BDL	.	.	.	.

COPPER (UG/L)		DET'N LIMIT = .500	GUIDELINE = 1000 (A3)			
1993 FEB	2.200 <T	2.000 <T	.	.	.	.
1993 MAY	2.500 <T	2.200 <T	.	.	14.000 UIP	300.000
1993 AUG	!WP	.	.	.	27.000	740.000
1993 NOV	3.700 <T	2.400 <T	.	.	.	.

1994 FEB	2.100 <T	2.000 <T	13.000	130.000	.	.	.
1994 MAY	2.000 <T	2.100 <T	25.000	110.000 UIP	.	.	.
1994 AUG	1.900 <T	1.800 <T	64.000	200.000	.	.	.
1994 NOV	1.990 <T	1.910 <T	.	.	.	.	.
1995 FEB	2.270 <T	2.080 <T	25.540	369.450	.	.	.
1995 MAY	1.740 <T	1.840 <T	.	.	.	.	.
1995 AUG	2.500 <T	2.000 <T	53.000	340.000	.	.	.
1995 NOV	2.500 <T	2.500 <T	.	.	.	.	.

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

	TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
	RAW	TREATED	EDWARD ST S FREE FLOW	EDWARD ST S STANDING	THISTLE CR FREE FLOW	MCKENZIE ST FREE FLOW	MCKENZIE ST STANDING

METALS							
IRON (UG/L)							
DET'N LIMIT = 6.000 GUIDELINE = 300 (A3)							
1993 FEB	28.000 <T	33.000 <T	.	.	.	.	.
1993 MAY	26.000 <T	27.000 <T	.	.	57.000 <T	94.000	.
1993 AUG	IWP	.	.	.	67.000	53.000 <T	.
1993 NOV	34.000 <T	37.000 <T	.	.	.	.	.
1994 FEB	19.000 <T	22.000 <T	38.000 <T	43.000 <T	.	.	.
1994 MAY	29.000 <T	34.000 <T	54.000 <T	46.000 <T	.	.	.
1994 AUG	34.000 <T	31.000 <T	36.000 <T	72.000	.	.	.
1994 NOV	22.660 <T	20.880 <T	.	.	.	.	.
1995 FEB	17.850 <T	20.920 <T	74.020	29.230 <T	.	.	.
1995 MAY	8.990 <T	11.870 <T	.	.	.	.	.
1995 AUG	24.000 <T	24.000 <T	54.000 <T	30.000 <T	.	.	.
1995 NOV	18.000 <T	24.000 <T	.	.	.	.	.

MERCURY (UG/L)							
DET'N LIMIT = .020 GUIDELINE = 1.0 (A1)							
23 SAMPLES	BDL	BDL	.	.	.	.	.

MANGANESE (UG/L)							
DET'N LIMIT = .050 GUIDELINE = 50.0 (A3)							
1993 FEB	2.000	1.800	.	.	.	.	.
1993 MAY	1.500	1.900	.	.	.560 UIP	3.300	.
1993 AUG	IWP	.	.	.	3.200	2.900	.
1993 NOV	3.400	3.600	.	.	.	.	.
1994 FEB	1.500	1.900	2.400	2.300	.	.	.
1994 MAY	2.100	3.000	3.700	1.800 UIP	.	.	.
1994 AUG	4.600	4.300	3.700	8.400	.	.	.
1994 NOV	3.820	2.590	.	.	.	.	.
1995 FEB	1.830	2.230	3.400	2.580	.	.	.
1995 MAY	1.410	1.790	.	.	.	.	.
1995 AUG	5.400	4.400	4.500	4.200	.	.	.
1995 NOV	2.200	2.700	.	.	.	.	.

MOLYBDENUM (UG/L)							
DET'N LIMIT = .050 GUIDELINE = 50 (D3)							

1993 FEB	BDL	BDL	.	.	.	.	.
1993 MAY	.160 <T	.150 <T	.	.	.	.180 <T	.130 <T
1993 AUG	!WP	.	.	.	.	.130 <T	.140 <T
1993 NOV	.140 <T	.150 <T	.	.	.	.	.
1994 FEB	.080 <T	.110 <T	.110 <T	.110 <T	.	.	.
1994 MAY	.090 <T	.090 <T	.090 <T	.170 <T	.	.	.
1994 AUG	.080 <T	.110 <T	.140 <T	.090 <T	.	.	.
1994 NOV	.130 <T	.120 <T	.	.	.	.	.
1995 FEB	.120 <T	.110 <T	.120 <T	.120 <T	.	.	.
1995 MAY	.090 <T	.080 <T	.	.	.	.	.
1995 AUG	.100 <T	.100 <T	.100 <T	.100 <T	.	.	.
1995 NOV	.100 <T	.100 <T	.	.	.	.	.

TABLE 2
DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

	TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM		DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
	RAW	TREATED	EDWARD ST S FREE FLOW	EDWARD ST S STANDING	THISTLE CR FREE FLOW	MCKENZIE ST FREE FLOW	MCKENZIE ST STANDING

METALS							
NICKEL (UG/L)			DET'N LIMIT = .200		GUIDELINE = 100 (D1)		
1993 FEB	.400 <T	.220 <T	.	.	.	.	.
1993 MAY	.460 <T	.350 <T	.	.	.970 <T	1.300 <T	.
1993 AUG	IWP	.	.	.	1.000 <T	3.100	.
1993 NOV	1.600 <T	.500 <T	.	.	.	.	.
1994 FEB	.670 <T	.480 <T	.510 <T	.810 <T	.	.	.
1994 MAY	.410 <T	.260 <T	.360 <T	1.900 <T	.	.	.
1994 AUG	BDL	BDL	BDL	.360 <T	.	.	.
1994 NOV	BDL	.380 <T	.	.	.	.	.
1995 FEB	BDL	BDL	BDL	BDL	.	.	.
1995 MAY	.210 <T	BDL	.	.	.	.	.
1995 AUG	.400 <T	BDL	BDL	BDL	.	.	.
1995 NOV	.400 <T	.400 <T	.	.	.	.	.

