



November 14, 2011

Tracking Number: 157711
Authorization Number: 11652

REGISTERED MAIL

REGIONAL DISTRICT OF CENTRAL OKANAGAN
1450 KLO Road
Kelowna, BC V1W 3Z4

Dear Operational Certificate Holder:

Enclosed is Amended Operational Certificate 11652 issued under the provisions of the *Environmental Management Act*. Your attention is respectfully directed to the terms and conditions outlined in the operational certificate. An annual fee will be determined according to the Permit Fees Regulation.

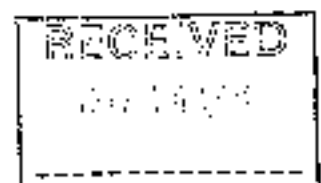
This operational certificate does not authorize entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorized by the owner of such lands or works. The responsibility for obtaining such authority rests with the operational certificate holder. It is also the responsibility of the operational certificate holder to ensure that all activities conducted under this authorization are carried out with regard to the rights of third parties, and comply with other applicable legislation that may be in force.

This decision may be appealed to the Environmental Appeal Board in accordance with Part 8 of the *Environmental Management Act*. An appeal must be delivered within 30 days from the date that notice of this decision is given. For further information, please contact the Environmental Appeal Board at (250) 387-3464.

Administration of this operational certificate will be carried out by staff from the Okanagan Region. Plans, data and reports pertinent to the operational certificate are to be submitted to the Regional Manager, Environmental Protection, at Ministry of Environment, Regional Operations, Okanagan Region, 102 Industrial Pl., Penticton, BC V2A 7C8.

Yours truly,

Sajid A. Bartas, Ph.D., P.Ag.
for Director, *Environmental Management Act*
Okanagan Region



Enclosure

Ministry of Environment

Environmental Protection
Division

102 Industrial Pl.
Penticton, BC V2A 7C8

Okanagan Region
Telephone: (250) 490-8230
Facsimile: (250) 490-2231

cc: Environment Canada



MINISTRY OF
ENVIRONMENT

OPERATIONAL CERTIFICATE

11652

Under the Provisions of the Environmental Management Act

REGIONAL DISTRICT OF CENTRAL OKANAGAN

**1450 KLO ROAD
KELOWNA, BC V1W 3Z4**

is authorized to discharge effluent from a municipal sewage collection and treatment system located at West Kelowna, British Columbia, to Okanagan Lake, and to discharge reclaimed water to the ground by irrigation subject to the terms and conditions listed below. Continuance of any of these conditions is a violation of the *Environmental Management Act* and may lead to prosecution.


This Operational Certificate supersedes and amends all previous versions of Operational Certificate 11652 issued under the *Waste Management Act*.

1. AUTHORIZED DISCHARGES

1.1 Authorized Source

This section applies to the discharge of effluent from the WESTSIDE REGIONAL WASTEWATER TREATMENT FACILITY. The site reference number for this discharge is E104954.

Date issued: August 28, 1992
Date amended: November 14, 2011
(most recent)


Sajid A. Darlas, Ph.D., P.Eng.
for Director, Environmental Management Unit
Okanagan Region

- 1.1.1 The estimated rate of effluent discharged from the wastewater treatment plant averaged on a monthly basis to the Okanagan Lake is as follows:

2007	22,000 m ³ /day
2008	24,000 m ³ /day
2009	26,000 m ³ /day
2010	28,000 m ³ /day
2011	30,000 m ³ /day
2012	32,000 m ³ /day
2013	34,000 m ³ /day
2014	36,000 m ³ /day
2015	38,000 m ³ /day
2016	40,000 m ³ /day
2017	42,000 m ³ /day
2018	44,000 m ³ /day
2019	46,000 m ³ /day
2020	48,000 m ³ /day

For the purposes of permit fee calculations, the permit fees for the nominal year that begins on the anniversary date of the Operational Certificate must use the estimated flow value for the calendar year.

- 1.1.2 The characteristics of the discharge must be equivalent to or better than:

Biochemical Oxygen Demand Maximum: 10 mg/L
 Total Suspended Solids Maximum: 10 mg/L.

Total Phosphorus:

Maximum Annual Average until Dec 31, 2013: 0.25 mg/L

Maximum Annual Average as of January 1, 2014: 0.20 mg/L

Maximum Daily Concentration: 2.0 mg/L.

The Level to strive for is the Okanagan Lake background level.

Total Nitrogen

Maximum daily limit: less than 10.0 mg/l.

Annual Average: 6.0 mg/L

Faecal coliform:

50 CFU (or MPN)/100ml

Date issued: August 28, 1992
 Date amended: November 14, 2011
 (most recent)



Sajjal A. Barlas, Ph.D., P.Ag.
 for Director, *Environmental Management Act*
 Okanagan Region

- 1.1.3 The authorized works are a wastewater collection system, a biological nutrient removal tertiary treatment plant, chemical phosphorous removal facilities, ultra-violet disinfection, effluent irrigation facilities, a deep lake effluent outfall to Okanagan Lake and related appurtenances approximately located as shown on Site Plan A.
- 1.1.4 The wastewater collection system services the District of West Kelowna, the District of Peachland, Westbank First Nation Reserves #9 and #10 and surrounding areas.
- 1.1.5 The location of the wastewater treatment facilities from which the wastewater is discharged is legally described as Lot A, District Lot 487, ODYD, Plan 40684. See Location Map.
- 1.1.6 The location of the outfall easement is District Lot 487, Plan 37997 and the location of the discharge of effluent to Okanagan Lake is approximately as shown on Site Plan A.

1.2 Authorized Source

This section applies to the discharge of effluent from a RECLAIMED WATER IRRIGATION SYSTEM. The site reference number for this discharge is E231819.

- 1.2.1 There is no maximum authorized rate of reclaimed water that may be beneficially used for irrigation. Reclaimed water may be irrigated at agricultural rates in a manner to prevent effluent surfacing, overland flow and groundwater breakout.
- 1.2.2 The characteristics of the reclaimed wastewater are to meet compliance with the Municipal Sewage Regulation. For the purposes of permit fee calculations the following discharge factors have been assumed for the characteristics of the reclaimed water discharged from the sewage treatment plant.
- 5 Day Biochemical Oxygen Demand, 10 mg/L; and
 - Total Suspended Solids - 10 mg/L.

Date issued: August 28, 1992
Date amended: November 14, 2011
(most recent)



Sajid A. Barlas, Ph.D., P.Ag.
for Director, Environmental Management Act
Okanagan Region

- 1.2.3 The authorized works are reclaimed water irrigation facilities and related appurtenances.
- 1.2.4 The location of the area where reclaimed water may be used for irrigation is described as West Kelowna and surrounding area. Actual authorization for a specific parcel of land to be irrigated is contingent upon the submission of a "Plan of Irrigation", prepared by a qualified professional, of that particular parcel to the Director and his/her approval is obtained in writing. Reclaimed water may be used to irrigate the fenced area of the wastewater treatment plant grounds. Annual report to indicate areas under irrigation.

1.3 Authorized Source

This section applies to the discharge of primary effluent from the PEACHLAND SEWAGE COLLECTION SYSTEM to an emergency storage, settling and infiltration facility. The site reference number for this discharge is E232463.

