

ENFORCEMENT
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DIRECTION GÉNÉRALE DE
L'APPLICATION DE LA LOI

Fisheries Act

1. Chlorinated Water (Drinking Water)

2. Wastewater Systems Effluent Regulations (WSER)





Who Are We

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 - Specializes in federal regulatory, including environmental, offences
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Outline

1. Introduction to the *Fisheries Act*
2. Chlorinated Water
3. The Wastewater Systems Effluent Regulations (WSER)
4. Questions



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Part 1

THE FISHERIES ACT



The *Fisheries Act*

- National (federal) legislation to protect fish and fisheries across Canada
- Protects all Canadian fisheries waters (internal waters of Canada)
- Majority of the provisions in the Act are the responsibility of Fisheries and Oceans Canada (DFO)
 - Key provision in the Prairies is subsection 35(1) – focus is on protection of fish habitat
- **EXCEPTION!**
 - Subsection 36(3) and related provisions are enforced by ECCC:
 - s.36(3): Prohibits the deposit of deleterious substances into water frequented by fish,
 - or in any place where it may enter such water.



Subsection 36(3) and Definitions

- “Fish” includes
 - Fish (of **all** species, including minnows)
 - Shellfish
 - Crustaceans (freshwater shrimp, *Daphnia*, etc.)
 - Marine animals
 - All of the above, at **all their life stages** (e.g. eggs, larvae, etc)
- “Water frequented by fish” includes
 - Lakes, rivers, streams, small creeks, and all their tributaries.
 - **Non-permanent waterways** that dry-up or freeze solid, if they are **ever** occupied by fish.



Subsection 36(3) and Definitions (Cont.)

- “Deleterious substance”
 - Anything that can be **harmful to fish, fish habitat, or use of fish**:
 - Short term exposure / long term exposure
 - Short term effects / permanent effects
 - Includes death, but does not have to cause it.
 - Effects may not be observable.
- Examples of “deleterious substance”:
 - Chlorine
 - CBOD / BOD
 - Total Suspended Solids (TSS)
 - Ammonia
 - Temperature (differences)
 - Sediments (sand, gravel, clay, etc)
 - Chemicals/substances that cause chronic lifecycle effects (e.g. selenium)
 - pH (extremes)
 - Metals, dissolved or solid



Reporting – Section 38(5)

- Basic reporting requirements:
 - Any **deposit** of a deleterious substance or **serious and imminent danger** of a deposit
 - Into **water** frequented by fish or **place where it can enter such water**
 - **Without delay** (e.g. immediately)
- Who must report?
 - Anyone (including individual operators) with:
 - Care / charge
 - Management
 - Control
 - Causes or contributes



Reporting (cont.)

Examples of when you need to report (municipal setting):

- Water line breaks / hydrant breaks / hydrant tests (if not dechlorinated)
- Sediment run-off from construction sites
- Sewer line breaks or seepage
- Combined sewer discharges
- Lift station failures / overflows
- Flushing of new water lines (if not into sanitary sewer)
- Deposits to storm sewers / ditches that run to fish-bearing water:
 - Car washes
 - Emptying hot tubs / pools
 - Concrete washing / aggregate washing
 - Anything potentially deleterious to fish



Reporting – Why it's Important

- **Faster response**
 - Allows for deployment of containment / mitigation / remediation
- **Notifies affected parties (downstream users, water treatment, etc)**
- **Ensures expert advice is received quickly**
- **IT'S THE LAW**
 - Failure to do so is an offence punishable under the *Fisheries Act*.



Reporting – How and Where

- In Alberta:

1-800-222-6514

- This is the number for Alberta EDGE (previously known as the CIC)
- Notifies:
 - Alberta provincial authorities
 - Alberta Environment, Alberta Energy Regulator, etc
 - National Environmental Emergencies Centre:
 - ECCC, DFO, etc



Corrective Measures / Mitigation – s.38(6)

- Further legal requirements (s.38(6)):
 - Prevent a deposit from occurring, and
 - If a deposit does occur or is likely to occur:
 - Counteract
 - Mitigate
 - Remedy
 - Must be done as soon as feasible
 - ALL reasonable measures must be taken.
- Failure to do so is an offence punishable under the Act.



