

APPROVAL
PROVINCE OF ALBERTA

ENVIRONMENTAL PROTECTION AND ENHANCEMENT ACT
R.S.A. 2000, c.E-12, as amended.

APPROVAL NO.: 1242-03-00

APPLICATION NO.: 023-1242

EFFECTIVE DATE: August 31, 2020

EXPIRY DATE: August 1, 2030

APPROVAL HOLDER: Sheep River Regional Utility Corporation

.....
ACTIVITY: Construction, Operation and Reclamation of a waterworks system that
.....
provides potable water to the Town of Black Diamond, Town of Turner Valley
and others in Foothills County
.....

is subject to the attached terms and conditions.

Designated Director under the Act

Digitally signed by
Andun.Jevne
Date: 2020.08.31
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Andun Jevne

Date Signed August 31, 2020

TERMS AND CONDITIONS ATTACHED TO APPROVAL

PART 1: DEFINITIONS

SECTION 1.1: DEFINITIONS

1.1.1 All definitions from the Act and the regulations apply except where expressly defined in this approval.

1.1.2 In all PARTS of this approval:

- (a) "Act" means the *Environmental Protection and Enhancement Act*, R.S.A. 2000, c.E-12, as amended;
- (b) "Alberta Environment Tier 1 Guidelines" means *Alberta Tier 1 Soil and Groundwater Remediation Guidelines*, January 10, 2019, Alberta Environment and Parks, as amended;
- (c) "alternate program" means the *Alternate Laboratory Data Quality Assurance Program*, as detailed in Alberta Environment's *Laboratory Data Quality Assurance Policy Procedures and Guidelines*;
- (d) "approved laboratory" means laboratory accredited to the requirements of ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*, for the drinking water test methods specified by the Director;
- (e) "as-built engineering drawings" means the drawings used in construction that have been updated to record what was built;
- (f) "bacteriological analysis" means the analysis of water for the presence of *E. coli* or total coliforms;
- (g) "chemical" means any substance that is added or used as part of the treatment process;
- (h) "chlorine residual" means free chlorine, or combined chlorine or total chlorine;
- (i) "clearwell" means a reservoir for the storage of filtered water of sufficient capacity to prevent the need to vary the filtration rate with variations in demand. May also be used to provide chlorine contact time for disinfection;
- (j) "contact time" ("T₁₀") means the time taken in minutes for 10% of the water to pass through the particular process unit;
- (k) "continuous monitoring" means flow measurement or sample analysis through in-line equipment that creates flow measurements or frequent, discrete sample analysis output and includes a data recorder;
- (l) "CT" means disinfectant residual in mg/L multiplied by the contact time;

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(m) “CT_{lowest actual}” means the lowest CT calculated in a particular day:

$$CT_{\text{lowest actual}} = C \times \frac{T_{10}}{T} \times \frac{V_{\text{min}}}{Q_{\text{peak}}}$$

Where: C = lowest recorded daily free chlorine residual concentration (in milligrams per litre) at the point T₁₀ is measured;

$$\frac{T_{10}}{T} = 0.7; \quad \text{OR}$$

Varies based on the empirical method using typical baffling conditions as per Appendix D in the Standards and Guidelines Document, OR

Varies based on a tracer study, where

T₁₀ = the contact time established from the most recent tracer study, and

T = the calculated contact time, assuming no short-circuiting and obtained by dividing the treated water chlorine contact storage volume that was used to determine T₁₀, by the flow that was used to determine T₁₀;

V_{min} = the daily minimum volume (in Litres) of treated water in the clearwell; and

Q_{peak} = maximum recorded hourly flow (Litres per minute) or the maximum rate at which treated water can be pumped out of the clearwell;

(n) “CT_{required}” means the CT required to demonstrate the specified Log reduction of *Giardia* cysts and/or viruses as specified in Appendix A or Appendix B of the Standards and Guidelines Document;

(o) “CT_{performance ratio}” means CT_{lowest actual} / CT_{required};

(p) “day” means calendar day;

(q) “Director” means an employee of the Government of Alberta designated as a Director under the Act;

(r) “disinfectant residual” means the total concentration of disinfectant in water;

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- (s) “disinfection” means a chemical or physical process of treating water to inactivate microorganisms;
- (t) “diverted Sheep River water” means the Sheep River water the approval holder’s river water supply system has withdrawn from the Sheep River;
- (u) “*E. coli*” means *Escherichia coli* bacteria;
- (v) “electronic reporting” means submitting monitoring results to the Director as required in this approval, electronically through the secure internet website provided by Alberta Environment at: <https://www.alberta.ca/drinking-water-quality-reporting.aspx>;
- (w) “GCDWQ” means the *Guidelines for Canadian Drinking Water Quality*, published by Health Canada, as amended;
- (x) “grab”, when referring to a sample, means an individual sample collected in less than 30 minutes and which is representative of the substance sampled;
- (y) “ISO/IEC” means the International Organization for Standardization / the International Electrotechnical Commission;
- (z) “Log reduction” means the base 10 logarithm of the ratio of raw water concentrations divided by the treated water concentration of total *Giardia* cysts, *Cryptosporidium* oocysts or viruses;
- (aa) “MAC” means the Maximum Acceptable Concentration, specified in the GCDWQ for a particular parameter;
- (bb) “PWR” means the *Potable Water Regulation*, as amended;
- (cc) “project site” means the land the river water supply system site is constructed in and on and includes the land disturbed during this construction;
- (dd) “produced water” means all water that has gone through treatment and has entered the distribution system;
- (ee) “Provincial Laboratory of Public Health” means the:
 - (i) Environmental Microbiology Provincial Laboratory of Public Health, University of Alberta Hospital, Edmonton, Alberta, or the
 - (ii) Provincial Laboratory of Public Health, Foothills Hospital, Calgary, Alberta;
- (ff) “raw water” means untreated source water from water wells or surface water intakes or infiltration galleries that constitute the water supply;

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- (gg) "regulations" means the regulations enacted pursuant to the Act and as amended;
- (hh) "river water supply system" means the system as described in the application and consisting of an intake in the Sheep River in the SE¼ 1-20-3-W5M, a river water pump, a stilling basin with a synthetic liner; and associated pipelines and connecting components;
- (ii) "source aquifer bedrock monitoring wells" means the monitoring wells completed in the bedrock in the area between the Sheep River and the approval holder's source water wells;
- (jj) "Source Water Aquifer Monitoring Wells" means the wells located in the Sheep River valley near to the approval holder's source water wells;
- (kk) "SRRUC" means the Sheep River Regional Utility Corporation;
- (ll) "Standards and Guidelines Document" means the *Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems*, published by the Department, as amended;
- (mm) "User Agreement" means the *Drinking Water Quality User Agreement* signed by the approval holder and the Director; and
- (nn) "UV" means ultraviolet light.