- 1.3.1 The average authorized rate of effluent discharge from the storage and settling tanks to the infiltration facility during an emergency discharge must not exceed the average volume of sewage normally pumped from Peachland to the Westside Regional Wastewater Treatment Plant via the Okanagan Lake sewage force main.
- 1.3.2 The authorized works are sewage pumps, force main, a series of storage tanks, infiltration beds and related appurtenances.
- 1.3.3 The location of the emergency storage and infiltration facility from which the discharge originates is Lot A, KAP 46706, ODYD approximately located as shown on Site Plan B.

2. GENERAL REQUIREMENTS

2.1 Maintenance of Works and Emergency Procedures

The Regional District of Central Okanagan (Regional District) must inspect the authorized works regularly and maintain them in good working order. In the event of an emergency or condition beyond the control of the Regional District which prevents effective operation of the authorized works or leads to unauthorized discharge, the Regional District must comply with all applicable

Date issued: August 28, 1991
Date amended: November 14, 2011
(most recent)



Sajid A. Barlas, Ph.D., P.Eng.
for Director, *Environmental Management Act*
Okanagan Region

statutory requirements, immediately notify the Director, Environmental Protection, and take appropriate remedial action for the prevention or mitigation of pollution. The Director may reduce or suspend operations to protect the environment until the authorized works have been restored and/or corrective steps have been taken to prevent unauthorized discharges.

2.2 Bypasses

The discharge of effluent which has bypassed the authorized treatment works is prohibited unless the prior approval of the Director is obtained and confirmed in writing.

2.3 Process Modifications

The Director must be notified prior to implementing changes to any process that may adversely affect the quality and/or quantity of the discharge.

2.4 Plans - New Works

- 2.4.1 Plans of modifications and/or extensions to the existing works must be signed and sealed by a Professional Engineer licensed to practise in the Province of British Columbia. The works must be constructed in accordance with such plans.
- 2.4.2 Copies of all "as-built" plans and specifications of any proposed modifications or additions to works authorized in this Operational Certificate must be retained by the Regional District for perusal by the Director, or his/her designate, upon request.
- 2.4.3 Plans for modifications of and/or extensions to the existing Reclaimed Wastewater irrigation system must be signed and sealed by a Professional Engineer or Professional Agronomist suitably qualified and licensed to practise in the Province of British Columbia, or as otherwise acceptable to the Director.
- 2.4.4 Design and construct reclaimed water irrigation works in accordance with current agricultural best management practices and the "Code of Practice for Use of Reclaimed Water - a companion document to the Municipal Sewage Regulation".

Date issued: August 28, 1992
Date amended: November 14, 2011
(most recent)



Sajid A. Barlas, Ph.D., P.Eng.
for Director, *Environmental Management Act*
Okanagan Region

2.5 Qualified Professionals

All facilities and information, including works, plans, assessments, investigations, surveys, programs and reports, must be certified by qualified professionals.

2.6 Peachland Sewage System

- 2.6.1 The Regional District must prepare and submit to the Director for approval a "Leak Preparedness Plan" which will outline the steps to be followed should a leak be detected in the force main through Okanagan Lake. The "Leak Preparedness Plan" must contain all necessary information regarding pumps, valves, and other appurtenances necessary to divert the flows to the emergency storage and infiltration facility, as well as necessary emergency contacts to evaluate and begin repair of the leak. Emergency contacts must include consultants who specialize in the construction and repair of HDPE underwater pipelines, as well as a list of potential pump and haul operators. The "Leak Preparedness Plan" must be submitted to the Director prior to commissioning of the Peachland force main.
- 2.6.2 The Regional District must prepare and submit to the Director for approval a protocol for testing the force main through Okanagan Lake to ensure that there are no sewage leaks into the lake. The protocol must include means for ensuring that large leaks are immediately detected. Also to be included in the protocol is a schedule for performing a static test of the force main capable of detecting even small leaks. The frequency for static testing must be a minimum of once per year. Any leaks detected must trigger implementation of the "Leak Preparedness Plan" noted above. The force main testing protocol must be submitted to the Director prior to commissioning of the Peachland force main. Use of the Emergency Storage Facility is authorized for storage of sewage during force main testing and pigging provided that no discharge is made to the infiltration beds.
- 2.6.3 In the event of detection of a leak in the Peachland force main in Okanagan Lake, the Regional District must immediately notify PEP (Provincial Emergency Program as required in the "Spill Reporting Regulation") and the Director, divert flows to the emergency storage and infiltration facility, and must immediately implement its "Leak

Date issued: August 28, 1992
Date amended: November 14, 2011
(most recent)



Sajid A. Barlas, Ph.D., P.Eng.
for Director, *Environmental Management Act*
Okanagan Region

Preparedness Plan". If it is anticipated that use of the facility will exceed a period of four hours, the Regional District must also arrange pump-and-haul to minimize the settled sewage which will actually be discharged to the infiltration beds. Within forty-eight hours of detection of the leak, the Regional District must submit to the Director a report outlining the nature of the leak and outlining a course of action and schedule for repair.

- 2.6.4 The Peachland Emergency Storage Facility must be provided with sufficient linkage to provide a minimum of 1 day storage before use of the infiltration facility is authorized. A section in the Annual Report must be included to outline Emergency Storage use, capacity as related to daily flows, and an updated upgrading schedule designed to maintain a minimum of 1 day storage as the community grows.

3. GENERAL REQUIREMENTS - ALL DISCHARGES


3.1 Operation and Maintenance

- 3.1.1 Develop and maintain both an Operational and Maintenance Manual for the wastewater collection, wastewater treatment, reclaimed water utilization and wastewater disposal works. A copy of the Operational and Maintenance Manuals must be retained at the treatment plant for inspections by the Director or his designate.
- 3.1.2 Operate and maintain a system of preventative maintenance for the wastewater collection, wastewater treatment, effluent utilization and effluent disposal.

3.2 Facility Classification and Operator Certification

- 3.2.1 The Regional District must operate and maintain the existing plant as an Environmental Operator Certification Program (EOCP) Level IV facility, and have at least one designated chief operator. The chief operator(s) must maintain a class IV EOCP certification. Should there be any changes in the Chief Operator(s) the Regional District must notify the Director within five (5) business days of the change.
- 3.2.2 With respect to the 2010 plant expansion, the Regional District must submit a facility update to the EOCP program to confirm the expanded facility and operator classification requirements within 90 days of the issuance of this OC. That submission should be copied to the Director and

Date issued: August 28, 1992
Date amended: November 14, 2011
(most recent)


Sapul A. Barlas, Ph.D., P.Eng
for Director, Environmental Management Act
Okanagan Region

include a specific request for a written response from the EOCP. Within 60 days of receiving the EOCP's written response, the Regional District must provide a copy to the Director along with a submission documenting compliance or a plan to achieve compliance.

- 3.2.3 The Regional District must log changes in certification levels of the other operating staff on an ongoing basis and submit an annual comparison of staff certification relative to EOCP requirements as part of the annual reporting requirements.

