

Foul Air Collection and Treatment



ATAD 4-stage Scrubber

The plant upgrade added extensive odour control systems to treat the foul air at the WPC. The ATAD foul air treatment utilizes a bioscrubber, ozone and 4-stage wet chemical scrubber process. The foul air from the headworks, biosolids, trickling filter and piping gallery areas are treated by a single stage wet chemical scrubber.



Main Plant Scrubber

Emergency Power



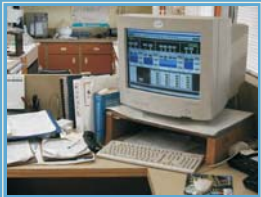
Genset

The plant upgrade added a 400kW emergency genset. This allows the whole plant to operate during power disruptions. The system is automatic in operation. In addition, the plant utilizes a redundant battery powered system to keep the plant computers, control, alarm and instrumentation systems online at all times.



Bioscrubber and Ozone Contact Tanks

Control Systems



SCADA

The plant utilizes an ethernet linked network of programmable logic controllers (PLC's), redundant SCADA (Supervisory Control And Data Acquisition) computers, and HVAC (Heating Ventilation and Air Conditioning) controllers. In conjunction with approximately 50 instruments and sensors, the SCADA system allows the operators to control every unit process in the plant.

Data trending, and after hours call out alarming is also integrated into the system.



PLC



City of Salmon Arm Water Pollution Control Centre, Stage IIIB Expansion



2006 CEBC Award of Merit
for Engineering Excellence

2006 Association of Professional Engineers
and Geoscientists of BC Environmental Award

OPUS DAYTONKNIGHT



Treatment Processes

Liquid Process Train

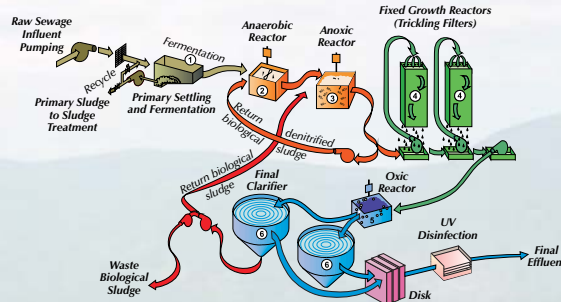
The WPCC is a tertiary BNR facility serving the City of Salmon Arm

The City of Salmon Arm operates one of the most advanced wastewater treatment facilities in British Columbia. The process involves primary, secondary and tertiary treatment using a novel BNR (biological nutrient removal) process to produce an excellent quality effluent.

The liquid train removes phosphorous, ammonia, solids (TSS) and biological waste (BOD) from the raw sewage.



Suspended growth reactors (SGR)



Biological Nutrient Removal Facility

Typical Plant Performance

Raw Influent	Average Effluent	% Removal
BOD ₅ 200	< 5	> 98
TSS 200	< 10	> 98
NH ₃ -N 40	< 4	> 95 Summer
	< 10	> 65 Winter
PO ₄ -P 10	< 0.10	> 99

The recent expansion added a second final clarifier, disk filters for polishing of the secondary effluent, and ultraviolet disinfection to the liquid train process.



Disk Filters



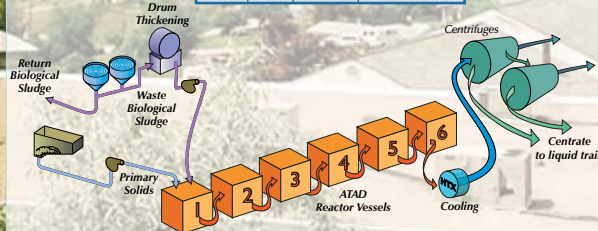
UV Disinfection

Solids Process Train

The solids train pumps primary settled solids and thickened waste biological solids into the Autothermal Thermophilic Aerobic Digesters (ATAD). This high temperature (55 deg. C approx.) digestion process reduces a portion of the biosolids into CO₂ and water. Centrifuges then dewater the Class A pasteurized biosolids to 35% dry solids.



ATAD



Autothermal Thermophilic Aerobic Digestion (ATAD)

The recent expansion added a second centrifuge, new waste biological sludge (WBS) sludge pumping system, and two new ATAD reactors.



Centrifuges



WBS Pumping