PART 2: GENERAL PROVISIONS

SECTION 2.1: GENERAL

- 2.1.1 The approval holder shall comply with all conditions in this approval.
- 2.1.2 Any conflict between the approval application and the terms and conditions of this approval shall be resolved in favour of this approval.
- 2.1.3 The terms and conditions of this approval do not affect any rights or obligations created under any other authorization issued by the Department.
- 2.1.4 The approval holder shall carry out all electronic reporting, or cause all electronic reporting to be carried out in accordance with the User Agreement.
- 2.1.5 The approval holder shall comply with the terms and conditions of the User Agreement.
- 2.1.6 The terms and conditions of this approval are severable. If any term or condition of this approval or the application of any term or condition is held invalid, the application of such term or condition to other circumstances and the remainder of this approval shall not be affected thereby.

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- 2.1.7 If the approval holder monitors for any substances or parameters, which are the subject of limits in this approval more frequently than is required, using procedures authorized in this approval, then the approval holder shall provide the results of such monitoring as an addendum to the next *Annual Waterworks Report* required by this approval.
- 2.1.8 The approval holder shall invite the members of the Water Works Advisory Committee to a minimum of two (2) meetings each calendar year.
- 2.1.9 The approval holder shall ensure that all written communication between the approval holder and Alberta Environment and Parks regarding the waterworks system is publically available by posting it on the approval holder's website.
- 2.1.10 *Environmental Protection and Enhancement Act* Approval No. 1242-02-00 is cancelled.

PART 3: PLANNING, CONSTRUCTION AND / OR UPGRADING REQUIREMENTS

SECTION 3.1: CONSTRUCTION

Not used as this time.

SECTION 3.2: PLANNING

- 3.2.1 The approval holder shall:
 - (a) maintain; and
 - (b) implement
 a *Drinking Water Safety Plan* of the waterworks system.
- 3.2.2 The *Drinking Water Safety Plan* shall:
 - (a) identify potential risks to the waterworks system including, but not limited to risks associated with the following:
 - (i) the source of raw water, and
 - (ii) the treatment processes associated with the water treatment plant; and
 - (b) prescribe appropriate measures to control and/or reduce such risks to the waterworks system

in accordance with the requirements in the Standards and Guidelines Document.

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- 3.2.3 The *Drinking Water Safety Plan* shall:
- (a) follow the *Drinking Water Safety Plan* template located at <http://www.environment.alberta.ca/apps/regulatteddwq/dwsp.aspx>; unless
 - (b) otherwise authorized in writing by the Director.
- 3.2.4 The approval holder shall update the *Drinking Water Safety Plan* at least once per calendar year.

SECTION 3.3: SRRUC SPECIAL REQUIREMENTS

- 3.3.1 The approval holder shall:
- (a) maintain; and
 - (b) implement:
 - (i) the following SRRUC Special Requirements for data quality assurance:
 - (A) *Detailed Sampling And Analytical Protocol – for the Stored Raw Water Quality Monitoring Program and the Reservoir Site Groundwater Monitoring Program*, February 2018, as amended);
 - (ii) the following SRRUC Special Requirements for monitoring:
 - (A) *Reservoir Site Groundwater Monitoring Program*, February 2018, as amended,
 - (B) *Source Water Aquifer and River Monitoring Requirements*, as part of the *Source Water Program and described in the 2018 Annual Report for the Stored Raw Water, Reservoir Raw Water, and Reservoir Site Groundwater*,
 - (C) *Stored Raw Water Quality Monitoring Program*, July 2, 2019, as amended, and
 - (D) *Well, Infiltration Gallery and Diverted Sheep River Water Monitoring Program*, February 2018, as amended;
 - (iii) the following SRRUC Special Requirements for operations:
 - (A) *Approval Holder Contact and Complaint Follow-Up* (as required by the *Annual Waterworks Report*), and

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- (B) *Remedial Action Plan For Specific Possible Contaminants*, February 2018, as amended; and
- (iv) the following SRRUC Special Requirements for planning:
 - (A) *Delineation and Remediation Program*, as described in the *Delineation and Remediation Report – Settling Pond*, July 2, 2019,
 - (B) *Low Flow Sampling Pilot Project* (proposal), April 1, 2016, and
 - (C) *Source Water Program* including:
 - (I) *Source Water Program – Oil and Gas Well and Pipeline Inventory*, May 18, 2012, as amended,
 - (II) *Source Water Program - Surface Water Inventory*, May 18, 2012, as amended, and
 - (III) *Source Water Program - Wellhead Protection Area Monitoring Well Inventory*, May 18, 2012, as amended.
- 3.3.2 The approval holder shall update the SRRUC Special Requirements:
 - (a) at least annually; or
 - (b) when new applicable information becomes available.
- 3.3.3 The approval holder shall, when required in writing by the Director:
 - (a) add;
 - (b) update;
 - (c) correct; or
 - (d) otherwise change

any SRRUC Special Requirement by the date required by the Director.
- 3.3.4 The approval holder shall include requirements for monitoring of the source aquifer bedrock monitoring wells in the *Source Water Aquifer and River Water Monitoring Requirements* that are part of the *Source Water Program*.
- 3.3.5 The approval holder shall advise the Director in writing of any update of an SRRUC Special Requirement within 30 days of the date that the update was made.

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SRRUC SPECIAL REQUIREMENTS LIST

3.3.6 The approval holder shall by April 1, 2021:

- (a) create; and
- (b) retain

an SRRUC Special Requirements List consisting of:

- (i) active SRRUC Special Requirements, and
- (ii) completed SRRUC Special Requirements that have been completed since 2008:

including all:

- (A) plans,
- (B) programs,
- (C) protocols, and
- (D) reviews

completed for the waterworks system.