3.3 **Annual Average Discharge in excess of 50,000 m³/day**

Environmental Protection staff has assessed the dilution capacity of Okanagan Lake relative to both the annual average inflow, as well as the volume of the Lake itself. Dilution of the effluent as a protection measure for both ecological and human health concerns reaches a preliminary level of concern when any individual outfall into Okanagan Lake approaches or exceeds 50,000 m³/day. Accordingly, once the annual average discharge of treated effluent from the Regional District's outfall in excess of 50,000 m³/day, the Regional District must undertake a comprehensive public review of its existing Liquid Waste Management Plan to explore available options to help reduce and/or mitigate the direct discharge of treated effluent to Okanagan Lake.

3.4 **Water Management and Conservation**

Establish a water management and conservation program to encourage a reduction in the volume of domestic, industrial and commercial wastewaters discharged to the wastewater collection system.


3.5 **Wastewater Collection System - Infiltration, Inflow and Cross Connections**

Inspect and maintain the wastewater collection system works so as to minimize the possibility of cross connections between the storm sewer and the sanitary sewer systems, to minimize infiltration of groundwater, to minimize inflow of water from basement sump pumps and roof drains, and minimize exfiltration of the collected wastewater from the collection system to the ground.

3.6 **Sanitary Sewer Bylaw**

Subject to being declared a Sewage Control Area under Section 29 of the *Environmental Management Act*, and in order to minimize the potential effect of

Date issued: August 28, 1992
Date amended: November 14, 2011
(most recent)


Sajid A. Baqas, Ph.D., P.Eng.
for Director, *Environmental Management Act*
Okanagan Region

heavy metals or other toxic materials in the effluent and/or sludge, the Regional District and the Corporation of Peachland must prepare, or review and if necessary update, and implement a Sanitary Sewer Bylaw to regulate the input of such wastes to the wastewater collection system. The installation of devices to process household putrescible waste for disposal to the wastewater collection system should be prohibited. The Regional District is responsible for enacting a suitable sampling and monitoring program in support of this bylaw.

The Regional District is strongly advised to seek the active cooperation of the public through a proactive public education program.

3.7 Contingency Plan

Prepare a Contingency Plan that will address the appropriate course of action to be taken in any particular preconceived emergency situation. The Contingency Plan must include toxic substances in plant influent, chlorine and sulphur dioxide leaks or spills and any potential point of concern in the collection, treatment and disposal systems. Attention is to be given to public safety and the protection of the environment. The plan is to be continually updated as necessary to reflect the current operation. A copy of the Contingency Plan must be forwarded to the Director.

3.8 Biosolids Management Plan

The management of biosolids produced by the subject operation at a site remote from the treatment plant site is to operate in accordance with the Organic Matter Recycling Regulation (OMRR). Biosolids sampling must comply with the OMRR.

3.9 Odours

The Regional District must provide measures to control odour from the sewage collection system and treatment plant operations by using the best available technology. Should any aspect of the operation give rise to objectionable odours, appropriate remedial measures may be required, when directed in writing by the Director.

3.10 Fencing

The Regional District must erect and maintain a fence around the wastewater treatment plant and such other areas as required by the Director. The height and

Date issued: August 28, 1992
Date amended: November 14, 2011
(most recent)



Sajid A. Barlas, Ph.D., P.Ag.
for Director, *Environmental Management Act*
Okanagan Region

type of fencing must meet the approval of the Director.

3.11 Signage

The Regional District must erect signage to meet the criteria in the Municipal Sewage Regulation (MSR).

3.12 Disinfection - Ultraviolet

- 3.12.1 Effluent to be discharged via the outfall pipe must undergo disinfection via ultraviolet. Multiple banks of lamps are to be maintained so as to be capable of full disinfection with one unit out of operation for cleaning. The faecal coliform level for effluent discharge to the lake is not to exceed 50 CFU (or MPN)/100ml.
- 3.12.2 If chlorination is used for disinfection, maintain a total chlorine residual of 0.5 mg/L immediately prior to dechlorination. Operate the dechlorination facilities such that there is a total chlorine residual of 0.0 mg/L after dechlorination and prior to the discharge of the effluent to Okanagan Lake.
- 3.12.3 The Regional District must erect a sign along the alignment of the outfall diffuser, above high water mark advising of the presence of an underwater pipe. The sign must have lettering at least 100 millimetres high and be clearly visible.

3.13 Reclaimed water Irrigation

- 3.13.1 Reclaimed water discharged to ground by irrigation is to comply with all requirements of the Municipal Sewage Regulations (MSR).
- 3.13.2 Reclaimed water utilized for irrigation outside the plant site may, in addition to the above, be required to carry a disinfectant residual within the irrigation system and otherwise comply with the MSR.

4. MONITORING REQUIREMENTS

4.1 Sampling And Analytical Procedures

- 4.1.1 Proper care should be taken in sampling, storing and transporting the samples to adequately control temperature and avoid contamination.

Date issued: August 28, 1992
Date amended: November 14, 2011
(most recent)



Sajid A. Barlas, Ph.D., P.Eng.
for Director, *Environmental Management Act*
Okanagan Region

breakage, etc. Sampling must be carried out in accordance with the procedures described in the most recent edition of the "British Columbia Field Sampling Manual for Continuous Monitoring and the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples", or by suitable alternative procedures as authorized by the Director.

A copy of the above manual may be purchased from the Queen's Printer Publications Centre, P. O. Box 9452, Str. Prov. Gov't. Victoria, British Columbia, V8W 9V7 (1-800-663-6105 or (250) 387-6409). A copy of the manual is also available for inspection at all Environmental Protection offices.

- 4.1.2 Analyses must be carried out in accordance with procedures described in the most recent edition of the "British Columbia Environmental Laboratory Methods Manual for the Analysis of Water, Wastewater, Sediment, Biological Materials and Discrete Ambient Air Samples", or by suitable alternative procedures as authorized by the Director

A copy of the above manual may be purchased from the Queen's Printer Publication Centre, P. O. Box 9452, Str. Prov. Gov't. Victoria, British Columbia, V8W 9V7 (1-800-663-6105 or (250) 387-6409). The manual is also available for review at all Environmental Protection offices. Copies of the manuals mentioned above are available on-line at:
<http://www.publications.gov.bc.ca>.

- 4.1.3 The Regional District is required to follow the terms and conditions of the Quality Assurance Regulation (EDQA). Ten percent of the samples collected must be duplicated to provide data quality assurance. Quality control information generated by the Regional District's lab while analyzing parameters required by this Operational Certificate must also be provided with the data required to be reported.

4.2 Influent Sampling Program

- 4.2.1 The Regional District must install and maintain a suitable sampling facility (EMS site number E222796) and obtain a grab sample of the plant influent once each week during a period of maximum daily flow for in-house analysis and once each month for check analysis of nutrient levels by a suitably accredited independent laboratory. A proportional continuous sampler may be used, provided that prior approval has been

Date issued:
Date amended:
(most recent)

August 28, 1992
November 14, 2011



Sajid A. Barlas, Ph.D., P.Ag.
for Director, Environmental Management Act
Okanagan Region

obtained from the Director.

4.2.2 Obtain analyses of the influent sample for the following:

- total phosphorus and ortho phosphorus, expressed as P in mg/L;
- total nitrogen, ammonia nitrogen, nitrate/nitrite nitrogen, organic nitrogen and total Kjeldahl nitrogen all expressed as N in mg/L; pH; and
- total Biological Oxygen Demand.