Directions – s.38(7.1)

- Directions are issued by ECCC, DFO, or other designated inspectors/officers
- In response to a deposit or imminent danger of a deposit
- Where immediate action is necessary
 - Determined by the inspector/officer
- Legal order to take measures as directed
 - Will order an end result – how you do it is (usually) up to you
- Action is at the expense of the person receiving the direction
- Failure to comply with Direction is an offence punishable under the Act



Due Diligence

- **Section 78.6 of the Act.**
 - A person who exercises all due diligence to prevent the offence shall not be convicted for it.
- **Must be proved by the accused**
- **Due diligence is:**
 - All reasonable measures (reasonable care)
 - That would be taken by a reasonable person
 - In the same circumstances
 - To prevent the offence
- **Due diligence is not:**
 - “We’ve always done it this way.”
 - “We didn’t know.”



Penalties

Deposits of a deleterious substance 36(3)

- Summary (less serious)
 - Individuals
 - Minimum fine: \$5000; \$10 000 (2nd offence)
 - Maximum fine: \$300 000; \$600 000 and 6 months jail (2nd offence)
 - Corporations (>\$5 million gross revenue; i.e. *most municipalities*)
 - Minimum fine: \$100 000; \$200 000 (2nd offence)
 - Maximum fine: \$4 million; \$8 million (2nd offence)
 - Small revenue corporations (<\$5 million gross revenue)
 - Minimum fine: \$25 000; \$50 000 (2nd offence)
 - Maximum fine: \$2 million; \$4 million (2nd offence)



Penalties (deposit cont.)

- Indictable (more serious)
 - Individuals
 - Minimum fine: \$15 000; \$30 000 (2nd offence)
 - Maximum fine: \$1 million; \$2 million and 3 years jail (2nd offence)
 - Corporations (>\$5 million gross revenue; i.e. *most municipalities*)
 - Minimum fine: \$500 000; \$1 million (2nd offence)
 - Maximum fine: \$6 million; \$12 million (2nd offence)
 - Small revenue corporations (<\$5 million gross revenue)
 - Minimum fine: \$75 000; \$150 000 (2nd offence)
 - Maximum fine: \$4 million; \$8 million (2nd offence)



Penalties - Other

- For failure to:
 - Report
 - Take remedial measures
 - Comply with Direction
- These are summary offences
- 1st offence – maximum fine \$200 000
- 2nd offence – maximum is \$200 000 and 6 months jail
- AND
 - Can be prosecuted for the 36(3) offence itself



Creative Sentencing

- **Court – ordered penalties in addition to fines:**
 - Payments equal to cost earnings/savings related to offence
 - Cancel permit/licence
 - Clean-up, Remediate
 - Publish articles about offence
 - Prohibit any activity which could cause incident to reoccur
 - Perform community service
 - Post a bond to ensure compliance with any ECCC requirement/Direction
 - Any other condition court considers appropriate



Part 2

CHLORINATED (DRINKING) WATER



Chlorinated Water is Everywhere

- Raise your hand if you have ever encountered:
 - A water main break
 - A hydrant leak
 - A water treatment plant backwash cycle
 - A pool (or hot tub) leak or intentional drainage
 - A leaking fire suppression system



Chlorine Kills Fish

- Have you ever kept aquarium fish?
 - Chlorine destroys gills at extremely low levels.
 - In acute lethality tests, chlorine is equally or more toxic to fish than crude oil.
- Canadian Council of Ministers of the Environment (CCME) guideline for protection of aquatic life is:

0.0005 mg/L of chlorine

- Some lab methods cannot detect chlorine below 0.5 mg/L
- Hand-held instruments (Pocket Colorimeters) may reach 0.02 mg/L (some read lower)
- Take home message: **if you detect chlorine, it's almost certainly deleterious to fish and the deposit of it is an offence.**
 - It may still be deleterious even if you cannot detect it.