3.3.7 The approval holder shall note for each SRRUC Special Requirement in the SRRUC Special Requirements List:

- (a) the date the SRRUC Special Requirement was last updated; or
- (b) the date the Director advised in writing that the approval holder had satisfied the requirements of an SRRUC Special Requirement.

SRRUC SPECIAL REQUIREMENTS RETENTION AND SUBMISSION

3.3.8 The approval holder shall retain as required in PART 7:

- (a) the most recent update of each SRRUC Special Requirement; and
- (b) all documentation, including Annual Reports, that the SRRUC Special Requirements required to be created.

3.3.9 The approval holder shall provide to the Director with the *Annual Waterworks Report* for that year:

- (a) the SRRUC Special Requirements List;

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(b) the SRRUC Special Requirements:

- (i) annual reports,
- (ii) reports, and
- (iii) other documentation

that an SRRUC Special Requirement requires to be provided to the Director during the year covered by the *Annual Waterworks Report*.

3.3.10 When requested in writing by the Director, the approval holder shall provide to the Director:

- (a) the current SRRUC Special Requirements List;
 - (b) all requested:
 - (i) SRRUC Special Requirements, and
 - (ii) Completed SRRUC Special Requirements
- by the date required by the Director.

IMPLEMENT DELINEATION AND RECLAMATION REPORT RECOMMENDATIONS

3.3.11 The approval holder shall submit to the Director, on or before March 1, 2021, a schedule for implementation of the additional activities recommended in the approval holder's Delineation and Remediation Report – Settling Pond, July 2, 2019. (the "pond report implementation schedule")

3.3.12 If the pond report implementation schedule is found deficient by the Director, the approval holder shall:

- (a) correct all deficiencies identified in writing by the Director;
- (b) by the date specified in writing by the Director.

3.3.13 The approval holder shall implement the additional activities in accordance with the pond report implementation schedule as authorized in writing by the Director.

PART 4: OPERATIONAL REQUIREMENTS

SECTION 4.1: WATERWORKS SYSTEM

4.1.1 The approval holder shall:

- (a) operate; and

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(b) maintain

a waterworks system, which shall include all of the following:

- (i) a source consisting of:
 - (A) water wells located in the W½ 6-20-2-W5M that produce groundwater under the direct influence of surface water, and
 - (B) an intake located in the Sheep River within the SE¼ 1-20-3-W5M that supplies surface water from the Sheep River and that is part of the river water supply system;
- (ii) a river water supply system,
- (iii) raw water storage,
- (iv) a water treatment plant consisting of:
 - (A) coagulation and flocculation,
 - (B) rapid sand filtration,
 - (C) biologically activated carbon filtration,
 - (D) UV disinfection (primary), and
 - (E) disinfection (primary and secondary) by chlorine;
- (v) clearwell for CT disinfection, and
- (vi) waterline connections to water distribution systems for:
 - (A) the Town of Turner Valley,
 - (B) the Town of Black Diamond,
 - (C) the Millarville and Area, and
 - (D) any other water users as authorized in writing by the Director.

OPERATIONS PROGRAM

- 4.1.2 The approval holder shall maintain a waterworks system *Operations Program* that shall include, at a minimum, all of the information in SCHEDULE 1 of this approval.
- 4.1.3 The approval holder shall update the *Operations Program* at least on an annual basis.

TERMS AND CONDITIONS ATTACHED TO APPROVAL**OPERATIONS**

- 4.1.4 Where any sample of a treated water sampling event pursuant to 5.1.1 does not meet the turbidity limit in SCHEDULE 3:
- (a) the approval holder shall immediately divert the water to filter-to-waste until the water meets the turbidity limit in SCHEDULE 3; or
 - (b) in the event that the water has entered the clearwell then:
 - (i) immediately divert all the water from the clearwell to waste, and
 - (ii) continue to divert to waste until all the water that did not meet the turbidity limit in SCHEDULE 3 has been flushed from the clearwell; or
 - (c) report in accordance with 6.1.1.

- 4.1.5 If any sample of a sampling event pursuant to 5.1.1:
- (a) is less than the UV dose limit in SCHEDULE 3 for a UV reactor;
 - (b) exceeds the flow limit in SCHEDULE 3 for a UV reactor; or
 - (c) is less than the UV transmittance of filtered water limit in SCHEDULE 3 entering a UV reactor

the approval holder shall:

- (i) immediately divert all the water from the clearwell to waste, and
- (ii) continue to divert to waste until all the water that:
 - (A) is less than the UV dose limit in SCHEDULE 3 for a UV reactor,
 - (B) exceeded the flow limit in SCHEDULE 3 for a UV reactor, or
 - (C) was less than the UV transmittance of filtered water limit in SCHEDULE 3 entering a UV reactor

so that no more than:

- (I) 1% of the water in a month, and
- (II) 2% of the water in a day

passes through the UV reactors without the required level of UV dose being applied; or

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- (d) report in accordance with 6.1.1.

SECTION 4.2: ADDITIONAL OPERATIONAL REQUIREMENTS

- 4.2.1 The approval holder shall follow the requirements of the applicable SRRUC Special Requirements:
 - (a) before;
 - (b) during; and
 - (c) afterpumping well water directly into the water treatment plant for treatment.
- 4.2.2 The approval holder shall report to the Director as required by the SRRUC Special Requirements:
 - (a) when 4.2.1 requirements are being followed; and
 - (b) when the approval holder has stopped pumping well water directly into the water treatment plant for treatment.
- 4.2.3 The approval shall note in the *Waterworks Annual Report*:
 - (a) the dates that:
 - (i) 4.2.1 requirements were initiated, and
 - (ii) when the approval holder stopped pumping well water directly into the water treatment plant; and
 - (b) information as required by the SRRUC special requirements.
- 4.2.4 The approval holder shall implement the *Remedial Action Plan for Specific Possible Contaminants* if any test results indicate the quality of the tested ambient water does not comply with requirements of any SRRUC Special Requirement.

SECTION 4.3: FACILITY CLASSIFICATION AND CERTIFIED OPERATOR REQUIREMENTS

FACILITY CLASSIFICATION

- 4.3.1 The water treatment facility in this approval is classified as Class II, in accordance with the Water and Wastewater Operators' Certification Guidelines.