4.3 Effluent Sampling Program

4.3.1 The Regional District must install and maintain a suitable sampling facility (EMS site number E104954) and obtain a grab sample of the effluent once daily during the period of maximum daily flow for subsequent in-house analysis, and once each month for check analysis of nutrient levels by a suitably accredited independent laboratory. A proportional continuous sampler may be used, provided that prior written approval has been obtained from the Director. Proper care should be taken in sampling, storing and transporting the samples to adequately control temperature and avoid contamination, breakage, etc.

4.3.2 Obtain analyses of the effluent sample for the following:

- (a) total suspended solids (non-filterable residue), (monthly analysis), mg/L;
- (b) 5-day Total Biochemical Oxygen Demand, (monthly analysis), mg/L;
- (c) Chemical Oxygen Demand (C.O.D.) (weekly analysis), mg/L;
- (d) faecal coliforms and E. Coli (monthly analysis), CFU (or MPN)/100 ml;
- (e) total phosphorus (weekly composite) and ortho phosphorus (daily analysis), all expressed as mg/L P
- (f) total nitrogen, ammonia nitrogen, nitrate/nitrite nitrogen, organic nitrogen, and total Kjeldahl nitrogen, (weekly analysis), all expressed as mg/L N;
- (g) pH, (daily analysis).

4.3.3 Occasional full chemical analysis of the main cations and anions and other characteristics may be required by the Director.

Date issued:
Date amended:
(most recent)

August 28, 1992
November 14, 2011



Sajid A. Barlas, Ph.D., P.Ag.
for Director, *Environmental Management Act*
Okanagan Region

- 4.3.4 Provide and maintain a suitable flow measuring device and record once per day the effluent volume discharged to the Okanagan Lake and the volume utilized for irrigation over a 24-hour period. Record the flows for each calendar month and for each calendar year.

4.4 **Peachland Emergency Storage and Infiltration Facility**

- 4.4.1 In the event that it is necessary to utilize the Peachland Emergency Infiltration Facility, the Regional District must collect a sample of effluent discharged from the storage tanks to the infiltration beds at maximum flow on the first day of discharge, then every second day at maximum flow until discharge to the beds stops. The EMS Site Number for these samples is E232463.

- 4.4.2 Obtain analyses of the effluent sample for the following:

- (a) total suspended solids (non-filterable residue), mg/l;
- (b) 5-day biochemical oxygen demand, mg/l;
- (c) total phosphorus and ortho phosphorus all expressed as mg/l P;
- (e) total nitrogen, ammonia nitrogen, nitrate nitrogen, and organic nitrogen, all expressed as mg/L N; and
- (f) pH.

4.5 **Sludge - Sampling Program**

- 4.5.1 Obtain a representative sample of the sludge being produced at the treatment plant at least once every 6 months (EMS site number E231763).

- 4.5.2 Obtain analyses consistent with the Organic Matter Recycling Regulation (OMMR) for Class B biosolids (Column 3 of Schedule 4, Quality Criteria) of the sludge sample for the following:

- (a) Arsenic, mg/kg;
- (b) Cadmium, mg/kg;
- (c) Chromium, mg/kg;
- (d) Cobalt, mg/kg;
- (e) Copper, mg/kg;
- (f) Lead, mg/kg;
- (g) Mercury, mg/kg;
- (h) Molybdenum, mg/kg;

Date issued:
Date amended:
(most recent)

August 28, 1992
November 14, 2011



Sajid A. Baqas, Ph.D., P.Ag.
for Director, *Environmental Management Act*
Okanagan Region

- (i) Nickel, mg/kg;
- (j) Selenium, mg/kg; and
- (k) Zinc, mg/kg.

- 4.5.3 Occasional full chemical analysis of the main cations and anions and other characteristics may be required at the discretion of the Director
- 4.5.4 Install and maintain a system for measuring and recording the volumes of sludge produced, the location where the sludge was discharged, and the amount of sludge discharged at each location.

4.6 **Integrated Stormwater/Rainwater Management Program**

The Regional District must provide to the Director a storm water management planning report summarizing the Regional District's actions, pertaining to **integrated** stormwater/rainwater planning and implementation, which are consistent with the Liquid Waste Management Planning and Stormwater Planning guidance documents. The report must include, but not be limited to the following:

- 4.6.1 Inventories of the physical and biological systems to identify catchment and streams condition and identify areas at risk.
- 4.6.2 Component plans or priority actions to protect resources, resolve identified problems and accommodate land development and growth.
- 4.6.3 An implementation program incorporating Phasing and Budgets, Community Education and provide an annual Performance and Monitoring report to the Director.

The storm water management planning report must be submitted by April 30th of every year summarizing actions completed during the previous year. Based on the review of this report and any other information available (to the director) related to the effects of the stormwater/rainwater on the receiving environment, the Director may require the Regional District to develop and implement a formal stormwater/rainwater management plan within a specified period.

Date issued: August 28, 1992
Date amended: November 14, 2011
(most recent)



Sajid A. Batlas, Ph.D., P.Ag.
for Director, *Environmental Management Act*
Okanagan Region

4.7 Groundwater and Spray Irrigation Monitoring Program

The Regional District must have a Qualified Professional assess and develop an irrigation plan for any and all sites that utilize treated effluent for irrigation purposes. The irrigation plan must clearly document appropriate agronomic loading rates for each site. Each site and irrigation plan should be reassessed every 5 years or whenever major changes to the site occur and must include auditing of irrigation duration and application rates. The first such evaluation is required within 2 years of the issuance of this Operational Certificate.

4.8 Lake Sampling and Monitoring Program

A Lake Monitoring Program must be initiated consisting of the following components:

- 4.8.1 Establish two sampling sites, one downstream of the effluent diffuser within the initial dilution zone (EMS Site Number E231769: 49.805200; 119.638800) and the other in an appropriate location for background sampling (EMS Site Number E231770: 49.799800; 119.658100) or as acceptable to the Director. At each site collect discrete samples at depths of one metre, five metres and ten metres, then at each ten metre interval including twenty, thirty two and forty five metre depths, during March and September of each year.
- 4.8.2 Have the samples at 1, 5 and 10 metre depths analyzed (accredited lab) for the following:
- (a) total and ortho phosphorus, expressed as mg/L P;
 - (b) total nitrogen, ammonia nitrogen, nitrate/nitrite nitrogen, organic nitrogen, and total Kjeldahl nitrogen, all expressed as mg/L N;
 - (c) ecoli bacteria, expressed as CFU/100 ML;
 - (d) chlorophyll a, expressed as ug/l;
 - (e) sodium and chloride expressed in mg/l;
 - (f) dissolved oxygen, expressed in mg/l;
 - (g) temperature, expressed in degrees centigrade;
 - (h) pH; and
 - (i) phytoplankton taxonomy (cells/ml) to genus and species for dominant taxa and family for non-dominant taxa (1-10m composite sample).

Have the samples at 20, 32 and 45 metre depths analyzed (accredited lab) for the following:

- a) total and ortho phosphorus, expressed as mg/L P;

Date issued: August 28, 1992
Date amended: November 14, 2011
(most recent)



Sajid A. Barlas, Ph.D., P.Ag.
for Director, *Environmental Management Act*
Okanagan Region

- b) total nitrogen, ammonia nitrogen, nitrate/nitrite nitrogen, organic nitrogen, and total Kjeldahl nitrogen, all expressed as mg/L N;
- c) coliform bacteria, expressed as CFU/100 ML;
- d) sodium and chloride expressed in mg/l;
- e) dissolved oxygen, expressed in mg/l;
- f) temperature, expressed in degrees centigrade;
- g) pH; and
- h) phytoplankton taxonomy (cells/ml) to genus and species for dominant taxa and family for non dominant taxa (20-45m composite sample).