LEAD (UG/L)			DET'N LIMIT = .050		GUIDELINE = 10 (A1)		
1993 FEB	.110 <T	.110 <T	.	.	.	.	.
1993 MAY	.160 <T	.110 <T	.	.	.460 <T	6.300	.
1993 AUG	IWP	.	.	.	3.500	33.000	.
1993 NOV	.440 <T	.150 <T	.	.	.	.	.
1994 FEB	.100 <T	.210 <T	.840	9.100	.	.	.
1994 MAY	.110 <T	.080 <T	1.200	4.500 UIP	.	.	.
1994 AUG	.330 <T	.280 <T	2.400	12.000	.	.	.
1994 NOV	.170 <T	.170 <T	.	.	.	.	.
1995 FEB	.110 <T	.400 <T	1.820	8.360	.	.	.
1995 MAY	BDL	BDL	.	.	.	.	.
1995 AUG	.150 <T	.100 <T	1.900	5.100	.	.	.
1995 NOV	.150 <T	.150 <T	.	.	.	.	.

ANTIMONY (UG/L)			DET'N LIMIT = .050		GUIDELINE = 6 (D1)		
1993 FEB	.480 <T	.470 <T	.	.	.	.	.
1993 MAY	.400 <T	.250 <T	.	.	.300 <T	.480 <T	.
1993 AUG	IWP	.	.	.	.690	.780	.
1993 NOV	.720	.570	.	.	.	.	.

1994 FEB	.240 <T	.550	.670	.750	.	.	.
1994 MAY	.660	.420 <T	.540	.750 UIP	.	.	.
1994 AUG	.620	.370 <T	.490 <T	.620	.	.	.
1994 NOV	.410 <T	.430 <T	.	.	.	.	.
1995 FEB	.640	.380 <T	.610	.680	.	.	.
1995 MAY	.520	.500 <T	.	.	.	.	.
1995 AUG	.550	.450 <T	.450 <T	.500	.	.	.
1995 NOV	.650	.450 <T	.	.	.	.	.

SELENIUM (UG/L)

DET'N LIMIT = 1.000

GUIDELINE = 10 (A1)

36 SAMPLES	BDL	BDL	BDL	BDL	.	BDL	BDL
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TABLE 2
DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S	EDWARD ST S	THISTLE CR	MCKENZIE ST	MCKENZIE ST
		FREE FLOW	STANDING	FREE FLOW	FREE FLOW	STANDING

METALS						
STRONTIUM (UG/L)		DET'N LIMIT = .100		GUIDELINE = 90000 (D3)		
1993 FEB	14.000	15.000	.	.	.	.
1993 MAY	15.000	14.000	.	.	14.000 UIP	15.000
1993 AUG	IWP	.	.	.	14.000	16.000
1993 NOV	15.000	15.000	.	.	.	.
1994 FEB	13.000	14.000	13.000	14.000	.	.
1994 MAY	14.000	14.000	14.000	15.000 UIP	.	.
1994 AUG	14.000	15.000	14.000	15.000	.	.
1994 NOV	14.350	14.030	.	.	.	.
1995 FEB	15.760	16.000	15.950	17.750	.	.
1995 MAY	14.020	14.130	.	.	.	.
1995 AUG	14.000	14.000	14.000	16.000	.	.
1995 NOV	15.000	14.000	.	.	.	.

TITANIUM (UG/L)		DET'N LIMIT = .500		GUIDELINE = N/A		
1993 FEB	1.600 <T	7.200	.	.	.	.
1993 MAY	3.200 <T	13.000	.	.	12.000 UIP	13.000
1993 AUG	IWP	.	.	.	19.000	20.000
1993 NOV	8.600	12.000	.	.	.	.
1994 FEB	5.000 <T	19.000	20.000	19.000	.	.
1994 MAY	3.200 <T	12.000	12.000	12.000 UIP	.	.
1994 AUG	3.800 <T	17.000	18.000	18.000	.	.
1994 NOV	5.190	22.140	.	.	.	.
1995 FEB	1.500 <T	5.270	4.450 <T	4.350 <T	.	.
1995 MAY	5.650	23.270	.	.	.	.
1995 AUG	2.000 <T	5.000	5.000	5.000	.	.
1995 NOV	3.500 <T	14.000	.	.	.	.

THALLIUM (UG/L)		DET'N LIMIT = .050		GUIDELINE = 2 (D1)		
36 SAMPLES	BDL	BDL	BDL	BDL	BDL	BDL

URANIUM (UG/L)		DET'N LIMIT = .050		GUIDELINE = 100 (A1)		

1993 FEB	BDL	BDL	.	.	.	.	.
1993 MAY	BDL	BDL	.	.	.	BDL	BDL
1993 AUG	!WP	.	.	.	.	.120 <T	BDL
1993 NOV	BDL	BDL	.	.	.	.	.
1994 FEB	BDL	BDL	BDL	BDL	.	.	.
1994 MAY	BDL	BDL	BDL	BDL	.	.	.
1994 AUG	BDL	BDL	BDL	BDL	.	.	.
1994 NOV	BDL	BDL	.	.	.	.	.
1995 FEB	BDL	BDL	BDL	BDL	.	.	.
1995 MAY	BDL	BDL	.	.	.	.	.
1995 AUG	BDL	BDL	BDL	BDL	.	.	.
1995 NOV	BDL	BDL	.	.	.	.	.