Myths and Facts

- **Myth:** drinking water is safe and harmless for people, animals, and plants.
- **Fact:** Drinking water typically contains chlorine between 0.20 mg/L and 2 mg/L
 - Drinking water is **always** deleterious to fish at the point it is released from the drinking water system, including backwash in treatment facilities.
- **Myth:** chlorine dissipates so rapidly that it is not harmful to fish
- **Fact:** the extent of dissipation and harm depends on the type and concentration of chlorine compounds present in the water.
 - E.g. chloramines persist much longer than free chlorine.
- **Myth:** exposure to organics will remove all chlorine from water.
- **Fact:** It depends on many factors and cannot be assumed.



Chlorine Mitigation

- The fastest mitigation of chlorinated water releases:
 - Dechlorination pucks
 - Dechlorination chemical addition (liquid)
- **YOU NEED A PLAN BEFORE A RELEASE OCCURS**
 - Sufficient dechlorination supplies on hand (not ordered for next-day arrival). Consider amount required for worst-case scenarios.
 - Determine the dosage of dechlorination required for your water source(s).
 - Consider the duration you will have to maintain dechlorination before a repair is completed.
 - Reporting (as per the earlier slides)
 - Staff trained in dechlorination procedures.
 - Ongoing/constant monitoring (at release, upstream, downstream).



Case Examples

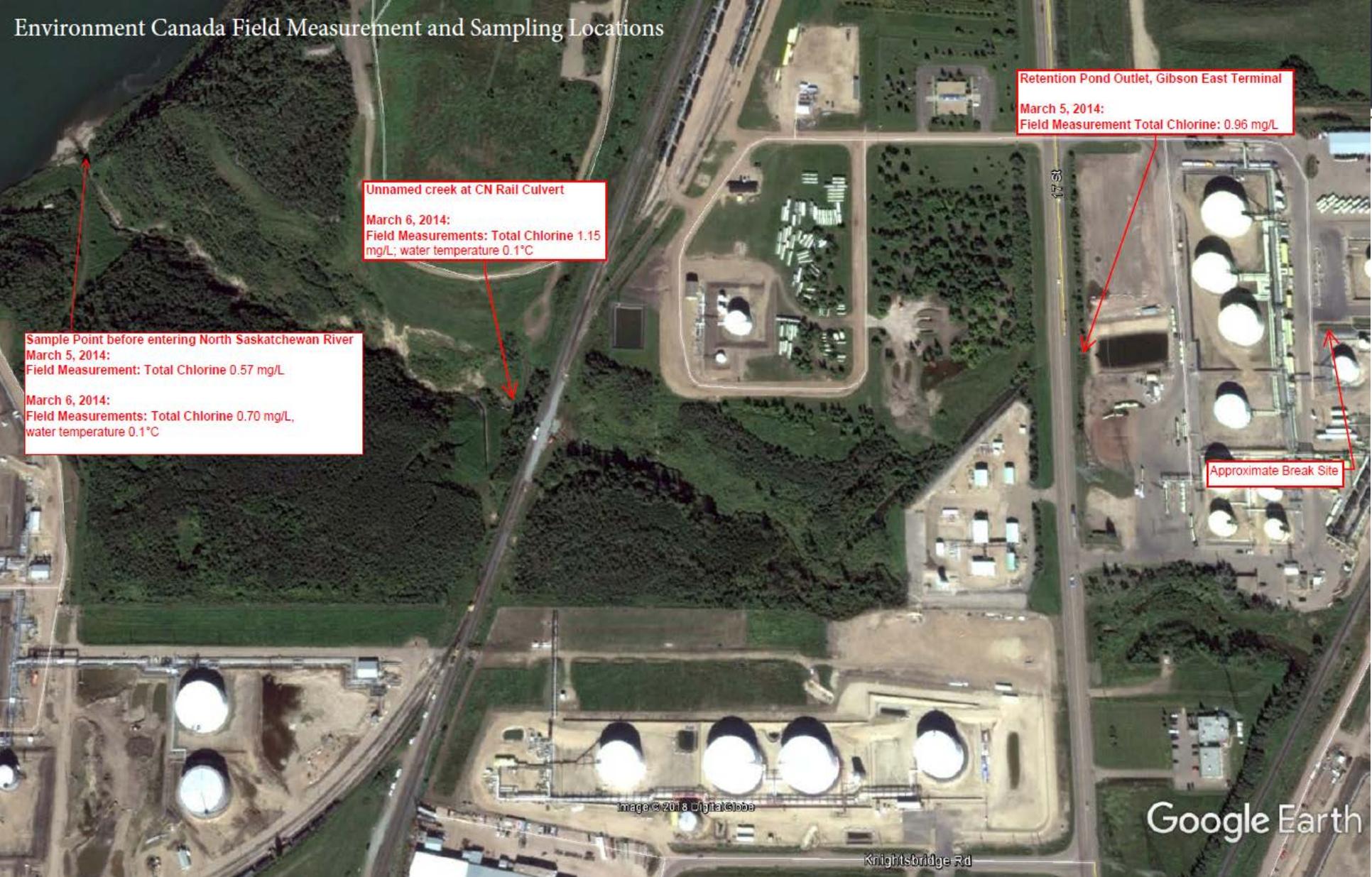
- R. v. Norellco
 - Contracted by City of St. Albert
 - June-July 2012 twice hit water main and ~35 000 litres chlorinated water entered Sturgeon River
 - Water entered River through a storm drain and a dirt trench
 - 0.35mg/L chlorine upon entering River
 - Guilty plea s.36(3) *Fisheries Act*
 - **Sentence:** - \$185 000 fine (under old penalties)
- 2015 Northern Construction Safety Officers Conference