4.8.3 Measure and record water clarity using a secchi disk and underwater viewing box at each of the above sites.

4.8.4 The Regional District must submit the proposed method of determining the locations to the Director for approval prior to the commencement of sampling.

4.8.5 Occasional full physical, biological, and chemical analysis of water, sediments and benthic organisms at the outfall location and at reference locations may be required at the discretion of the Director.

4.8.6 Results of the analyses must be forwarded to the Director within 30 days following receipt of the results by the Regional District. The results and trend analysis must also be included in the year-end report.

4.9 **Basin-wide Collaborative Lake Monitoring Program**

The Regional District will participate in the development, funding and implementation of an Okanagan Lake collaborative monitoring program as per the Okanagan Lake Collaborative Monitoring Agreement for 2011 Memorandum of Understanding, as signed on October 26, 2010 (see Appendix A). This Program is intended to provide coordinated monitoring and reporting of Okanagan Lake water quality to guide Liquid Waste Management Planning. Funding mechanisms and scope of work will be developed collaboratively with all appropriate stakeholders. Lake monitoring required under Clause 4.8 will be waived by the Director for as long as the Regional District participates in a basin wide collaborative lake monitoring program.

4.10 **Changes to Sampling and Monitoring Program**

Date issued: August 28, 1992
Date amended: November 14, 2011
(most recent)



Sajid A. Barlas, Ph.D., P.Ag.
for Director, *Environmental Management Act*
Okanagan Region

On the basis of findings during routine inspections and any other information related to the effect of the discharge on the receiving environment, the Director may allow reductions to, or require additional sampling and monitoring of the discharge and receiving environment.

5. REPORTING REQUIREMENTS

5.1 General Reporting

- 5.1.1 Maintain the monitoring data required in Section 4 for inspection.
- 5.1.2 The influent/effluent water quality analyses and flow data is to be submitted to the Director such that they are received by the Director within 30 days of the results being completed in-house or being sent out by the testing agency.
- 5.1.3 Monitoring data must be submitted in an electronic and printed format satisfactory to the Director. All monitoring data must be entered into the Environmental Monitoring System (EMS) electronically within 60 days of the end of a calendar year for the year's monitoring. Electronic Data Transfer information is available at http://www.env.gov.bc.ca/epd/ems_cdt.html and further information is available at http://www.env.gov.bc.ca/ait/wamr/labsys/ems_wr/index.html

5.2 Annual Reporting

Submit an annual printed and electronic report which includes a summary of the results of all monitoring programs as specified in this Operational Certificate, data interpretation and trend analyses.

- 5.2.1 This report is to be in a format which is suitable for review by the public and/or other government agencies.
- 5.2.2 The first report is due on or before 120 days of the end of a calendar year for that year's monitoring. Raw data are to be attached as appendices to the report.
- 5.2.3 Maintain and submit records of the following as a part of the annual report:
 - 5.2.3.1 Records of effluent water balance, which would include the plant

Date issued: August 28, 1992
Date amended: November 14, 2011
(most recent)



Sajid A. Barias, Ph.D., P.Eng.
for Director, *Environmental Management Act*
Okanagan Region

influent flow, the volume of effluent discharged to the Okanagan Lake outfall, other volumetric information and the volume of effluent utilized for irrigation.

- 5.2.3.2 Records of the duration, intensity, acreage, location and type of reclaimed wastewater irrigation.
- 5.2.3.3 Records of efforts to reduce infiltration, inflow and cross connections.
- 5.2.3.4 Records of efforts to administer the Sanitary Sewer and Storm Sewer by-law(s). Include as an attachment, any amendments to the influent wastes by-law(s) that have been made during the past year.
- 5.2.3.5 Records of withdrawal of sludge from the wastewater treatment plant, records of analyses and the location(s) used for disposal and/or utilization.
- 5.2.3.6 Records of all nutrients reported in kilograms discharged to Okanagan Lake monthly and during the last calendar year.
- 5.2.3.7 Maintain records of Peachland force main mag metre readings and static testing of the force main and annually submit the data, suitably tabulated, to the Director. Include as an attachment an updated copy of the force main "Leak Preparedness Plan" highlighting any updates to the plan.
- 5.2.3.8 Maintain records of the Peachland emergency storage and infiltration facility and annually submit the data, suitably tabulated, to the Director. Include as an attachment an updated calculation of storage capacity as related to daily flows, and an updated upgrading schedule designed to maintain a minimum of 1 day storage as the community grows.
- 5.2.3.9 Every three to five years, the Regional District must conduct and submit with the annual report, a review of the technology and treatment processes available and/or under development elsewhere, relative to the "level to strive for" total phosphorus concentration of 0.01 mg/l. contained in Section 1.1.2 of this Operational Certificate.

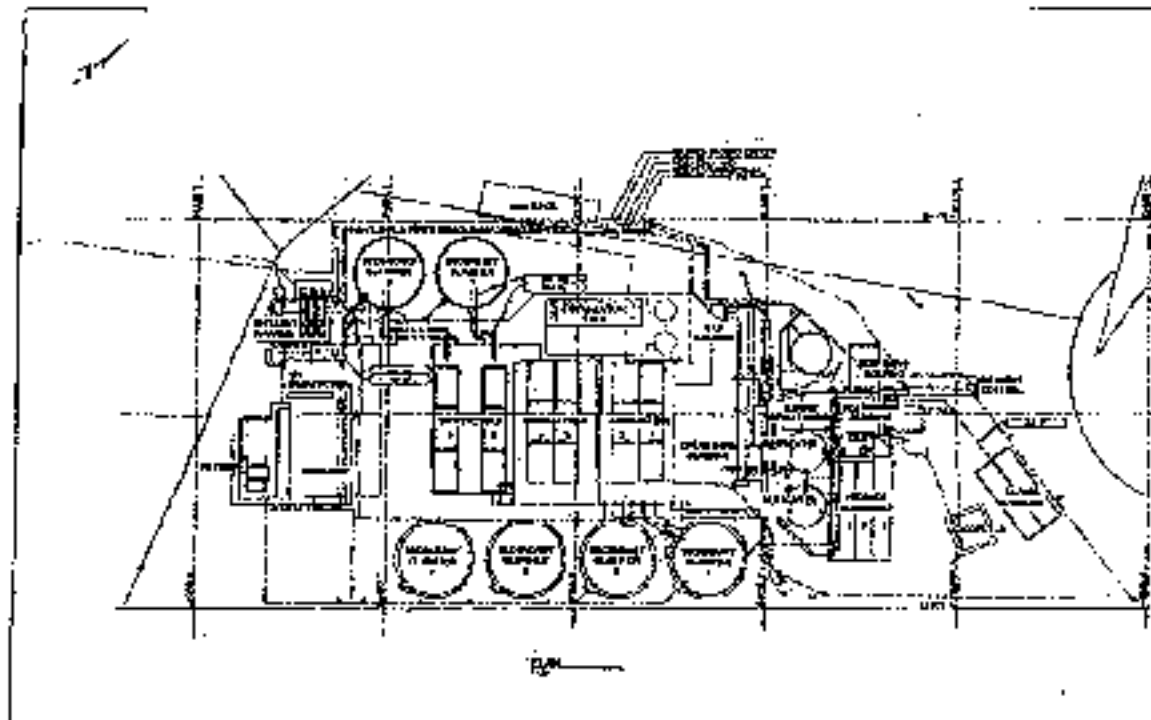
Date issued:
Date amended:
(most recent)