TERMS AND CONDITIONS ATTACHED TO APPROVAL**CERTIFIED OPERATOR**

- 4.3.2 At all times, the operation of the waterworks system shall be performed by, or under the direction of, a person who holds a valid Level II (or higher) Water Treatment Operators Certificate.

SECTION 4.4: POTABLE WATER QUALITY STANDARDS

- 4.4.1 The approval holder shall only allow treated water that meets the Treated Water Quality Limits specified in SCHEDULE 3 to enter the water distribution system.
- 4.4.2 The water treatment plant shall achieve:
- (a) a 2.5-log reduction of *Giardia* and *Cryptosporidium* by filtration;
 - (b) a 1.0-log reduction of viruses by filtration;
 - (c) a 3.0-log reduction of *Giardia* and *Cryptosporidium* by UV disinfection; and
 - (d) a 3.0-log reduction of viruses by chlorine disinfection.
- 4.4.3 The approval holder shall only receive the log reduction credits in TABLE 4-1 when:
- (a) treated water quality limits; and
 - (b) monitoring requirements in:
- SCHEDULE 3 are met.

TABLE 4-1 WATER TREATMENT PLANTS – LOG REDUCTION CREDITS ACHIEVABLE

WATER TREATMENT PROCESS	LOG REDUCTION CREDIT ACHIEVABLE		
	<i>Cryptosporidium</i>	<i>Giardia</i>	Viruses
Direct Filtration	2.5	2.5	1.0
UV Disinfection	3.0	3.0	0
Chlorine Disinfection	0	0	3.0
TOTAL	5.5	5.5	4.0

- 4.4.4 In addition to compliance with the Treated Water Quality Limits specified in SCHEDULE 3 the approval holder shall produce treated water that complies with:
- (a) the *Potable Water Quality* requirements of the *Potable Water Regulation*, as amended, for those parameters specified in SCHEDULE 4; and
 - (b) any water quality parameters added to the GCDWQ:

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- (i) that the Director has directed in writing be complied with, and
- (ii) by the date required in the Director's written direction.

SECTION 4.5: CHEMICALS USED

- 4.5.1 The approval holder shall not add a substance, material or compound to water being treated to be potable unless the substance, material or compound:
- (a) conforms to American National Standards Institute and National Sanitation Foundation ANSI/NSF Standards 60 for health effects; or
 - (b) is certified for potable use by an agency accredited to the requirements of ISO/IEC 9000 and ISO/IEC 14001; and
 - (c) is added in a dosage that does not exceed the dosage specified as Maximum Use; or
 - (d) as otherwise authorized in writing by the Director.

SECTION 4.6: WASTE STREAM

- 4.6.1 Waste streams shall be released only as follows:
- (a) to the water treatment plant exfiltration pond:
 - (i) filter backwash,
 - (ii) filter-to-waste, and
 - (iii) the water wasted to meet the requirements of 4.1.4 and 4.1.5;
 - (b) sanitary waste streams shall be discharged to the Town of Turner Valley wastewater system; and
 - (c) any other waste stream shall be discharged as authorized in writing by the Director.

PART 5: MONITORING REQUIREMENTS

SECTION 5.1: MONITORING

- 5.1.1 The approval holder shall monitor:
- (a) the waterworks system in accordance with:
 - (i) SCHEDULE 2 RAW WATER ENTERING THE WATER TREATMENT PLANT, WELL AND DIVERTED RIVER WATER,

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- (ii) SCHEDULE 3 TREATED WATER,
- (iii) SCHEDULE 3A STORED RAW WATER, and
- (iv) SCHEDULE 4 TREATED WATER ENTERING WATER DISTRIBUTION SYSTEM Table of Physical, Inorganic Chemicals, Organic Chemicals and Pesticides;
- (b) groundwater in the area of the raw water storage reservoirs in accordance with the *Reservoir Site Groundwater Monitoring Program*; and
- (c) in accordance with the *Source Water Aquifer and River Water Monitoring Requirements*:
 - (i) the groundwater near the source water aquifer that the approval holder's source water wells are located in, and
 - (ii) Sheep River water.

5.1.2 The approval holder shall assess the monitoring data in accordance with:

- (a) the requirements of the SRRUC Special Requirements;
- (b) this approval; or
- (c) as otherwise required by the Director.

5.1.3 The approval holder shall submit to the Director, with the *Annual Waterworks Report*:

- (a) monitoring data;
- (b) reports; and
- (c) all other documentation

the SRRUC Special Requirements require be submitted to the Director in that year.

SECTION 5.2: DATA QUALITY ASSURANCE

5.2.1 With respect to any monitoring required pursuant to this approval, all samples shall be:

- (a) collected;
- (b) preserved;
- (c) stored;

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(d) handled; and

(e) analysed

in accordance with:

- (i) the *Standard Methods for the Examination of Water and Wastewater*, published by the American Public Health Association, the American Waterworks Association and the Water Environment Federation, as amended or replaced from time to time,
- (ii) the approval holder's *Detailed Sampling and Analytical Protocol* for use with the *Stored Raw Water Quality Monitoring Program* and the *Reservoir Site Groundwater Monitoring Program*, or
- (iii) a method authorized in writing by the Director.

5.2.2 Any analysis of a sample required pursuant to this approval shall be done only in:

- (a) an approved laboratory;
- (b) in a laboratory that complies with the Department's alternate program; or
- (c) as otherwise authorized in writing by the Director.

5.2.3 Data results of the on-line or continuous monitoring equipment shall be validated to ensure that the results reflect the actual quality of the water and are not electronic or meter spikes by direct or indirect means.

5.2.4 Any analysis for treated water bacteriological quality required pursuant to this approval shall be conducted by the Provincial Laboratory for Public Health.

PART 6: REPORTING REQUIREMENTS

SECTION 6.1: CONTRAVENTION REPORTING

6.1.1 In addition to any other reporting required pursuant to this approval, the Act, or the regulations, the approval holder shall immediately report to the Director any contravention of this approval, either:

- (a) by telephone at 1-780-422-4505; or
- (b) by a method:
 - (i) in compliance with the release reporting provisions in the Act and the regulations, or
 - (ii) as authorized in writing by the Director.

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6.1.2 In addition to any other reporting required pursuant to this approval, the Act, or the regulations, the approval holder shall immediately report to the Director by a method specified in 6.1.1, any structural or equipment malfunction in the waterworks system that may affect the quality or supply of potable water.