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

	TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
	RAW	TREATED	EDWARD ST S FREE FLOW	EDWARD ST S STANDING	THISTLE CR FREE FLOW	MCKENZIE ST FREE FLOW	MCKENZIE ST STANDING

METALS							
VANADIUM (UG/L)			DET'N LIMIT = .050		GUIDELINE = 110 (D3)		
1993 FEB	.110 <T	.130 <T	.	.	.	.	.
1993 MAY	BDL	BDL	.	.	.	BDL	BDL
1993 AUG	IWP	.	.	.	.	.070 <T	.080 <T
1993 NOV	.130 <T	.190 <T	.	.	.	.	.
1994 FEB	.120 <T	.130 <T	.150 <T	.140 <T	.	.	.
1994 MAY	BDL	BDL	BDL	BDL	.	.	.
1994 AUG	BDL	BDL	BDL	BDL	.	.	.
1994 NOV	.170 <T	.170 <T	.	.	.	.	.
1995 FEB	.150 <T	.130 <T	.150 <T	.130 <T	.	.	.
1995 MAY	.160 <T	.150 <T	.	.	.	.	.
1995 AUG	.100 <T	.100 <T	BDL	BDL	.	.	.
1995 NOV	BDL	BDL	.	.	.	.	.

ZINC (UG/L)			DET'N LIMIT = .200		GUIDELINE = 5000 (A3)		
1993 FEB	.440 <T	.520 <T	.	.	.	.	.
1993 MAY	.750 <T	1.200 <T	.	.	.	.480 <T	8.600
1993 AUG	IWP	.	.	.	.	3.700	37.000
1993 NOV	2.600	2.300	.	.	.	.	.
1994 FEB	1.700 <T	2.000 <T	2.900	19.000	.	.	.
1994 MAY	1.100 <T	1.600 <T	2.300	10.000 UIP	.	.	.
1994 AUG	1.600 <T	2.100	8.400	43.000	.	.	.
1994 NOV	1.420 <T	1.600 <T	.	.	.	.	.
1995 FEB	.990 <T	1.110 <T	2.830	10.980	.	.	.
1995 MAY	2.410	5.670	.	.	.	.	.
1995 AUG	1.400 <T	1.400 <T	3.600	9.400	.	.	.
1995 NOV	1.000 <T	1.400 <T	.	.	.	.	.

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM EDWARD ST S FREE FLOW	DIST. SYSTEM EDWARD ST S STANDING	DIST. SYSTEM THISTLE CR FREE FLOW	DIST. SYSTEM MCKENZIE ST FREE FLOW	DIST. SYSTEM MCKENZIE ST STANDING
CHLOROAROMATICS						
HEXACHLOROBUTADIENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 70000 (D3)		
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.
123-TRICHLOROBENZENE (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = N/A		
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.
1234-TETCLOBENZENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = N/A		
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.
1235-TETCLOBENZENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = N/A		
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.
124-TRICHLOROBENZENE (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = 70000 (D1)		
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.
1245-TETCLOBENZENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 38000 (D4)		
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.
135-TRICHLOROBENZENE (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = 200000 (D3)		
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.
HEXACHLOROBENZENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 1000 (D1)		
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.
HEXACHLOROETHANE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 40000 (D3)		
1993 FEB	BDL	BDL	.	.	.	.
1993 MAY	BDL	BDL	.	.	2.000 <T	.

1993 AUG	BDL	.	.	.	BDL	.
1993 NOV	!IS	BDL	.	.	.	.
1994 FEB	BDL	BDL	ISM	.	.	.
1994 MAY	BDL	2.000 <T	2.000 <T	.	.	.
1994 AUG	BDL	9.000 <T	6.000 <T	.	.	.
1994 NOV	BDL	1.000 <T	.	.	.	.
1995 FEB	BDL	BDL	BDL	.	.	.
1995 MAY	BDL	2.000 <T	.	.	.	.
1995 AUG	BDL	BDL	BDL	INR	.	.
1995 NOV	BDL	7.000 <T	.	.	.	.

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

	TREATMENT PLANT		DIST. SYSTEM		DIST. SYSTEM		DIST. SYSTEM	
	RAW	TREATED	EDWARD ST S FREE FLOW	EDWARD ST S STANDING	THISTLE CR FREE FLOW	MCKENZIE ST FREE FLOW	MCKENZIE ST STANDING	
CHLOROAROMATICS								
OCTACHLOROSTYRENE (NG/L)			DET'N LIMIT = 1.000		GUIDELINE = N/A			
28 SAMPLES	BDL	BDL	BDL	!NR	.	BDL	.	
PENTACHLOROBENZENE (NG/L)			DET'N LIMIT = 1.000		GUIDELINE = 74000 (D4)			
28 SAMPLES	BDL	BDL	BDL	!NR	.	BDL	.	
236-TRICHLOROTOLUENE (NG/L)			DET'N LIMIT = 5.000		GUIDELINE = N/A			
28 SAMPLES	BDL	BDL	BDL	!NR	.	BDL	.	
245-TRICHLOROTOLUENE (NG/L)			DET'N LIMIT = 5.000		GUIDELINE = N/A			
28 SAMPLES	BDL	BDL	BDL	!NR	.	BDL	.	
26A-TRICHLOROTOLUENE (NG/L)			DET'N LIMIT = 5.000		GUIDELINE = N/A			
28 SAMPLES	BDL	BDL	BDL	!NR	.	BDL	.	

TABLE 2
DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S	EDWARD ST S	THISTLE CR	MCKENZIE ST	MCKENZIE ST
		FREE FLOW	STANDING	FREE FLOW	FREE FLOW	STANDING

CHLOROPHENOLS						
234-TRICHLOROPHENOL (NG/L)		DET'N LIMIT = 100.00		GUIDELINE = N/A		
15 SAMPLES	BDL	BDL	.	.	.	.

