

RIVER WELL FIELD ULTRAVIOLET DISINFECTION TOWN OF QUALICUM BEACH



Bank of Little Qualicum River in Fall of 2003

KAEL coordinated the water quality testing program to obtain a historical water quality profile on colour, turbidity, total organic carbon, and % UV Transmittance (UVT). KAEL and AE worked with the Vancouver Island Health Authority (VIHA) to determine which pathogenic organism should be targeted for inactivation on this project. After the target organism was specified by VIHA, AE reviewed the water quality data and established the UV dosage requirement for the UV reactors. AE also put together the supply contract for the UV reactors, coordinated the tendering of the UV reactors, performed a hydraulic transient analysis on the River Well Field piping system, and made recommendations to ensure the UV reactors were protected from pressure transients.

Although one central UV disinfection facility was planned initially, budget constraints made it necessary to take advantage of existing infrastructure and retrofit the five existing pump houses, so individual UV reactors could be installed at each River Well. KAEL designed the building and piping modifications that were required at each of the five River Wells. AE provided the reactor support detail and final design review. Each well received a single 300 mm dia. Calgon Sentinel UV reactor containing three 4 kW medium pressure ultraviolet lamps. To ensure inactivation of the target organism that was specified by VIHA, each UV reactor is capable of providing a minimum dose of 80 mJ/cm².

Supplier of UV Reactors: Calgon Carbon Corporation
Constructed by Town Forces
Project Cost: \$800,000
Project Completion: 2008

Following a boil water advisory that occurred in the fall of 2003, Koers & Associates Engineering Ltd. (KAEL) carried out a source to tap assessment of the Town of Qualicum Beach water system and recommended that UV disinfection be considered for the Town's River Well Field. KAEL teamed up with Associated Engineering (B.C.) Ltd. (AE) and worked together to develop a UV disinfection strategy for the Town's River Wells.



Typical River Well Building Modification



River Well UV Reactor Installation