6.1.3 In addition to the immediate reporting in 6.1.1, the approval holder shall provide a report to the Director:

- (a) in writing; or
- (b) by a method:
 - (i) in compliance with the release reporting provisions in the Act and the regulations, or
 - (ii) as authorized in writing by the Director

within seven (7) calendar days after the discovery of the contravention, or within another time period specified in writing by the Director, unless the requirement for the report is waived by the Director.

6.1.4 The report required in 6.1.3 shall contain, at a minimum, the following information:

- (a) a description of the contravention;
- (b) the date of the contravention;
- (c) the duration of the contravention;
- (d) the legal land description of the location of the contravention;
- (e) an explanation as to why the contravention occurred;
- (f) a summary of all preventive measures and actions that were taken prior to the contravention;
- (g) a summary of all measures and actions that were taken to mitigate any effects of the contravention;
- (h) a summary of all measures that will be taken to address any remaining effects and potential effects related to the contravention;
- (i) the number of the approval issued under the Act for the waterworks system, and the name of the approval holder who held the approval at the time the contravention occurred;
- (j) the name, address, phone number and responsibilities of all persons operating the waterworks system at the time the contravention occurred;

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- (k) the name, address, phone number and responsibilities of all persons who had charge, management or control of the waterworks system at the time that the contravention occurred;
- (l) a summary of proposed measures that will prevent future contraventions, including a schedule of implementation for these measures;
- (m) any information that was maintained or recorded under this approval, as a result of the incident; and
- (n) any other information required by the Director in writing.

6.1.5 Where a bacteriological quality sample shows the presence of:

- (a) total coliform; or
- (b) *E. Coli*

the approval holder shall:

- (i) report,
- (ii) follow other requirements of the:
 - (A) Act,
 - (B) Regulations, and
 - (C) this approval; and
- (iii) carry out the corrective actions set out in the *Communication and Action Protocol for Failed Bacteriological Results in Drinking Water for Waterworks Systems Authorized* under the Environmental Protection and Enhancement Act, August 2009, entered into by Environment and Sustainable Resource Development, Alberta Health Services, Alberta Health and Wellness and Health Canada, as amended.

6.1.6 Where a sample analysis, including the analysis of a sample from the Town of Turner Valley water distribution system provided by the Town of Turner Valley, does not meet the MAC as specified in the GCDWQ for one (1) or more of the:

- (a) physical;
- (b) inorganic;
- (c) organic; or
- (d) pesticide

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parameters in SCHEDULE 4, the approval holder shall, in addition to any reporting or other requirements pursuant to the:

- (i) Act,
- (ii) Regulation, or
- (iii) this approval

carry out the corrective actions set out in the *Action Protocol for Exceedances of Chemical Health Parameters in Drinking Water*, Alberta Environment, August 2009, as amended.

SECTION 6.2: MONTHLY REPORTING

- 6.2.1 The approval holder shall compile and retain monthly reports at the water treatment plant.
- 6.2.2 The monthly report in 6.2.1 shall include, at a minimum:
 - (a) the name, telephone and fax numbers of all certified operators;
 - (b) the analytical results for all parameters required to be monitored in accordance with this approval during the month;
 - (c) the locations of all sampling performed during the month in accordance with this approval;
 - (d) the name and manufacturer of all treatment chemicals added during the month, and each manufacturer as listed by the certified agency that tested the chemical to ANSI/NSF Standards 60 for health effects;
 - (e) the results of all approval required monitoring and measurements conducted during the month in accordance with this approval; and
 - (f) a description of any problems experienced, and corrective actions taken at the waterworks system during the month, including all actions taken as per 4.1.4 and 4.1.5.

SECTION 6.3: ANNUAL WATERWORKS REPORT

- 6.3.1 In addition to any other reporting required under the Act, the regulations and this approval, the approval holder shall compile an annual report and submit to the Director, by February 28 of the year following the calendar year in which the information on which the report is based was collected.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- 6.3.2 The annual report in 6.3.1 shall contain, at a minimum, all of the following information:
- (a) a summary of the monthly reports, specifying the monthly minimum, average, and maximum results for each parameter monitored, excluding bacteriological results, for each month;
 - (b) a summary of the total volume of treated water produced, for each month;
 - (c) a summary of the:
 - (i) number,
 - (ii) sampling dates, and
 - (iii) analytical resultsof the bacteriological samples analysed for each month;
 - (d) the results of any other compliance monitoring done during the year pursuant to this approval, that was not included in any monthly report;
 - (e) SRRUC Special Requirements reports as described in SECTION 3.3;
 - (f) the SRRUC Special Requirements List;
 - (g) a summary of the written complaints about the approval holder's waterworks system investigated and steps taken, if any, to remediate or mitigate the impact(s) identified by the investigation;
 - (h) the requirements of 4.2.3 including the dates when well water was first pumped direct to the water treatment plant and when this was stopped;
 - (i) a description of any problems experienced, and corrective actions taken at the waterworks system during the year; and
 - (j) any changes to the *Operations Program*.

SECTION 6.4: ELECTRONIC REPORTING

- 6.4.1 The approval holder shall submit periodic reports:
- (a) in an electronic format; and
 - (b) with the following frequency:

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (i) monthly, to the Director on or before the end of the month following the month in which the information on which the report is based was collected,
- (ii) annually, to the Director on or before February 28 of the year following the year in which the information on which the report is based was collected, or
- (iii) as specified by the Director.

6.4.2 The approval holder who receives a notice as specified in section 6.4.1 shall comply with the notice.

PART 7: RECORD KEEPING REQUIREMENTS

SECTION 7.1: GENERAL

7.1.1 The approval holder shall:

- (a) record the following information; and
- (b) maintain and retain the following records for five (5) years from the date the record was created:
 - (i) bacteriological analysis results,
 - (ii) daily records, including but not limited to:
 - (A) flow meter readings,
 - (B) chlorine concentrations,
 - (C) treatment chemical dosages,
 - (D) all the requirements of SCHEDULE 3 specific to daily monitoring required under this approval,
 - (E) the requirements of SCHEDULE 3A, and
 - (F) the requirements of the SRRUC Special Requirements;
 - (iii) all monthly reports required under this approval, and
 - (iv) records of action taken by the approval holder to correct contraventions of potable water quality limits, including the following information for each contravention:

TERMS AND CONDITIONS ATTACHED TO APPROVAL

(A) name and address of the person who discovered the contravention, and

(B) copies of all notifications to the public.