Case Examples (cont.)

- **R. v. Gibson Energy**
 - Ships oil & gas; has large fire suppression system
 - Water line break 2014
 - Released ~30 million litres chlorinated water into N. Sask. R.
 - Release travelled through site into settling pond, then over land ~1km through ditch with organics and frozen creek
 - Chlorine levels in:
 - main line at Gibson's – ~1.7 mg/L
 - release overflowing pond – 0.96 mg/L
 - release at river – 0.57 mg/L and 0.7 mg/L
 - **Sentence:** - not yet sentenced
 - max fine under Act is \$12.6m (* -\$4m max per each 3 d)

Environment Canada Field Measurement and Sampling Locations



Sample Point before entering North Saskatchewan River
March 5, 2014:
Field Measurement: Total Chlorine 0.57 mg/L

March 6, 2014:
Field Measurements: Total Chlorine 0.70 mg/L,
water temperature 0.1°C

Unnamed creek at CN Rail Culvert

March 6, 2014:
Field Measurements: Total Chlorine 1.15
mg/L; water temperature 0.1°C

Retention Pond Outlet, Gibson East Terminal
March 5, 2014:
Field Measurement Total Chlorine: 0.96 mg/L

Approximate Break Site

Image © 2014 DigitalGlobe

Knightsbridge Rd

Google Earth



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Part 3

WASTEWATER SYSTEMS EFFLUENT REGULATIONS



Introduction

- **Purpose of the Wastewater Systems Effluent Regulations (WSER)**
 - address the largest point source of pollution in Canadian waters.
 - reduce threats to fish, fish habitat and human health from fish consumption
 - decrease level of deleterious substances deposited into waters frequented by fish from wastewater effluent.
 - implement a federal commitment for the Management of Municipal Wastewater Effluent.
- **WSER is an exception to the much more stringent requirements of subsection 36(3) the *Fisheries Act*.**
- **Regulations made under subsection 36(4) authorize the deposit of certain deleterious substances subject to conditions.**



WSER Application and Deleterious Substances

- WSER applies to any wastewater system that:
 - Collects or is designed to collect 100 m³ of average daily influent or more
 - Deposits to:
 - Water frequented by fish, or
 - Any place under conditions where the deposit reaches water frequented by fish
- Prescribed deleterious substances under WSER:
 - CBOD (carbonaceous biochemical oxygen demanding matter)
 - SS (suspended solids)
 - Un-ionized ammonia (calculated based on total ammonia, pH, temperature)
 - **If you add chlorine:** TRC (total residual chlorine)