2345-TETCHLOROPHENOL (NG/L)		DET'N LIMIT = 20.000		GUIDELINE = N/A		
15 SAMPLES	BDL	BDL	.	.	.	.

2,3,4,6-TCP (NG/L)		DET'N LIMIT = 20.000		GUIDELINE = 100000 (A1)		
10 SAMPLES	BDL	BDL	.	.	.	.

2356-TETCHLOROPHENOL (NG/L)		DET'N LIMIT = 10.000		GUIDELINE = N/A		
5 SAMPLES	BDL	BDL	.	.	.	.

245-TRICHLOROPHENOL (NG/L)		DET'N LIMIT = 100.00		GUIDELINE = 2600000 (D4)		
1993 NOV	BDL	IIS	.	.	.	.
1994 FEB	BDL	BDL	.	.	.	.
1994 AUG	BDL	BDL	.	.	.	.
1994 NOV	BDL	BDL	.	.	.	.
1995 FEB	BDL	BDL	.	.	.	.
1995 MAY	218.000 <T	BDL	.	.	.	.
1995 AUG	BDL	BDL	.	.	.	.
1995 NOV	BDL	BDL	.	.	.	.

246-TRICHLOROPHENOL (NG/L)		DET'N LIMIT = 20.000		GUIDELINE = 5000 (A1)		
1993 NOV	BDL	IIS	.	.	.	.
1994 FEB	BDL	60.000 <T	.	.	.	.
1994 AUG	BDL	BDL	.	.	.	.
1994 NOV	BDL	300.000	.	.	.	.
1995 FEB	BDL	155.000 <T	.	.	.	.
1995 MAY	BDL	100.000 <T	.	.	.	.
1995 AUG	BDL	BDL	.	.	.	.

1995 NOV	BDL	BDL	.	.	.	.	.
2,4-DCP (NG/L)		DET'N LIMIT = 2000.0	GUIDELINE = 900000 (A1)				
10 SAMPLES	BDL	BDL	.	.	.	.	.
PENTACHLOROPHENOL (NG/L)		DET'N LIMIT = 10.000	GUIDELINE = 60000 (A1)				
15 SAMPLES	BDL	BDL	.	.	.	.	.

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM		DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S	EDWARD ST S	THISTLE CR	MCKENZIE ST	MCKENZIE ST	
		FREE FLOW	STANDING	FREE FLOW	FREE FLOW	STANDING	

HALOACETIC ACIDS							
BROMCHLORACETIC ACID (UG/L)		DET'N LIMIT = 0.100		GUIDELINE = N/A			
1995 FEB	BDL	1.000 <T	.800 <T	.	.	.	.
1995 AUG	BDL	1.100	.900 <T	.	.	.	.
1995 NOV	BDL	.900 <T	.	.	.	.	.

DIBROMOACETIC ACID (UG/L)		DET'N LIMIT = 0.050		GUIDELINE = N/A			
8 SAMPLES	BDL	BDL	BDL	.	.	.	.

DICHLOROACETIC ACID (UG/L)		DET'N LIMIT = 0.100		GUIDELINE = N/A			
1995 FEB	BDL	25.300	29.700	.	.	.	.
1995 AUG	BDL	36.900	31.400	.	.	.	.
1995 NOV	BDL	33.900	.	.	.	.	.

MONOBROMOACETIC ACID (UG/L)		DET'N LIMIT = 0.050		GUIDELINE = N/A			
1995 FEB	BDL	BDL	.050 <T	.	.	.	.
1995 AUG	BDL	BDL	BDL	.	.	.	.
1995 NOV	BDL	BDL	.	.	.	.	.

MONOCHLORACETIC ACID (UG/L)		DET'N LIMIT = 0.500		GUIDELINE = N/A			
1995 FEB	BDL	2.000 <T	2.000 <T	.	.	.	.
1995 AUG	.500 <T	2.500 <T	2.500 <T	.	.	.	.
1995 NOV	BDL	2.000 <T	.	.	.	.	.

TRICHLOROACETIC ACID (UG/L)		DET'N LIMIT = 0.050		GUIDELINE = N/A			
1995 FEB	.050 <T	34.900	35.400	.	.	.	.
1995 AUG	BDL	67.300	44.500	.	.	.	.
1995 NOV	BDL	52.400	.	.	.	.	.

TOT HALOACETIC ACIDS (UG/L)		DET'N LIMIT = 0.050		GUIDELINE = N/A			

1995 FEB	BDL	63.000	68.000	.	.	.	.
1995 AUG	BDL	108.000	79.500	.	.	.	.
1995 NOV	BDL	89.200	.	.	.	.	.

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S	EDWARD ST S	THISTLE CR	MCKENZIE ST	MCKENZIE ST
		FREE FLOW	STANDING	FREE FLOW	FREE FLOW	STANDING

NITROSODIMETHYLAMINE						
NDMA (UG/L)		DET'N LIMIT = 0.001		GUIDELINE = 0.009 (A2)		
2 SAMPLES	BDL	BDL	.	.	.	.