7.1.2 The approval holder shall retain the following records for the life of the waterworks system:

(a) the *Operations Program*;

(b) copies of all:

(i) applications submitted to the Department for an approval regarding the waterworks system and correspondence related to the approval,

(ii) engineering drawings and specifications,

(iii) project reports,

(iv) construction Requirements,

(v) as-built drawings,

(vi) reports of inspections conducted by the Department,

(vii) correspondence and written notifications sent to the Department regarding a proposed extension of a water distribution system, replacement of a portion of a water distribution system, expansion or modification of potable water storage within the water distribution system,

(viii) approvals issued under the Act for the waterworks system,

(ix) annual reports, and

(x) reports prepared pursuant to sections 6.1.3 and 6.1.4; and

(c) all physical, organic and inorganic chemical and pesticide analytical results required pursuant to this approval, excluding daily monitoring.

7.1.3 The results and records in 7.1.1(b) shall contain, at a minimum, all of the following information:

(a) the date, location and time of monitoring, and the name of the person collecting the sample;

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (b) identification of the sample type, including, but not limited to whether the sample is taken as required in the approval, a repeat sample, a source or potable water sample, or other special-purpose sample;
- (c) date of analysis;
- (d) laboratory name and person responsible for performing analysis;
- (e) the analytical method used; and
- (f) the results of the analysis.

7.1.4 The approval holder shall immediately provide any records, reports or data required under this approval to the Director or an inspector, upon request.

PART 8: RECLAMATION REQUIREMENTS**SECTION 8.1: GENERAL**

- 8.1.1 Where the land surface has been disturbed during construction, expansion, modification or repair of any portion of a waterworks system, reclamation of the land surface to equivalent land capability shall be performed following the construction, expansion, modification or repair, in accordance with the Standards and Guidelines Document.
- 8.1.2 Within six (6) months after the waterworks system, or a portion of the waterworks system, permanently ceases operation, the approval holder shall submit a reclamation plan to the Director for the portion of the system that is no longer in operation.
- 8.1.3 The approval holder shall not commence reclamation of the waterworks system until that person has received an amendment to this approval from the Director for the reclamation.

DATED August 31, 2020



Digitally signed by
Andun.Jevne
Date: 2020.08.31 21:42:54
-06'00'

DESIGNATED DIRECTOR UNDER THE ACT
ANDUN JEVNE

SCHEDULE 1

OPERATIONS PROGRAM

1. Routine Operational Procedures, which shall, at a minimum, include:
 - (a) contact name and telephone numbers for the system owner, system operator, engineering consultants and equipment suppliers;
 - (b) operating instructions:
 - (i) general description of the treatment process and operating procedures,
 - (ii) performance requirements, and
 - (iii) location of equipment major controls;
 - (c) general maintenance schedule;
 - (d) general maintenance instructions for:
 - (i) treatment / process equipment,
 - (ii) monitoring equipment, and
 - (iii) pumping equipment; and
 - (e) how water users will be notified in the event that water consumption must be stopped or reduced.
2. Routine Operational Procedures for Monitoring and Analysis, which shall, at a minimum, include:
 - (a) operational and compliance tests to be performed;
 - (b) bacteriological quality monitoring plan;
 - (c) methods used for monitoring and analysis;
 - (d) locations of monitoring points; and
 - (e) laboratory data quality assurance information.
3. Emergency Response Plan, which shall, at a minimum, include steps to be taken in the event of the following:
 - (a) bacteriological results exceeding the prescribed limits;

SCHEDULE 1

OPERATIONS PROGRAM

- (b) turbidity exceeding the limits;
 - (c) chemical overfeed;
 - (d) no chemical or coagulant feed;
 - (e) low chlorine residual;
 - (f) other-equipment breakdown;
 - (g) flood;
 - (h) water wells or the river water supply system become un-useable;
 - (i) power failure;
 - (j) the waterworks system becoming inoperable, including steps in providing an alternate potable water supply;
 - (k) cover-off in the event that the Certified Operator is not available to operate the system;
 - (l) Water Shortage Response Plans for raw and treated water;
 - (m) list of contacts; Alberta Environment and Parks, Alberta Health, Regional Health Authorities, Fire Department, Disaster Coordinator, and other agencies; and
 - (n) date of the last update.
4. Copy of the as-built drawings.

SCHEDULE 2
RAW WATER ENTERING THE WATER TREATMENT PLANT, WELL AND DIVERTED RIVER
WATER
Monitoring, Measuring and Reporting Frequency Requirements

PARAMETER	STATION LOCATION	MONITORING/MEASUREMENT TYPE, NUMBER AND FREQUENCY	REPORTING CONTENT	REPORTING FREQUENCY	ACTION LIMIT
pH		Grab Sample Once per day	Daily Analysis	Annual Waterworks Report	N/A
Volume	RAW WATER ENTERING THE WATER TREATMENT PLANT	Metered, Once per day Reported as Total in m ³	Daily Volume		
Turbidity		Continuous monitoring and recording at ≤ 5 minute sampling intervals report daily maximum	Daily: Minimum Average Maximum		
Physical parameters Colour, pH, Turbidity	STILLING BASIN AND EACH WATER WELL THAT IS USED TO SUPPLY WATER AT ANY TIME DURING THE YEAR	Grab sample <ul style="list-style-type: none"> Once every six months, or Once per month if well water is pumped directly into the water treatment plant at any time during that month, or As directed by the Director in writing (the direction of the Director takes precedence) 	Analytical Results and analysis of results		GCDWQ

SCHEDULE 2
RAW WATER ENTERING THE WATER TREATMENT PLANT, WELL AND DIVERTED RIVER
WATER
Monitoring, Measuring and Reporting Frequency Requirements

