

LWMP Requirements and Process

LWMP Primer

- *Environmental Management Act* allows municipalities and regional districts ability to develop a Liquid Waste Management Plan (LWMP)
- Encouraged by BC Ministry of Environment (MOE) as a legal document that provides the long-term direction and strategy for management of liquid waste (sanitary sewer and stormwater)
- MOE's long-term goal is to achieve zero pollution. Pro-Active strategy to achieve this goal includes:
 - Pollution Prevention (3 R's – reduce, reuse, recycle)
 - BACT (Best Available Control Technology) – to facilitate pollution prevention, resource recovery and residuals management (5 R's)
 - PPP (Polluter Pay Principle) – waste discharge permit fees will assist in achieving the goal of zero pollution

LWMP Primer

- Link between Official Community Plan (OCP) and LWMP
 - OCP identifies community vision and environmental policies
 - OCP outlines development pattern, location, and sequencing
- LWMPs are undertaken in 3 Stages:
 - Stage 1: Identify Issues and List of Potential Solutions – discussion of values and guiding principles
 - Stage 2: Analysis and Costing of Solutions and Formulation of Preferred Alternatives
 - Stage 3: Selection of Best Apparent Alternative and Formalizing LWMP – Vernon Council and MOE Sign-Off

LWMP Primer

- Applies 3 Bottom Lines to All Potential Options:
 - Environment
 - Social
 - Financial
- Public input mandated through all stages. Two committees have been established for the process:
 - Technical Advisory Committee (TAC)
 - Local Advisory Committee (LAC)
 - Estimated 4 joint TAC/LAC meetings, and 3-4 TAC meetings over the next 12-18 months
 - All committee meetings are open to the public



History of Wastewater Treatment in Vernon and Area

The 1985 LWMP

- 15 Options Evaluated
- Selected Options:
 - Continue Commonage irrigation
 - Do not expand land base
 - Excess to deep lake outfall
- Capital Cost \$54.9 M
- Later Concerns:
 - Operating Costs > \$1.3 M/year
 - Okanagan Lake (phosphorus)
 - Treatment Plant location
 - Water supply (limited success)
- Implementation:
 - New plant not built; existing plant upgraded
 - Commonage irrigation land base expanded
 - Deep outfall built, but not used
 - Decided in 1993 to update the LWMP

The 1995 LWMP

- 11 Options Evaluated
- Selected Option (Alternative 5):
 - Expand agricultural irrigation
 - Implement DWD (Dual Water Distribution)
 - Use existing plant to capacity
 - Build a new plant at Giant site
 - Abandon lake outfall
- Capital Cost: \$62.2 M
- Not Implemented



2000 Peer Review

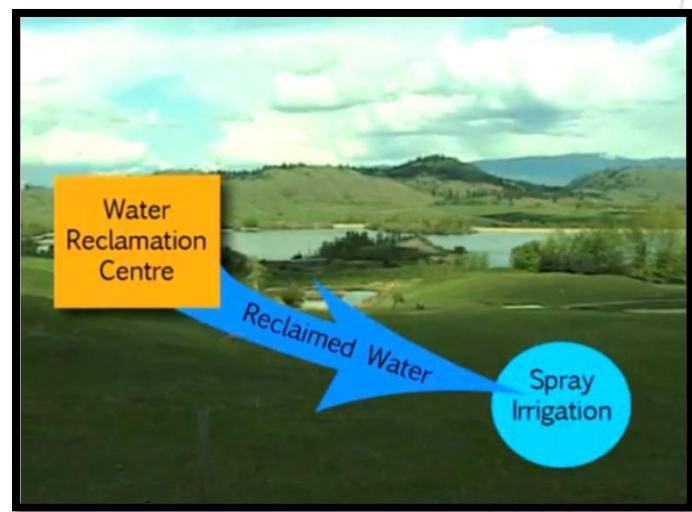
Conclusions of Peer Review:

- Capital Costs are Underestimated
- Power Costs are Underestimated
- Costs of DWD are Underestimated
- Total Difference \approx \$44 M (\$106M)
- Giant Site has Major Drawbacks
- Protocol for DWD not Established



2000 to 2010

- Major plant upgrade completed in 2005
- New plant capacity: 27,000 m³/d
- Operating Certificate amended January 2008 (ME12215)
 - Plant can produce effluent suitable for both irrigation and lake discharge (BNR – modified Johannesburg process)
 - 60-day notice to MoE required for planned lake discharge
 - (an emergency discharge protocol exists as well)
 - Current ADWF 12,500 m³/d
- Plant bio-solids processed and trucked to the Regional Biosolids Composting Facility composting facility for production of “Ogo-grow” soil amendment product
- No lake discharges have occurred since 1998



Overview of Current Concerns



- High costs of operating effluent irrigation system
- Potential risks resulting from lake discharges
- Expansion of land base for irrigation – adequacy of storage
- Impact of high strength wastewater from industry and trucked waste
- Odour control at bio-solids composting facility
- Commitments to reclaimed water users
- Climate change and impact on water supply (DWD?)
- Source control and I/I reduction

Current Wastewater Issues

Current Wastewater Issues

Vernon's Liquid Waste Management Approach

- Collection
- Treatment
- Reclaimed Water Re-use
- Stormwater Management



Issues Identified

- Leading to Management Options



Identifying the Issues: Collection System → Quality

Un-serviced Residences

- Lake Water Quality Impacts
- 2 to 4% of properties are un-serviced

Inflow and Infiltration

- Flow Range: 20 to 30% (seasonal)

Industrial Waste

- Trucked Waste and Industry
- BOD₅ concentrations are 60% higher
- Plant Capacity: Flow versus Nutrient Loading

Private Facility Overflows

Identifying the Issues: Vernon Water Reclamation Center



- Plant Optimization
 - Climate Action Charter 2012
 - Reduce GHGs at the Plant
 - Energy Use vs Plant Processes
 - Spray Irrigation or Okanagan Lake Outfall
- Backup Power
- Microconstituents in our receiving waters

Identifying the Issues: Reclaimed Water Re-use

Land Base

- City growth = increased application
- Shrinking Land Base
- City Owned vs. Private vs. Crown



System Capacity

- Function of land, weather, irrigation scheduling, on-site operations, etc.
- Is there a market for reclaimed water use?

Cost Recovery

- Subsidized program
- Limitations on increases



Identifying the Issues: Reclaimed Water Re-use



Energy Use

- \$400,000 spent in 2009
- Backup Power

Education

- Existing Practices
- Quality of reclaimed water

Provincial Regulations

Identifying the Issues: Biosolids Management

Odour Complaints

- Stressed Facility
- Seasonal Variability



Identifying the Issues: Stormwater Management

Integrated Framework

- Irrigation Runoff

Water Quality Standards

- Sensitive Habitats
- Stormwater Outfalls

High Risk Locations

- Traffic Accidents
- Industrial / Chemical Spills



Identifying the Issues: Financing the Program and the Assets

Utility Rate Increases

- Amortization Status
- Capital Upgrades

Trucked / Industrial Waste



How should we approach solving the problems?

What might some of the options include?

How do we select options to investigate further?

Identifying the Issues: Now Solving the Issues

How should we approach solving the problems?

What might some of the options include?

How do we select options to investigate further?

How should our community values influence our decision making?