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM EDWARD ST S FREE FLOW	DIST. SYSTEM EDWARD ST S STANDING	DIST. SYSTEM THISTLE CR FREE FLOW	DIST. SYSTEM MCKENZIE ST FREE FLOW	DIST. SYSTEM MCKENZIE ST STANDING

ORGANIC/PESTICID/PCBS							
ALDRIN (NG/L)							
		DET'N LIMIT = 1.000			GUIDELINE = 700 (A1)		
28 SAMPLES	BDL	BDL	BDL	!NR		BDL	

ALPHA BHC (NG/L)							
		DET'N LIMIT = 1.000			GUIDELINE = 700 (G)		
1993 FEB	BDL	BDL					
1993 MAY	BDL	BDL				BDL	
1993 AUG	BDL					BDL	
1993 NOV	!IS	BDL					
1994 FEB	BDL	BDL	!SM				
1994 MAY	BDL	BDL	BDL				
1994 AUG	BDL	1.000 <T	BDL				
1994 NOV	BDL	1.000 <T					
1995 FEB	BDL	BDL	BDL				
1995 MAY	BDL	BDL					
1995 AUG	BDL	BDL	BDL	!NR			
1995 NOV	BDL	BDL					

BETA BHC (NG/L)							
		DET'N LIMIT = 1.000			GUIDELINE = 300 (G)		
10 SAMPLES	BDL	BDL	!SM			BDL	

LINDANE (GAMMA BHC) (NG/L)							
		DET'N LIMIT = 1.000			GUIDELINE = 4000 (A1)		
28 SAMPLES	BDL	BDL	BDL	!NR		BDL	

ALPHA CHLORDANE (NG/L)							
		DET'N LIMIT = 2.000			GUIDELINE = 7000 (A1)		
28 SAMPLES	BDL	BDL	BDL	!NR		BDL	

GAMMA CHLORDANE (NG/L)							
		DET'N LIMIT = 2.000			GUIDELINE = 7000 (A1)		
28 SAMPLES	BDL	BDL	BDL	!NR		BDL	

DIELDRIN (NG/L)							
		DET'N LIMIT = 2.000			GUIDELINE = 700 (A1)		

28 SAMPLES	BDL	BDL	BDL	!NR	BDL
METHOXYCHLOR (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = 900000 (A1)	
28 SAMPLES	BDL	BDL	BDL	!NR	BDL
ENDOSULFAN 1 (NG/L)		DET'N LIMIT = 2.000		GUIDELINE = 74000 (D4)	
28 SAMPLES	BDL	BDL	BDL	!NR	BDL

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S FREE FLOW	EDWARD ST S STANDING	THISTLE CR FREE FLOW	MCKENZIE ST FREE FLOW	MCKENZIE ST STANDING
ORGANIC/PESTICID/PCBS						
ENDOSULFAN II (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = 74000 (D4)		
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.
ENDRIN (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = 2000 (D1)		
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.
ENDOSULFAN SULPHATE (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = N/A		
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.
HEPTACHLOR EPOXIDE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 3000 (A1)		
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.
HEPTACHLOR (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 3000 (A1)		
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.
MIREX (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = N/A		
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.
OXYCHLORDANE (NG/L)		DET'N LIMIT = 2.000		GUIDELINE = N/A		
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.
O,P-DDT (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = 30000 (A1)		
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.
PCB (NG/L)		DET'N LIMIT = 20.000		GUIDELINE = 3000 (A2)		
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.

P,P-DDD (NG/L)		DET'N LIMIT = 5.000			GUIDELINE = 30000 (A1)	
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.
P,P-DDE (NG/L)		DET'N LIMIT = 1.000			GUIDELINE = 30000 (A1)	
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.
P,P-DDT (NG/L)		DET'N LIMIT = 5.000			GUIDELINE = 30000 (A1)	
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	.

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S	EDWARD ST S	THISTLE CR	MCKENZIE ST	MCKENZIE ST
		FREE FLOW	STANDING	FREE FLOW	FREE FLOW	STANDING
ORGANIC/PESTICID/PCBS						
TOXAPHENE (NG/L)		DET'N LIMIT = 500.00		GUIDELINE = 3000 (D1)		
28 SAMPLES	BDL	BDL	BDL	!NR	BDL	
TRIFLURALIN (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = 45000 (A2)		
18 SAMPLES	BDL	BDL	BDL	!NR		
AMETRYNE (NG/L)		DET'N LIMIT = 50.000		GUIDELINE = 300000 (D3)		
20 SAMPLES	BDL	BDL				
ATRAZINE (NG/L)		DET'N LIMIT = 50.000		GUIDELINE = 5000 (A2)		
20 SAMPLES	BDL	BDL				
ATRATONE (NG/L)		DET'N LIMIT = 50.000		GUIDELINE = N/A		
20 SAMPLES	BDL	BDL				
CYANAZINE (BLADEX) (NG/L)		DET'N LIMIT = 100.00		GUIDELINE = 10000 (A2)		
20 SAMPLES	BDL	BDL				
DESETHYL ATRAZINE (NG/L)		DET'N LIMIT = 200.00		GUIDELINE = 5000 (A2)		
20 SAMPLES	BDL	BDL				
DESETHYL SIMAZINE (NG/L)		DET'N LIMIT = 200.00		GUIDELINE = 10000 (A2)		
20 SAMPLES	BDL	BDL				
PROMETONE (NG/L)		DET'N LIMIT = 50.000		GUIDELINE = 500000 (D3)		
20 SAMPLES	BDL	BDL				

PROPАЗINE (NG/L) DET'N LIMIT = 50.000 GUIDELINE = 700000 (D3)

20 SAMPLES BDL BDL

PROMETRYNE (NG/L) DET'N LIMIT = 50.000 GUIDELINE = 1000 (A2)

20 SAMPLES BDL BDL

METRIBUZIN (SENCOR) (NG/L) DET'N LIMIT = 100.00 GUIDELINE = 80000 (A1)

20 SAMPLES BDL BDL

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S FREE FLOW	EDWARD ST S STANDING	THISTLE CR FREE FLOW	MCKENZIE ST FREE FLOW	MCKENZIE ST STANDING

ORGANIC/PESTICID/PCBS						
SIMAZINE (NG/L)		DET'N LIMIT = 50.000		GUIDELINE = 10000 (A2)		
20 SAMPLES	BDL	BDL	.	.	.	.

BROMOXYNIL (NG/L)		DET'N LIMIT = 50.000		GUIDELINE = 5000 (A2)		
10 SAMPLES	BDL	BDL	.	.	.	.