PARAMETER	STATION LOCATION	MONITORING/MEASUREMENT TYPE, NUMBER AND FREQUENCY	REPORTING CONTENT	REPORTING FREQUENCY	ACTION LIMIT
Routine Parameters Bicarbonate, Calcium, Carbonate, Chloride, Conductivity, Hydroxide, Iron, Manganese, Nitrate, Nitrite, Potassium, Sodium, Sulphate, Total Alkalinity, Total Dissolved Solids, Total Hardness, Total Kjeldahl Nitrogen, Total Organic Carbon Turbidity	STILLING BASIN AND EACH WATER WELL THAT IS USED TO SUPPLY WATER AT ANY TIME DURING THE YEAR	Grab sample <ul style="list-style-type: none"> Once every six months, or Once per month if well water is pumped directly into the water treatment plant at any time during that month, or As directed by the Director (the direction of the Director takes precedence) Grab sample	Analytical Results and analysis of results	Annual Waterworks Report	Analytical Results and analysis of results
Metals Aluminium, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Chromium, Cobalt, Copper, Cyanide, Fluoride, Iron, Lead, Manganese, Magnesium, Mercury, Molybdenum, Nickel, Selenium, Silver, Strontium, Thallium, Tin, Titanium, Uranium, Vanadium, Zinc.					

SCHEDULE 2
RAW WATER ENTERING THE WATER TREATMENT PLANT, WELL AND DIVERTED RIVER
WATER
Monitoring, Measuring and Reporting Frequency Requirements

PARAMETER	STATION LOCATION	MONITORING/MEASUREMENT TYPE, NUMBER AND FREQUENCY	REPORTING CONTENT	REPORTING FREQUENCY	ACTION LIMIT
Hydrocarbons Benzene, Toluene, Ethylbenzene, Xylenes, Petroleum Hydrocarbon Fractions F1 and F2	STILLING BASIN AND EACH WATER WELL THAT IS USED TO SUPPLY WATER AT ANY TIME DURING THE YEAR	Grab sample <ul style="list-style-type: none">Once every six months, orOnce per month if well water is pumped directly into the water treatment plant at any time during that month, orAs directed by the Director (the direction of the Director takes precedence) Grab sample	Analytical results, calculation results and analysis of results	Annual Waterworks Report	Alberta Environment Tier 1 Guidelines
PAHs Acenaphthene, Acenaphthylene, Anthracene, Fluoranthene, Fluorene, Naphthalene, Phenanthrene, Pyrene <i>Carcinogenic</i> Benzo(a)anthracene, Benzo(b+j)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)perylene, Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, Ideno (1,2,3-c,d) pyrene, PAH Total Potency Equivalent (B[a]P TPE) (Calculated)					
Polychlorinated Biphenyls (PCBs) Naturally Occurring Radioactive Material (NORMs) Petroleum Hydrocarbon Fractions F3 and F4					
New well added since the last sampling event			Analytical results,		N/A
Grab sample Once					GCDWQ
					N/A

SCHEDULE 3: TREATED WATER QUALITY
Limits, Monitoring and Reporting Frequency

PARAMETER	STATION LOCATION	MONITORING/MEASUREMENT TYPE, NUMBER AND FREQUENCY	REPORTING CONTENT	REPORTING FREQUENCY	QUALITY LIMITS
<i>Treated Water - RAPID SAND FILTER — TURBIDITY</i>					
Turbidity	INDIVIDUAL FILTER TRAIN #1 TRAIN #2 and TRAIN #3 (after individual filter train at a point upstream of the clear water tank)	Continuous monitoring and recording at ≤ 5 minute sampling intervals	Report MAXIMUM DAILY Value	Reported monthly	≤ 1.0 NTU, 100% of the time, and
			Report number of cumulative minutes per day the turbidity was between 0.3 and 1.0 NTU	As per Part 6 of the approval	≤ 0.3 NTU, at least 99% of the samples on a daily basis

SCHEDULE 3: TREATED WATER QUALITY
Limits, Monitoring and Reporting Frequency

PARAMETER	STATION LOCATION	MONITORING/MEASUREMENT TYPE, NUMBER AND FREQUENCY	REPORTING CONTENT	REPORTING FREQUENCY	QUALITY LIMITS
<i>Treated Water – UV DISINFECTION - PRIMARY DISINFECTION</i>					
UV dose	IN UV REACTOR #1 UV REACTOR #2 AND UV REACTOR #3	Continuous monitoring and recording at ≤ 5 minute sampling intervals	AVERAGE and MINIMUM Daily values	Reported monthly	≥ 42.1 mJ/cm ²
Flow			MAXIMUM Daily value		≤ 28 L/s for each UV Reactor
UV transmittance of filtered water	ENTERING UV REACTOR #1 UV REACTOR #2 AND UV REACTOR #3	Grab sample Once per day	MINIMUM Daily value	As per Part 6 of the approval Reported monthly	≥ 82 %

SCHEDULE 3: TREATED WATER QUALITY
Limits, Monitoring and Reporting Frequency

PARAMETER	STATION LOCATION	MONITORING/MEASUREMENT TYPE, NUMBER AND FREQUENCY	REPORTING CONTENT	REPORTING FREQUENCY	QUALITY LIMITS
<i>Treated Water - PRIMARY DISINFECTION – CHLORINE</i>					
Chlorine Residual – Free	ENTERING WATER DISTRIBUTION SYSTEM (where "C" is measured for log reduction of viruses prior to entering water distribution system)	Continuous monitoring and recording at < 5 minute sampling intervals	MAXIMUM and MINIMUM Daily value	Reported monthly As per Part 6 of the approval	GCDWQ

SCHEDULE 3: TREATED WATER QUALITY
Limits, Monitoring and Reporting Frequency

PARAMETER	STATION LOCATION	MONITORING/MEASUREMENT TYPE, NUMBER AND FREQUENCY	REPORTING CONTENT	REPORTING FREQUENCY	QUALITY LIMITS
Treated Water - PRIMARY DISINFECTION - CT CHLORINE (VIRUSES)					
CT _{required} viruses	ENTERING DISTRIBUTION SYSTEM	Calculated Once per day	Daily value	Reported monthly As per Part 6 of the approval	N/A
CT _{lowest actual}					≥ 1
CT _{performance ratio} viruses					N/A
Volume	Continuous monitoring and recording at ≤ 5 minute sampling intervals	MINIMUM Daily value	GCDWQ		
Flow (Qpeak)		MAXIMUM hourly flow in L/Min			N/A
pH	ENTERING WATER DISTRIBUTION SYSTEM	Grab Sample Once per day	Daily value		N/A
Temperature					

