Northern Ontario First Nations Environmental Conference

Safe Drinking Water – Lessons from Outbreaks

WCWC Walkerton Clean Water Centre
An agency of the Government of Ontario

CWAE Centre de Walkerton pour l'assainissement de l'eau
Un organisme du gouvernement de l'Ontario

Presenter Introductions

Prior to joining the Centre, Leona Cunningham had been working with municipal and provincial governments for over twelve years. Most recently she worked for the Ministry of Agriculture, Food and Rural Affairs as a Project Analyst delivering federal-provincial-municipal funding programs to improve and renew public infrastructure across the province. In administering these programs, Leona developed working relationships with communities with small drinking water systems. Leona has a Bachelor of Arts degree from the University of Waterloo and a Master of Public Administration in Local Government from the University of Western Ontario. She is in the process of completing her Bachelor of Education in Adult Education from Brock University.

Presenter Introductions

- Paul Otis is a proud member of the Lac Seul First Nation and works as a Technical Services Officer specializing in "Water & Wastewater Utilities" for the Bimose Tribal Council in Treaty #3 Territory. He is a graduate from the "School of Natural Resources – Sault College of Applied Arts & Technology" with three technician diplomas in: Fish & Wildlife, Aboriginal Natural Resources, and Forestry. Paul has focused and advanced his career over the last 12 years working for First Nation's organizations in water/wastewater, and continues his professional involvement and development with being a board of director with the "Aboriginal Water & Wastewater Association of Ontario", committee member with both the "Ontario Water Works Association-OWWA", and "Walkerton Clean Water Center-WCWC". Paul is a strong advocate for First Nation rights by upholding and promoting: treaty, constitutional, and indigenous rights for riparian, appropriative, and prescriptive water rights in Canada.

Safe Drinking Water – Lessons from Outbreaks Workshop for NOFNEC

- Introduce presenters unique partnership for continued success in Safe Drinking Water and highlights from last year
- Preview presentation on WCWC's "Safe Drinking Water – Lesson from Outbreaks" course
- First Nation Tragedies – past and present
- Video Presentation's
- First Nation' Water/Wastewater Assessments

Bimose TC – WCWC Partners

- Inspired by Bimose TC plans for water management in Treaty #3
- Proposal made to train First Nations and youth in water under the Northern Training Partnership Fund –NTPF with Ontario's "Ministry of Colleges & Universities"
- Agreement and MOU made between Bimose TC and WCWC

Partnership Highlights

- Bimose T.S.O.'s/CRT's successful in train the trainer with WCWC for delivery of courses
- Current operators and new FN youth trained for future management of water in Treaty #3
- Procurement of $15000.00 per year per participant for two years (36-40 participants)
- Treaty #3 operators promoted and succession taking place (new trainers and operators)
- Over 150 operator/participant training days with WCWC Director Approved courses

Highlights cont.