August 28, 1997
November 14, 2011



Sajid A. Barlas, Ph.D., P.Ag.
for Director, *Environmental Management Act*
Okanagan Region

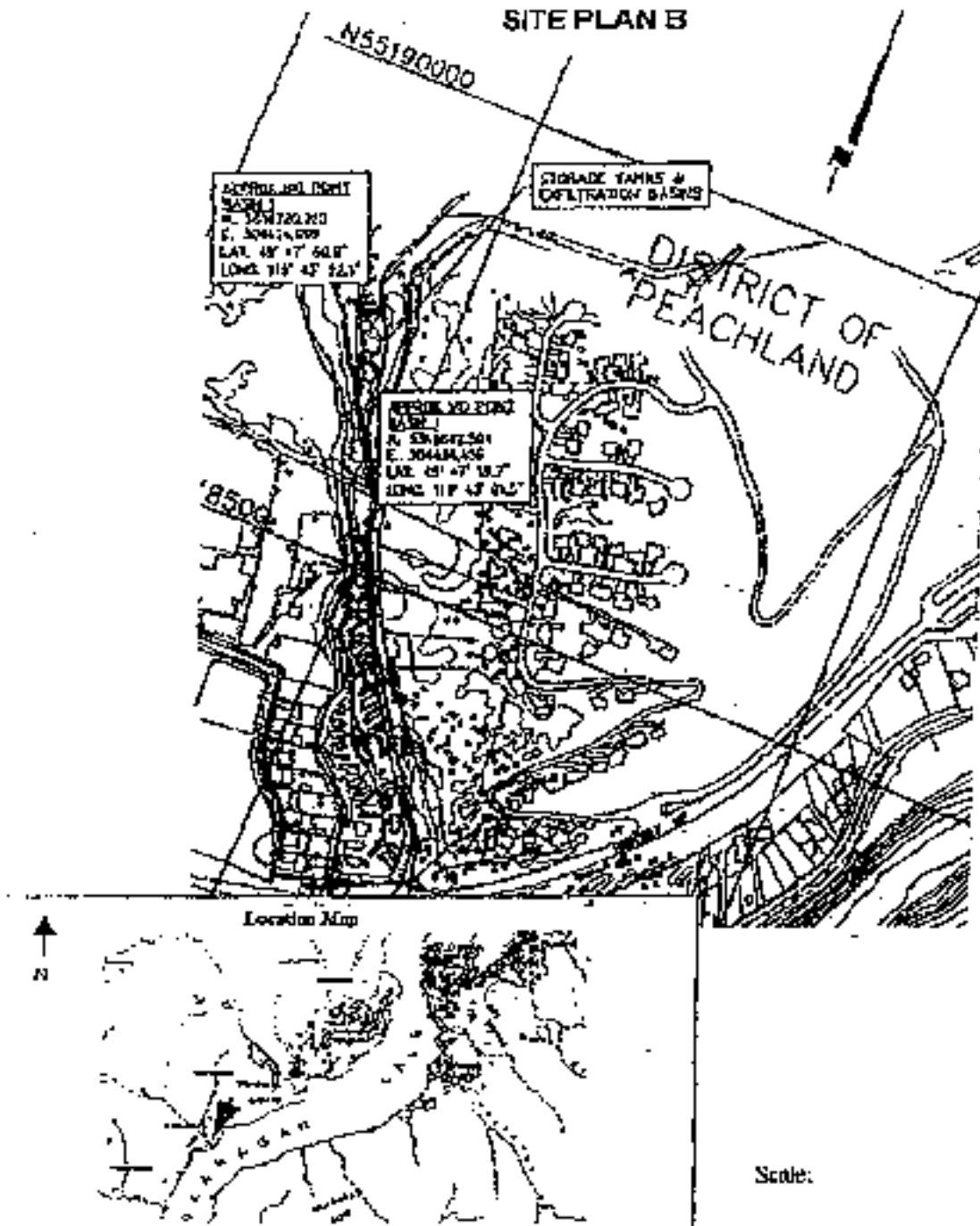
SITE PLAN A



Date issued:
Date amended:
(most recent)

August 28, 1992
November 14, 2011

Sajid A. Barlas, Ph.D., P. Eng.
for Director, *Environmental Management Act*
Okanagan Region



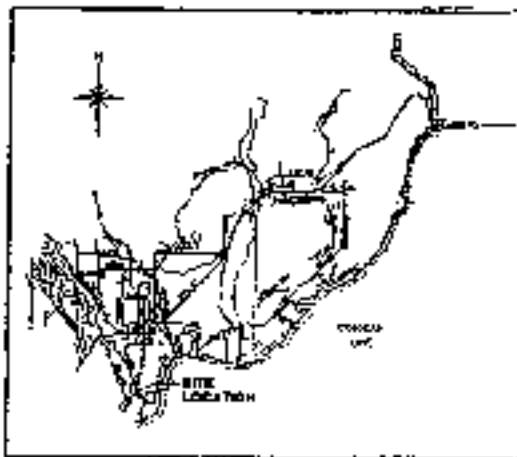
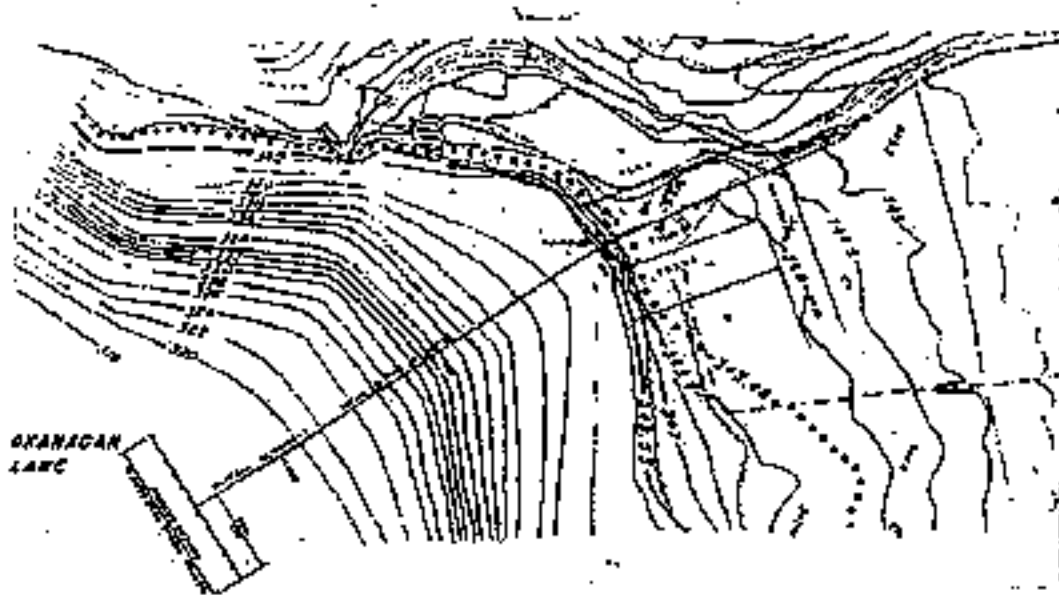
Date issued:
Date amended:
(most recent)