DICLOFOP-METHYL (NG/L)		DET'N LIMIT = 100.00		GUIDELINE = 9000 (A1)		
10 SAMPLES	BDL	BDL	.	.	.	.

PICLORAM (NG/L)		DET'N LIMIT = 100.00		GUIDELINE = 190000 (A2)		
10 SAMPLES	BDL	BDL	.	.	.	.

ALACHLOR (LASSO) (NG/L)		DET'N LIMIT = 500.00		GUIDELINE = 5000 (A2)		
20 SAMPLES	BDL	BDL	.	.	.	.

METOLACHLOR (NG/L)		DET'N LIMIT = 500.00		GUIDELINE = 50000 (A2)		
20 SAMPLES	BDL	BDL	.	.	.	.

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

	TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM		DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
	RAW	TREATED	EDWARD ST S FREE FLOW	EDWARD ST S STANDING	THISTLE CR FREE FLOW	MCKENZIE ST FREE FLOW	MCKENZIE ST STANDING
PHENOLICS							
PHENOLICS (UG/L)			DET'N LIMIT = .200		GUIDELINE = N/A		
1993 FEB	BDL	BDL	.	.	.	.	.
1993 MAY	.600 <T	.400 <T	.	.	.	.	.
1993 AUG	BDL	.	.	.	.	.	.
1993 NOV	.400 <T	.600 <T	.	.	.	.	.
1994 FEB	BDL	.200 <T	.	.	.	.	.
1994 MAY	.400 <T	.200 <T	.	.	.	.	.
1994 AUG	.600 <T	.800 <T	.	.	.	.	.
1994 NOV	.400 <T	.600 <T	.	.	.	.	.
1995 FEB	.200 <T	.200 <T	.	.	.	.	.
1995 MAY	.200 <T	.200 <T	.	.	.	.	.
1995 AUG	.200 <T	.400 <T	.	.	.	.	.
1995 NOV	.400 <T	.400 <T	.	.	.	.	.

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S	EDWARD ST S	THISTLE CR	MCKENZIE ST	MCKENZIE ST
		FREE FLOW	STANDING	FREE FLOW	FREE FLOW	STANDING
POLY AROMATIC HYDROC						
PHENANTHRENE (NG/L)		DET'N LIMIT = 10.000		GUIDELINE = N/A		
1993 MAY	.	.	.	BDL	.	.
1993 AUG	.	.	.	123.000 CMS	.	.
1994 FEB	.	BDL	.	.	.	.
1994 MAY	.	BDL	.	.	.	.

ANTHRACENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = N/A		
4 SAMPLES	.	BDL	.	BDL	.	.

FLUORANTHENE (NG/L)		DET'N LIMIT = 20.000		GUIDELINE = 42000 (D4)		
1993 MAY	.	.	.	BDL	.	.
1993 AUG	.	.	.	35.000 <T	.	.
1994 FEB	.	BDL	.	.	.	.
1994 MAY	.	BDL	.	.	.	.

PYRENE (NG/L)		DET'N LIMIT = 20.000		GUIDELINE = N/A		
4 SAMPLES	.	BDL	.	BDL	.	.

BENZO(A)ANTHRACENE (NG/L)		DET'N LIMIT = 20.000		GUIDELINE = 100 (D1)		
4 SAMPLES	.	BDL	.	BDL	.	.

CHRYSENE (NG/L)		DET'N LIMIT = 50.000		GUIDELINE = N/A		
4 SAMPLES	.	BDL	.	BDL	.	.

DIMETH. BENZ(A)ANTHR (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = N/A		
3 SAMPLES	.	BDL	.	BDL	.	.

BENZO(E) PYRENE (NG/L)		DET'N LIMIT = 50.000		GUIDELINE = N/A		

4 SAMPLES	BDL	BDL
<hr/>		
BENZO(B) FLUORANTHEN (NG/L)	DET'N LIMIT = 10.000	GUIDELINE = 200 (D1)
4 SAMPLES	BDL	BDL
<hr/>		
PERYLENE (NG/L)	DET'N LIMIT = 10.000	GUIDELINE = N/A
4 SAMPLES	BDL	BDL
<hr/>		

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S	EDWARD ST S	THISTLE CR	MCKENZIE ST	MCKENZIE ST
		FREE FLOW	STANDING	FREE FLOW	FREE FLOW	STANDING
POLY AROMATIC HYDROC						
BENZO(K) FLUORANTHEN (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = N/A		
4 SAMPLES	.	BDL	.	BDL	.	.

BENZO(A) PYRENE (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = 10 (A1)		
4 SAMPLES	.	BDL	.	BDL	.	.

BENZO(G,H,I) PERYLEN (NG/L)		DET'N LIMIT = 20.000		GUIDELINE = N/A		
4 SAMPLES	.	BDL	.	BDL	.	.

DIBENZO(A,H) ANTHRAC (NG/L)		DET'N LIMIT = 10.000		GUIDELINE = 300 (D1)		
4 SAMPLES	.	BDL	.	BDL	.	.

INDENO(1,2,3-C,D) PY (NG/L)		DET'N LIMIT = 20.000		GUIDELINE = N/A		
4 SAMPLES	.	BDL	.	BDL	.	.

BENZO(B) CHRYSENE (NG/L)		DET'N LIMIT = 2.000		GUIDELINE = N/A		
4 SAMPLES	.	BDL	.	BDL	.	.

CORONENE (NG/L)		DET'N LIMIT = 10.000		GUIDELINE = N/A		
4 SAMPLES	.	BDL	.	BDL	.	.

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S	EDWARD ST S	THISTLE CR	MCKENZIE ST	MCKENZIE ST
		FREE FLOW	STANDING	FREE FLOW	FREE FLOW	STANDING

SPECIFIC PESTICIDES						
2,4,5-T (NG/L)		DET'N LIMIT = 50.000		GUIDELINE = 280000 (A1)		
15 SAMPLES	BDL	BDL	.	.	.	.

