

**Appendix I**

**Table I-1: Annual Operation and Maintenance Cost Estimate**

**Alternative 1A**

Oshkigamig Nibiwgamig (Water Treatment Plant)(1,070 m<sup>3</sup>/day capacity) - Slow Sand Filtration with Ozonation

Wells 2, 3, 7, 10, 453 m<sup>3</sup> of Clearwell Storage,  
1,045 m<sup>3</sup> Elevated Glass-Fused-To-Steel Storage Facility and Phase I & II Watermains  
**Curve Lake Water System**

103145

<b>Annual Operation and Maintenance Cost Estimate (Class C)</b>			
<b>Item Description</b>	<b>Quantity</b>	<b>Unit Cost</b>	<b>Total</b>
Water Treatment and Pumping Station Operation (visited each day by a qualified Classified Operator) 3hrs/day @ \$38/hr	365 days	\$114/day	\$41,610
Bacti and Chlorine residual samples in the water distribution and at the water treatment plant to be taken once per week	52 weeks	\$110/week	\$5,720
Maintain a daily record book at the water treatment plant, record and enter data in the log book	365 days	\$16/day	\$5,840
Train two (2) Operators to be qualified Operator for Water Treatment and Distribution, and maintain yearly training	2	\$7,600/year	\$15,200
Check and carry out routine maintenance on equipment including pumps, pressure gauges, valves, analysers and water meters	L.S.	\$4,350	\$4,350
Flush dead ends in the water system - 4 times/year	4	\$1100	\$4,400
Maintenance of water distribution system including piping and valves and repair watermain breaks	L.S.	\$13,000	\$13,000
Laboratory analysis costs for weekly bacteria samples and quarterly and yearly chemical sampling at Water Treatment Plant	L.S.	\$7,600	\$7,600
Sodium hypochlorite	L.S.	\$1,600	\$1,600
Replace UV lamps, ballasts, quartz sleeves	L.S.	\$5,400	\$5,400
Hydro for heating, pumping, UV lamps and Filtration Equipment	L.S.	\$16,250	\$16,250
Wastewater disposal - Hauling truck	1	\$450	\$450
UV disinfection maintenance	L.S.	\$650	\$650
Four (4) submersible, two (2) wastewater pumps, two (2) backwash pumps and two (2) high lift pumps	10	\$450	\$4,500
Generator set - fuel and maintenance	1	\$650	\$650
Water tower maintenance - inspection every 5 years	L.S.	\$850	\$850
Annual Maintenance of Slow Sand Filter and Ozonation Equipment	L.S.	\$1,100	\$1,100
Annual Cost to Remove and Dispose of Sludge from Washwater Treatment Tank	L.S.	\$450	\$450
<b>Total Estimated Annual O &amp; M Cost</b>			<b>\$129,620</b>

**Appendix I**  
**Table I-1B: Annual Operation and Maintenance Cost Estimate**  
**Alternative 1B**

Oshkigamig Nibiwgamig (Water Treatment Plant) (1,070 m<sup>3</sup>/day capacity) - Slow Sand Filtration  
Wells 2, 3, 7, 10, 600 m<sup>3</sup> of Clearwell Storage,  
Two (2) x 1,045 m<sup>3</sup> Inground Water Storage and Pumping Station Facilities (No Fire Protection) and  
Phase I & II Watermains  
**Curve Lake Water System**

103145

<b>Annual Operation and Maintenance Cost Estimate (Class C)</b>			
<b>Item Description</b>	<b>Quantity</b>	<b>Unit Cost</b>	<b>Total</b>
Water Treatment Plant and Pumping Stations Operation (visited each day by a qualified Classified Operator) 5hrs/day @ \$38/hr	365 days	\$190/day	\$69,350
Three (3) Fireman @ approx. \$59,500/year each (includes training, etc.)	365 days	\$489/day	\$178,485
Bacti and Chlorine residual samples in the water distribution and at the water treatment plant to be taken once per week	52 weeks	\$110/week	\$5,720
Maintain a daily record book at the water treatment plant, record and enter data in the log book	365 days	\$16/day	\$5,840
Train two (2) Operators to be qualified Operator for Water Treatment and Distribution, and maintain yearly training	2	\$7,600/year	\$15,200
Check and carry out routine maintenance on equipment including pumps, pressure gauges, valves, analysers and water meters	L.S.	\$8,600	\$8,600
Flush dead ends in the water system - 4 times/year	4	\$1100	\$4,400
Maintenance of water distribution system including piping and valves and repair watermain breaks	L.S.	\$13,000	\$13,000
Laboratory analysis costs for weekly bacteria samples and quarterly and yearly chemical sampling at Water Treatment Plant	L.S.	\$7,600	\$7,600
Sodium hypochlorite	L.S.	\$1,600	\$1,600
Replace UV lamps, ballasts, quartz sleeves	L.S.	\$5,400	\$5,400
Hydro for heating, pumping, UV lamps and Filtration Equipment	L.S.	\$21,600	\$21,600
Wastewater hauling truck maintenance	1	\$450	\$450
Water hauling truck maintenance	3	\$450	\$1,350
UV disinfection maintenance	L.S.	\$650	\$650
Four (4) submersible, two (2) wastewater pumps, two (2) backwash pumps and two (2) high lift pumps	10	\$450	\$4,500
Generator set - fuel and maintenance	3	\$650	\$1,950
Water Storage and Pumping Station maintenance plus water storage inspection every five (5) years	L.S.	\$1,600	\$1,600

Annual Maintenance of Slow Sand Filter and Ozonation Equipment	L.S.	\$1,100	\$1,100
Annual Cost to Remove and Dispose of Sludge from Washwater Treatment Tank	L.S.	\$450	\$450
<b>Total Estimated Annual O &amp; M Cost</b>			<b>\$348,845</b>