August 28, 1992
November 04, 2011

Pratt

Sajid A. Birlas, Ph.D., P. Ag.
for Director, *Environmental Management Act*
Okanagan Region

Location Map



Scale:

Date issued: August 28, 1992
Date amended: November 14, 2011
(most recent)

Pratt
Sajid A. Barlas, Ph.D., P.Ag.
for Director, *Environmental Management Act*
Okanagan Region

APPENDIX A

MEMORANDUM OF UNDERSTANDING

BETWEEN

MINISTRY OF ENVIRONMENT
GOVERNMENT OF THE PROVINCE OF
BRITISH COLUMBIA

AND

THE CITY OF KELLOWNA

AND

THE REGIONAL DISTRICT OF CENTRAL OKANAGAN

AND

THE DISTRICT OF SUMMERLAND

RESPECTING

THE Okanagan Lake Collaborative Monitoring Agreement for 2011

Date issued: August 28, 1992
Date amended: November 14, 2011
(most recent)



Sajid A. Barlas, Ph.D., P.Ag.
for Director, *Environmental Management Act*
Okanagan Region

MEMORANDUM OF UNDERSTANDING

RESPECTING

Okanagan Lake Collaborative Monitoring Agreement for 2011

INDEX

<u>SECTION</u>		<u>PAGE</u>
	Title Page	1
	Index Page	2
	Preamble	3
1.0	Interpretation	4
2.0	Agreement Authority	4
3.0	Subject Matter	5
4.0	Security and Confidentiality	6
5.0	Basis of Payment	6
6.0	Method of Payment	6
7.0	Liability	7
8.0	Dispute Resolution	7
9.0	Term of Agreement	7
10.0	Notice	8
11.0	Saving Provisions	8
12.0	General	8
	Signatories	9
	Appendix I	10

Date issued: August 28, 1992
Date amended: November 14, 2011
(most recent)



Sajid A. Barlas, Ph.D., P.Ag.
for Director, *Environmental Management Act*
Okanagan Region

BETWEEN:

Government of the Province of British Columbia
As Represented by
Vic Jenson, Senior Impact Assessment Biologist of the
Environmental Protection and Assurance Division
Ministry of Environment

(hereinafter referred to as the "MOE")

AND

City of Kelowna
As Represented by
Mike Gosselin, Supervisor Wastewater Treatment Operations

Regional District of Central Okanagan
As Represented by
Angela Lambrecht, Water and Wastewater Process Technologist

District of Summerland
As Represented by
Kevin McFuskey, Supervisor Wastewater Treatment Operation

(hereinafter referred to as the "local governments")

WHEREAS:

- A. This Memorandum of Understanding (MOU) serves to enable collaboration of the MOE and the local governments to provide high quality, integrated and timely water quality information to enable sustainable environmental management of Okanagan Lake, and guide Liquid Waste Management Planning at the basin level.
- B. The local governments will reimburse the Ministry for costs incurred as described in Section 3 and Appendix 1.

Date issued: August 28, 1992
Date amended: November 14, 2011
(most recent)



Sajid A. Barlas, Ph.D., P.Ag.
for Director, *Environmental Management Act*
Okanagan Region

THE PARTIES AGREE AS FOLLOWS:

SECTION 1.0 INTERPRETATION

- 1.1 In this Memorandum of Understanding (MOU), each of the following terms will, unless the context otherwise requires, have the meaning set beside it:
- (a) "Costs," means all costs incurred by the Ministry of Environment to deliver the Collaborative Monitoring and Reporting Program set out in Appendix 1.
 - (b) "Memorandum of Understanding," or "MOU," means this agreement describing the delivery of a collaborative monitoring program on Okanagan Lake.
 - (c) "MOE" means Ministry of Environment, for the Province of British Columbia.
 - (d) "local government" means the City of Kelowna, Regional District of Central Okanagan, and District of Summerland and designates who are signatories to this MOU.
 - (e) "Participants" means representatives of each organization, either MOE or local governments, who are signatories to this MOU.

SECTION 2.0 AGREEMENT AUTHORITY

- 2.1 This MOU is entered into by the Ministry of Environment under the authority of the *Environment Management Act, Part 2 Section 14 Permit (1)(c)* allowing MOE to require the permittee (here the local governments) to monitor the effects of the introduction of waste into the environment. Where authorizations, permits or operational certificates under the *Environmental Management Act* enable a discharge to surface water, there is an expectation the discharger will provide monitoring information to demonstrate environmental condition.

4

Date issued:
Date amended:
(most recent)

August 28, 1992
November 14, 2011



Sajid A. Barlas, Ph.D., P.Eng.
for Director, *Environmental Management Act*
Okanagan Region

SECTION 3.0 SUBJECT MATTER

3.1 Collaborative Monitoring and Reporting Program

- 3.1.1 A collaborative monitoring and reporting program is to replace receiving environment monitoring and environmental impact assessment programs required under existing Municipal Sewage Regulation Operational Certificates or permits.
- 3.1.2 Monthly sampling and associated field measurement collection from March through September, and analysis of water chemistry for 4 sites and plankton toxicity for 2 sites on Okanagan Lake as per Appendix 1.
- 3.1.3 Annual reporting of Okanagan Lake Trophic Status, trends, and attainment of water quality objectives through the MOE or other suitable web sites.

3.2 Operational Certificates and Lake Monitoring

- 3.2.1 Lake monitoring requirements under the Operational Certificates ME 12211, PR 11652 and MR 13627 for the City of Kelowna, Regional District of Central Okanagan, and District of Summerland respectively, are waived while the named local governments participate in this Collaborative Monitoring MOU. The MOE will provide written confirmation following MOU sign off.
- 3.2.2 Effluent monitoring requirements and compliance with all other terms and conditions of the Operational Certificates will remain in effect.

3.3 Cost Estimates of Program:

- 3.3.1 Costs of this program include laboratory and sample collection costs
- 3.3.2 Laboratory expenses are as per Appendix 1: \$12,000 (JUL program 2 sites + 2 sites chemistry only: Okanagan Center, Armstrong Awh)
- 3.3.3 Sample collection contract: \$10,000
- 3.3.4 Total projected annual costs: \$22,000 (costs based on 18M m³ effluent discharged per year @ \$0.0013/m³).

3.4 Roles and Responsibilities

- 3.4.1 The Ministry will contribute program coordination and contract management for sample collection and reporting of results.
- 3.4.2 The local governments agree to provide the Ministry with funds sufficient to cover costs as described in Section 3.0 and detailed in Appendix 1.

Date issued:
Date amended:
(most recent)

August 28, 1992
November 14, 2011



Sajid A. Barlas, Ph.D., P.Ag.
for Director, *Environmental Management Act*
Okanagan Region

- 3.4.3 Representatives of MOE and local governments will form a Technical Advisory Group and will meet annually to review actions carried out under this MOU, and determine renewal of this MOU from year to year.
- 3.4.4 The Technical Advisory Group may invite input from other agencies or institutions to further the intent of this MOU.