2,4-D (NG/L)		DET'N LIMIT = 100.00		GUIDELINE = 100000 (A2)		
15 SAMPLES	BDL	BDL	.	.	.	.

2,4-DB (NG/L)		DET'N LIMIT = 200.00		GUIDELINE = 90000 (C1)		
15 SAMPLES	BDL	BDL	.	.	.	.

2,4-D PROPIONIC ACID (NG/L)		DET'N LIMIT = 100.00		GUIDELINE = N/A		
15 SAMPLES	BDL	BDL	.	.	.	.

DICAMBA (NG/L)		DET'N LIMIT = 50.000		GUIDELINE = 120000 (A1)		
15 SAMPLES	BDL	BDL	.	.	.	.

2,4,5-TP (SILVEX) (NG/L)		DET'N LIMIT = 20.000		GUIDELINE = 50000 (D1)		
15 SAMPLES	BDL	BDL	.	.	.	.

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

	TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
	RAW	TREATED	EDWARD ST S FREE FLOW	EDWARD ST S STANDING	THISTLE CR FREE FLOW	MCKENZIE ST FREE FLOW	MCKENZIE ST STANDING
VOLATILE ORGANICS							
BENZENE (UG/L)							
			DET'N LIMIT = .050		GUIDELINE = 5 (A1)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL	.
TOLUENE (UG/L)							
			DET'N LIMIT = .050		GUIDELINE = 24 (A3)		
1993 FEB	BDL	BDL	.	.	.	.	.
1993 MAY	BDL	BDL	.	.	.	BDL	.
1993 AUG	BDL	.	.	.	.	.100 <T	.
1993 NOV	BDL	BDL	.	.	.	.	.
1994 FEB	BDL	BDL	BDL	.	.	.	.
1994 MAY	BDL	BDL	BDL	.	.	.	.
1994 AUG	BDL	BDL	BDL	.	.	.	.
1994 NOV	BDL	BDL	.	.	.	.	.
1995 FEB	BDL	BDL	BDL	.	.	.	.
1995 MAY	.050 <T	BDL	.	.	.	.	.
1995 AUG	BDL	BDL	BDL	.	.	.	.
1995 NOV	BDL	BDL	.	.	.	.	.
ETHYLBENZENE (UG/L)							
			DET'N LIMIT = .050		GUIDELINE = 2.4 (A3)		
1993 FEB	.050 <T	.050 <T	.	.	.	.	.
1993 MAY	.100 <T	.100 <T	.	.	.	.050 <T	.
1993 AUG	BDL	.	.	.	.	.100 <T	.
1993 NOV	BDL	BDL	.	.	.	.	.
1994 FEB	BDL	BDL	BDL	.	.	.	.
1994 MAY	BDL	BDL	BDL	.	.	.	.
1994 AUG	BDL	BDL	.100 <T	.	.	.	.
1994 NOV	BDL	BDL	.	.	.	.	.
1995 FEB	BDL	BDL	BDL	.	.	.	.
1995 MAY	BDL	BDL	.	.	.	.	.
1995 AUG	BDL	BDL	BDL	.	.	.	.
1995 NOV	BDL	BDL	.	.	.	.	.
P-XYLENE (UG/L)							
			DET'N LIMIT = .050		GUIDELINE = 300 (A3*)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL	.

M-XYLENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 300 (A3*)	
1993 FEB	BDL	BDL	.	.	.
1993 MAY	BDL	BDL	.	.	BDL
1993 AUG	BDL	.	.	.	BDL
1993 NOV	BDL	BDL	.	.	.
1994 FEB	BDL	BDL	BDL	.	.
1994 MAY	BDL	BDL	BDL	.	.
1994 AUG	BDL	BDL	.050 <T	.	.
1994 NOV	BDL	BDL	.	.	.
1995 FEB	BDL	BDL	BDL	.	.
1995 MAY	BDL	BDL	.	.	.
1995 AUG	BDL	BDL	BDL	.	.
1995 NOV	BDL	BDL	.	.	.

TABLE 2
DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S	EDWARD ST S	THISTLE CR	MCKENZIE ST	MCKENZIE ST
		FREE FLOW	STANDING	FREE FLOW	FREE FLOW	STANDING

VOLATILE ORGANICS						
O-XYLENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 300 (A3*)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL

STYRENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 100 (D1)		
1993 FEB	.100 <T	.100 <T	.	.	.	.
1993 MAY	.150 <T	.150 <T	.	.	.150 <T	.
1993 AUG	BDL	.	.	.	.150 <T	.
1993 NOV	BDL	BDL	.	.	.	.
1994 FEB	BDL	BDL	.050 <T	.	.	.
1994 MAY	.150 <T	BDL	.150 <T	.	.	.
1994 AUG	.100 <T	BDL	.100 <T	.	.	.
1994 NOV	BDL	BDL	.	.	.	.
1995 FEB	BDL	BDL	BDL	.	.	.
1995 MAY	BDL	BDL	.	.	.	.
1995 AUG	BDL	BDL	BDL	.	.	.
1995 NOV	.100 <T	BDL	.	.	.	.