SCHEDULE 3: TREATED WATER QUALITY Limits, Monitoring and Reporting Frequency

PARAMETER	STATION LOCATION	MONITORING/MEASUREMENT TYPE, NUMBER AND FREQUENCY	REPORTING CONTENT	REPORTING FREQUENCY	QUALITY LIMITS
Treated Water - PHYSICAL, INORGANIC, ORGANIC AND PESTICIDES					
<i>The physical, inorganic and organic chemical and pesticide parameters listed in SCHEDULE 4, and any new parameters with MACs published in the GCDWQ</i>	WATER ENTERING THE WATER DISTRIBUTION SYSTEM:	<p>2 Grab samples per annum for all parameters with the exception of Cyanobacterial toxins (as Microcystin-Total):</p> <p>(a) One grab sample taken during winter (December to February); and</p> <p>(b) One grab sample taken during summer (June to August);</p> <p>and</p> <p>For Cyanobacterial toxins (as Microcystin-Total 2 grab samples:</p> <p>(a) One sample taken during the period August 1 – August 16; and</p> <p>(b) One sample taken during the period of September 1 to September 16 in any calendar year</p>	As per the PWR	Reported monthly As per Part 6 of the approval	As per the PWR

SCHEDULE 3A
STORED RAW WATER
Limits, Monitoring and Reporting Frequency

PARAMETER	STATION LOCATION	MONITORING/MEASUREMENT TYPE, NUMBER AND FREQUENCY	REPORTING CONTENT	REPORTING FREQUENCY	ACTION LIMIT
Physical parameters Colour, pH, Turbidity Routine Parameters Bicarbonate, Calcium, Carbonate, Chloride, Conductivity, Fluoride Hydroxide, Iron Manganese, Nitrate, Nitrite, Potassium, Sodium, Sulphate, Total Alkalinity, Total Dissolved Solids, Total Hardness, Total Kjeldahl Nitrogen, Total Organic Carbon.	EACH STORED RAW WATER RESERVOIR CELL THAT PROVIDES WATER DIRECT TO THE WATER TREATMENT PLANT IN THAT MONTH	Grab Sample One per Month	Analytical Results and analysis of results	Annual Waterworks Report	GCDWQ
Dissolved Metals Aluminium, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Chromium, Cobalt, Copper, Cyanide, Iron, Lead, Magnesium, Manganese Mercury, Molybdenum, Nickel, Selenium, Silver, Strontium, Thallium, Tin, Titanium, Uranium, Vanadium, Zinc.					

SCHEDULE 3A
STORED RAW WATER
Limits, Monitoring and Reporting Frequency

PARAMETER	STATION LOCATION	MONITORING/MEASUREMENT TYPE, NUMBER AND FREQUENCY	REPORTING CONTENT	REPORTING FREQUENCY	ACTION LIMIT
Hydrocarbons Benzene, Toluene, Ethylbenzene, Xylenes Petroleum Hydrocarbon Fractions F1 and F2	EACH STORED RAW WATER RESERVOIR CELL THAT PROVIDES WATER DIRECT TO THE WATER TREATMENT PLANT IN THAT MONTH		Analytical results, calculation results and analysis of results	Annual Waterworks Report	Alberta Environment Tier 1 Guidelines
PAHs Acenaphthene, Acenaphthylene, Anthracene, Fluoranthene, Fluorene, Naphthalene, Phenanthrene, Pyrene <u>Carcinogenic</u> Benzo(a)anthracene, Benzo(b+j)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)perylene, Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, Ideno(1,2,3-c,d)pyrene PAH Total Potency Equivalent (B[a]P TPE) <i>(Calculated)</i>					

SCHEDULE 4

TREATED WATER ENTERING WATER DISTRIBUTION SYSTEM
Table of Physical, Inorganic chemicals, Organic chemicals and Pesticides

Substance and Specific Parameter		Substance and Specific Parameter
Physical Parameters (Primary and Secondary)		Organic Chemicals and Pesticides (Primary)
Colour; pH; Total Dissolved Solids.		Atrazine + metabolites;
Inorganic Chemicals (Primary)		Benzene;
Antimony;	Cyanide;	Benzo(a)pyrene;
Arsenic;	Fluoride;	Bromoxynil;
Barium;	Lead;	Carbon Tetrachloride;
Boron;	Mercury;	Chlorpyrifos;
Bromate;	Nitrate;	Cyanazine;
Cadmium;	Nitrite;	Cyanobacterial toxins (as Microcystin – Total);
Chloramines	Selenium; and	Diazinon;
Chromium;	Uranium.	Dicamba;
Inorganic and Organic Chemicals (Secondary)		1,2-Dichlorobenzene;
Aluminum;	Manganese;	1,4-Dichlorobenzene;
Ammonia;	Silver;	1,2-Dichlorethane;
Calcium;	Sodium;	Dichloromethane;
Chloride;	Sulphate;	2,4-Dichlorophenol;
Copper;	Sulphide;	2,4-D;
Total Hardness;	Total Organic Carbon;	Diclofop-methyl;
Iron;	Xylenes (total); and	Diuron;
Magnesium;	Zinc.	Dimethoate;
PAHs		Ethylbenzene;
Acenaphthene;	PAHs Carcinogenic	Glyphosate;
Acenaphthylene;	Benzo(a)anthracene;	Malathion;
Anthracene;	Benzo(b+j)fluoranthene;	Methoxychlor;
Fluoranthene;	Benzo(k)fluoranthene;	Metolachlor;
Fluorene;	Benzo(g,h,i)perylene;	Metribuzin;
Napthalene;	Chrysene;	Monochlorobenzene;
Phenanthrene;	Dibenzo(a,h)anthracene;	Nitritotriacetic Acid (NTA);
Pyrene;	Ideno (1,2,3-c,d) pyrene.	Pentachlorophenol;
PAH Total Potency		Picloram;
Equivalent (B[a]P TPE);		Simazine;
Hydrocarbons		Terbufos;
Petroleum Hydrocarbon Fractions F1 and F2.		Tetrachloroethylene;
		2,3,4,6-Tetrachlorophenol;
		Toluene;
		Triallate;
		Trichloroethylene;
		2,4,6-Trichlorophenol;
		Trifluralin; and
		Vinyl Chloride.