SECTION 4.0 SECURITY AND CONFIDENTIALITY

- 4.1 All information and documentation provided to, collected by, delivered to or compiled by ministry employees, in the performance of their duties and responsibilities will be dealt with subject to and in accordance with all applicable provisions of Federal, Provincial and Municipal Statutes, particularly the *Privacy Act*, R.S.C. 1985, c. F-21, and the *Access to Information Act*, R.S.C. 1985, c. A-1, and the *Freedom of Information and Protection of Privacy Act*, R.S.B.C. 2014, c. 165.

SECTION 5.0 BASIS OF PAYMENT

- 5.1 The local governments will provide the MOE start-up costs for contract services and laboratory services.
- 5.2 Local government share of costs and maximum estimated annual costs are as follows:


City of Kelowna 50% or \$11,000
District of Central Okanagan 32% or \$7000
District of Simulated 18% or \$4000

SECTION 6.0 METHOD OF PAYMENT

- 6.1 The local governments are responsible for providing maximum costs as per Section 5, before January 31, 2011, by way of cheque to the Minister of Finance for British Columbia c/o Senior Financial Officer of Corporate Services Division, Ministry of Environment, 4th Floor 333 Victoria Street, Nelson, BC, V1L 4K3.
- 6.2 The MOE agrees to provide the local governments with a financial statement and an Annual Report.

6

Date issued: August 28, 1992
Date amended: November 14, 2011
(most recent)


Sajid A. Barlas, Ph.D., P.Ag.
For Director, *Environmental Management Act*
Okanagan Region

- 6.3 Surplus funds at the end of the sampling season will be reviewed by the Technical Advisory Group and will be returned to local governments or reallocated through renewal of this MOU for the following year.

SECTION 7.0 LIABILITY

- 7.1 Each participant and personnel by association, waives all claims against the other participants in respect of damage caused to its personnel and/or its property by personnel or agents (excluding contractors) of that other participant arising out of, or in connection with the implementation of this MOU.
- 7.2 The provisions of sections 7.1 will survive the termination of this MOU for any reason whatsoever.

SECTION 8.0 DISPUTE RESOLUTION

- 8.1 Any new issue, matter of general concern or dispute arising from this MOU will be dealt with by Technical Advisory Group or their delegates.
- 8.2 The dispute or disagreement will not be submitted to a third party for resolution.

SECTION 9.0 TERM OF AGREEMENT

- 9.1 This MOU will begin January 1, 2011 and end December 31, 2011.
- 9.2 This MOU may be amended by mutual written agreement by the Participants to this MOU.
- 9.3 Prior to the termination of this MOU, it may be renewed for an additional period on terms agreed to by participants to this MOU.
- 9.4 Any of the participants to this MOU may terminate participation in this agreement upon provision of sixty (60) days written notice to the other participants of their intention to terminate participation in this MOU.
- 9.5 On the date of termination of this MOU or termination of participation in this agreement, the lake monitoring requirements under local government operational certificates or permits as noted above, are reinstated. Regardless of the reason for termination or the participant who gives

Date issued:
Date amended:
(most recent)

August 28, 1992
November 14, 2011



Sajal A. Harlas, Ph.D., P.Ag.
for Director, *Environmental Management Act*
Okanagan Region

notice of termination, the MOB will not have any obligation to the local governments beyond the reimbursement of funds surplus to costs incurred by MOE to the effective date of termination.

SECTION 10.0 NOTICE

- 10.1 All official notices and communications pertinent to implementation of this MOU will be in writing and will be mailed or delivered. For the purposes of delivery of Notice, the addresses for delivery are:

For MOE

Ministry of Environment
Attention: Manager, Environmental Protection and Assurance Division
Suite 401, 333 Victoria Street, Nelson B.C. V1L 4K5

For local governments

City of Kelowna
Attention: Mike Gosselin, Supervisor Wastewater Treatment Operations
951 Kaymer Avenue, Kelowna, BC V1Y 4G7

Regional District of Central Okanagan

Attention: Angela Lambrecht, Water and Wastewater Technologist
1450 K.L.O. Road, Kelowna, BC, V1W 3Z4

District of Summerland

Attention: Kevin McLuskey, Supervisor Wastewater Treatment Operations
13211 Jerry Avenue Box 159 Summerland, BC, V0H 1Z0

- 9 -

SECTION 11.0 SAVING PROVISION


- 11.1 Nothing in this Memorandum of Understanding is in any way intended to replace or amend any obligation that participants are bound to, or required to perform by operation of law, unless otherwise noted in this MOU.

SECTION 12.0 GENERAL

- 12.1 This MOU reflects the good faith and spirit of cooperation of the participants but is not legally binding on any of the participants.

8

Date issued: August 28, 1992
Date amended: November 14, 2011
(most recent)


Sajid A. Barlas, Ph.D., P.Ag.
for Director, Environmental Management Act
Okanagan Region

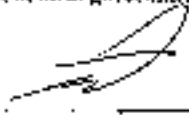
Signed on behalf of the MOE:



Vic Jensen
Ministry of Environment
Province of British Columbia

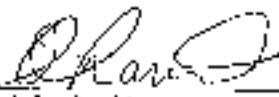
Oct 26/2010
Date

Signed on behalf of local governments:



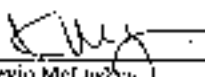
Mike Gosselin
City of Kelowna

Oct 26/2010
Date



Angela Landbrecht
Regional District of Central Okanagan

Oct 26, 2010
Date




Kevin McLusky
District of Summerland

Oct 26 2010
Date

9

Date issued: August 28, 1992
Date amended: November 14, 2011
(most recent)


Sajid A. Bartas, Ph.D., P.Eng
for Director, *Environmental Management Act*
Okanagan Region

APPENDIX 1

ESTIMATED COSTS FOR 2011


Analytical Cost Estimates:

Expense Category	Estimated Monthly Cost	2011
Laboratory	Salaries	
	Office	
	Travel	
	Utilities	
	Telephone	
	Supplies	14500
	Equipment	
	Transportation	
	Printing	
	Postage	
	Travel	
	Supplies	26500
	Equipment	52500
	Transportation	52500
	Printing	12500
Postage	12500	
Hydrology	Salaries	
	Office	
	Travel	
	Utilities	
	Telephone	
	Supplies	11500
	Equipment	
	Transportation	
	Printing	
	Postage	
	Travel	
	Supplies	11500
	Equipment	52500
	Transportation	52500
	Printing	12500
Postage	12500	
Other	Salaries	
	Office	
	Travel	
	Utilities	
	Telephone	
	Supplies	11500
	Equipment	
	Transportation	
	Printing	
	Postage	
	Travel	
	Supplies	11500
	Equipment	52500
	Transportation	52500
	Printing	12500
Postage	12500	

Sample Collection Cost Estimate

- Contract Estimate: \$10,000.00

Date issued: August 28, 1992
 Date amended: November 14, 2011
 (most recent)


 Sajid A. Barlas, Ph.D., P.Ag.
 for Director, Environmental Management Act
 Okanagan Region