WSER Authorization Conditions

- Deposit under WSER has conditions:
 - From final discharge point(s) only.
 - Must not be acutely lethal to fish.
 - CBOD average less than or equal to 25 mg/L
 - SS average less than or equal to 25 mg/L
 - Un-ionized ammonia less than 1.25 mg/L at all times (maximum limit)
 - TRC average is less than or equal to 0.02 mg/L *if chlorine is added.*
- Acute lethality:
 - Testing is only required if average daily effluent is >2500 m³.
 - Defined as more than 5 dead fish in a 96 hour test. Multiple options for test type.
 - Even when not required to sample, wastewater operators must not discharge acutely lethal effluent – how do you know? May want to test anyway.



Monitoring / Sampling

- Sampling frequency and type is dependent on the size of your facility; consult: WSER, “Wastewater Canada” website, or (819) 420-7727.
- Sampling requirements may differ from your provincial approval / COP.
- ALL must sample for:
 - SS
 - CBOD
 - TRC (if chlorine added)
- Some must sample for acute lethality – dependent on size of facility
- Ammonia limit but no sampling required?
 - Correct – there is no requirement to sample for ammonia.
 - How do you determine if you exceed the limit? May need to sample.



Routine Monitoring Reporting

- Via a website – SWIM and ERRIS.
- Administered by the Wastewater Program (National Capital Region).
- Requires a username and password – some setup required.
- Reporting frequency depends on size of the wastewater system – consult the WSER or the contact line - (819) 420-7727.
 - Deadlines are in the Regulations; late reporting is an offence.
- Routine reporting requirements may differ from those in your provincial approval / COP.



Acute Lethality / Ammonia Reporting

- IF YOU FAIL AN ACUTE LETHALITY TEST (>5 dead fish), OR
- YOUR UN-IONIZED AMMONIA EXCEEDS THE LIMIT (1.25 mg/L or greater):
 - Immediate reporting by phone is required (by the *Fisheries Act*)

1-800-222-6514

- This satisfies both the federal and provincial requirements for notification, and both Alberta Environment and Parks and ECCC will be notified.
- Acute lethality results must still be entered into ERRIS.



Authorizations under WSER

- **Temporary Authorization To Deposit Un-ionized Ammonia**
 - For sites with chronic acute lethality failures which are confirmed to be the result of high un-ionized ammonia.
 - Renewable every 3 years.
 - Un-ionized ammonia in receiving environment must be less than or equal to 0.016 mg/L at any point 100 meters from the point where the effluent reaches water frequented by fish.
 - Failure to meet = authorization not granted / revoked
(and releases are then potential s.36(3) offences)
- **Temporary Bypass Authorization**
 - Only for deposits from final discharge points.
 - Must be applied for at least 45 days in advance.
 - For construction, maintenance, emergency repair.
 - Limited time period and deposit volume.



Previous Wastewater Prosecutions

- **R. v. Town of Beaverlodge**
 - Released wastewater from treatment facility into Beaverlodge River in May 2006
 - Had high ammonia (11.8 mg/l with pH of 8.8)
 - Turned River green for 10km and over 12 000 fish died
 - Guilty plea s.36(3) *Fisheries Act*
 - **Sentence** (old Act): \$20 000 fine, installation of \$1m treatment facility, presentation at AWWOA conference
- **R. v. Town of Ponoka**
 - Released wastewater from treatment facility into Battle River in June 2009
 - Green coloured water and dead fish found 12km downstream
 - **Sentence** (old Act): \$70 000 fine, presentation at AWWOA, newspaper article



WSER Key Messages

- Your facility is regulated by WSER in addition to your provincial approval / COP
- WSER is an authorizing regulation that protects wastewater system operators from the more stringent prohibition in subsection 36(3) the *Fisheries Act*.
- This protection is dependent on compliance with WSER's conditions, including all administrative and reporting requirements.
- Any failure to comply with WSER can be investigated and prosecuted as a violation of the *Fisheries Act*.



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Part 4

QUESTIONS?