1,1-DICHLOROETHYLENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 7 (D1)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL

METHYLENE CHLORIDE (UG/L)		DET'N LIMIT = .500		GUIDELINE = 50 (A1)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL

T12-DICHLOROETHYLENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 100 (D1)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL

1,1-DICHLOROETHANE (UG/L)		DET'N LIMIT = .050		GUIDELINE = N/A		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL

CHLOROFORM (UG/L)		DET'N LIMIT = .100		GUIDELINE = 350 (A1+)		

1993 FEB	BDL	115.500	.	.	.	.	.
1993 MAY	BDL	107.700	.	.	.	83.700	.
1993 AUG	BDL	.	.	.	.	97.000	.
1993 NOV	BDL	122.400	.	.	.	.	.
1994 FEB	BDL	102.900	73.700	.	.	.	.
1994 MAY	BDL	113.900	79.300	.	.	.	.
1994 AUG	BDL	128.100	75.800	.	.	.	.
1994 NOV	BDL	121.000	.	.	.	.	.
1995 FEB	BDL	109.200	75.400	.	.	.	.
1995 MAY	BDL	108.100	.	.	.	.	.
1995 AUG	BDL	122.000	90.400	.	.	.	.
1995 NOV	BDL	118.000	.	.	.	.	.

TABLE 2
DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM		DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S	EDWARD ST S	THISTLE CR	MCKENZIE ST	MCKENZIE ST
		FREE FLOW	STANDING	FREE FLOW	FREE FLOW	STANDING
VOLATILE ORGANICS						
111,TRICHLOROETHANE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 200 (D1)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL
1,2-DICHLOROETHANE (UG/L)		DET'N LIMIT = .100		GUIDELINE = 5 (A2)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL
CARBON TETRACHLORIDE (UG/L)		DET'N LIMIT = .200		GUIDELINE = 5 (A1)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL
1,2-DICHLOROPROPANE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 5 (D1)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL
TRICHLOROETHYLENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 50 (A1)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL
DICHLOROBROMOMETHANE (UG/L)		DET'N LIMIT = .200		GUIDELINE = 350 (A1+)		
1993 FEB	BDL	4.550	.	.	.	.
1993 MAY	BDL	3.900	.	.	2.950	.
1993 AUG	BDL	.	.	.	3.300	.
1993 NOV	BDL	4.000	.	.	.	.
1994 FEB	BDL	4.000	2.600	.	.	.
1994 MAY	BDL	3.800	2.600	.	.	.
1994 AUG	BDL	4.400	2.400	.	.	.
1994 NOV	BDL	4.200	.	.	.	.
1995 FEB	BDL	4.400	2.800	.	.	.
1995 MAY	BDL	4.200	.	.	.	.
1995 AUG	BDL	4.200	3.000	.	.	.
1995 NOV	BDL	4.400	.	.	.	.
112-TRICHLOROETHANE (UG/L)		DET'N LIMIT = .100		GUIDELINE = 5 (D1)		

30 SAMPLES	BDL	BDL	BDL	.	.	BDL	.
CHLORODIBROMOMETHANE (UG/L)		DET'N LIMIT = .200		GUIDELINE = 350 (A1+)			
30 SAMPLES	BDL	BDL	BDL	.	.	BDL	.
TETRACHLOROETHYLENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 65 (A5)			
30 SAMPLES	BDL	BDL	BDL	.	.	BDL	.

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM EDWARD ST S FREE FLOW	DIST. SYSTEM EDWARD ST S STANDING	DIST. SYSTEM THISTLE CR FREE FLOW	DIST. SYSTEM MCKENZIE ST FREE FLOW	DIST. SYSTEM MCKENZIE ST STANDING
VOLATILE ORGANICS						
BROMOFORM (UG/L)		DET'N LIMIT = .500		GUIDELINE = 350 (A1+)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL
1122-TETCHLOROETHANE (UG/L)		DET'N LIMIT = .100		GUIDELINE = 1000 (D4)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL
VINYL CHLORIDE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 2 (A1)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL
C12-DICHLOROETHYLENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 70 (D1)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL
CHLOROBENZENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 80 (A1)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL
1,4-DICHLOROENZENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 5 (A1)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL
1,3-DICHLOROENZENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 3750 (D3)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL
1,2-DICHLOROENZENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 200 (A1)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL
ETHYLENE DIBROMIDE (UG/L)		DET'N LIMIT = .100		GUIDELINE = 50 (D1)		
30 SAMPLES	BDL	BDL	BDL	.	.	BDL

TOTL TRIHALOMETHANES (UG/L)			DET'N LIMIT = .500	GUIDELINE = 350 (A1)
1993 FEB	BDL	120.050	.	.
1993 MAY	BDL	111.600	.	86.650
1993 AUG	BDL	.	.	100.300
1993 NOV	BDL	126.400	.	.
1994 FEB	BDL	106.900	76.300	.
1994 MAY	BDL	117.700	81.900	.
1994 AUG	BDL	132.500	78.200	.
1994 NOV	BDL	125.200	.	.
1995 FEB	BDL	113.600	78.200	.
1995 MAY	BDL	112.300	.	.
1995 AUG	BDL	126.000	93.500	.
1995 NOV	BDL	123.000	.	.

TABLE 2
 DRINKING WATER SURVEILLANCE PROGRAM 1993, 1994 AND 1995 THUNDER BAY (LOCH LOMOND) WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM	DIST. SYSTEM
RAW	TREATED	EDWARD ST S	EDWARD ST S	THISTLE CR	MCKENZIE ST	MCKENZIE ST
		FREE FLOW	STANDING	FREE FLOW	FREE FLOW	STANDING

RADIONUCLIDES						
GROSS ALPHA COUNT (BQ/L)		DET'N LIMIT = .040		GUIDELINE = 0.55 (D1)		
4 SAMPLES	BDL	BDL	.	.	.	.

GROSS BETA COUNT (BQ/L)		DET'N LIMIT = .040		GUIDELINE = 1 (C3)		
1994 NOV	.040	.060	.	.	.	.
1995 NOV	.060	.060	.	.	.	.

TRITIUM (BQ/L)		DET'N LIMIT = 6.000		GUIDELINE = 7000 (A1)		
4 SAMPLES	BDL	BDL	.	.	.	.