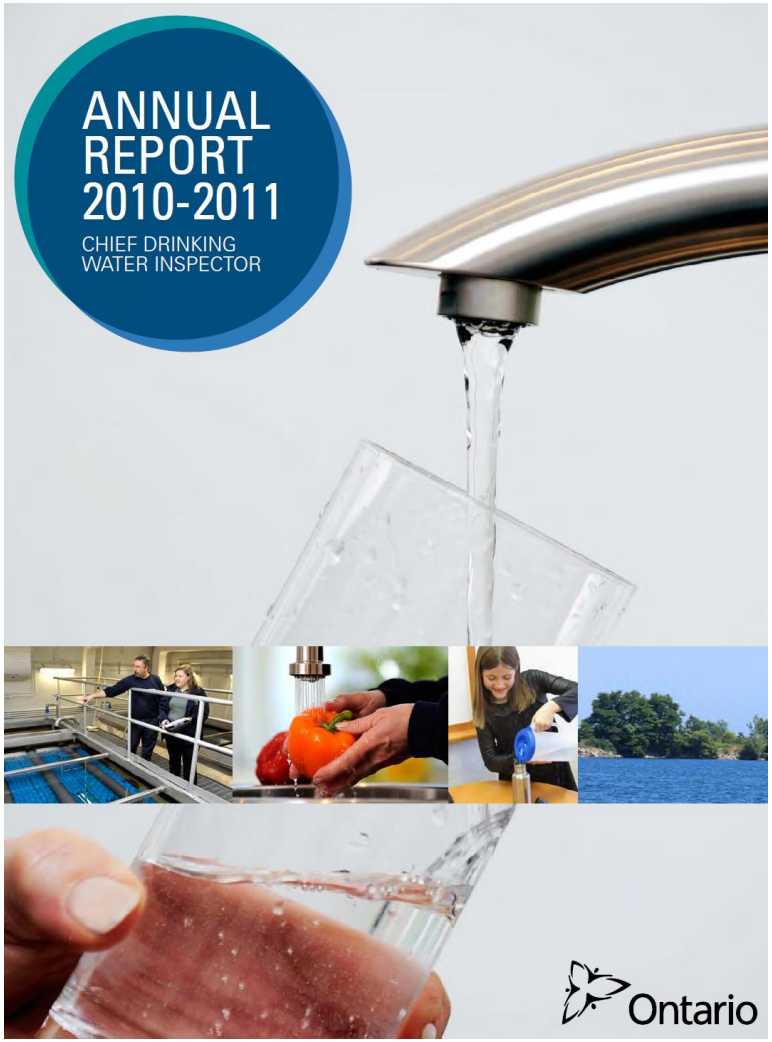
- Affordable training made by qualifying Bimose trainers to deliver WCWC courses
- Trainers and operators attend Maintenance Fest in 2011 and 2012 in Walkerton.
- BTC & WCWC featured in positive media releases (MOE's Chief Inspector's Report for Ontario)
- Use of WCWC's Mobile Training Unit
- BTC and WCWC agreements for other future proposals and continued development on working relationship

Bimose TC/WCWC Training

Walkerton Clean Water Center

WCWC Maintenance Fest

M.O.E. Chief Inspector's Report



WATER INNOVATION LEADERS

Bimose Tribal Council's Partnership with the Walkerton Clean Water Centre

A training agreement was established in August 2011 between the Walkerton Clean Water Centre and the Bimose Tribal Council to support drinking water training for First Nations youth.

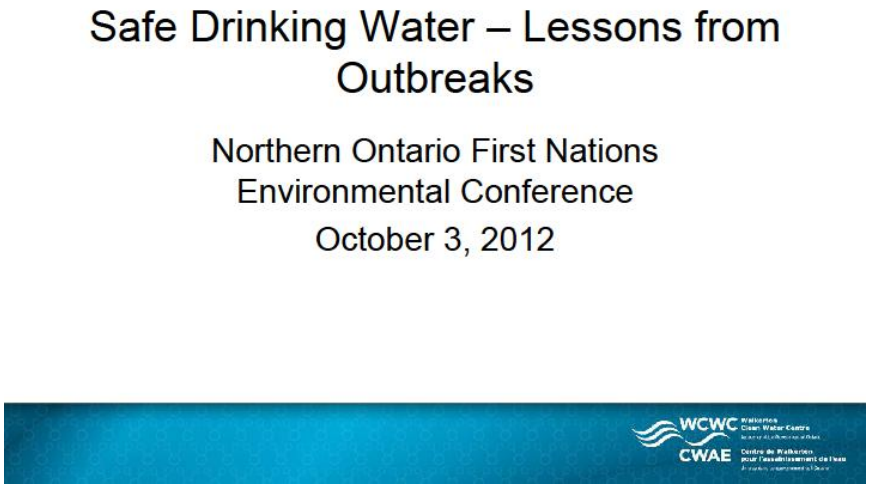
During this two-year partnership, the Walkerton Clean Water Centre supports training for nine First Nation member communities that are located in northwestern Ontario near Kenora. First Nation participants are being trained to operate on-reserve drinking water and wastewater facilities. The train-the-trainer element of this agreement has been particularly successful. Bimose Tribal Council's own trainers trained over 125 operators in 2011.

We are very pleased with the partnership and I would like to thank Shooniyaa Wa-Biitong, the Province of Ontario, the Walkerton Clean Water Centre and all the trainees for making this a reality. One result we are proud of is that the Ochiichagwe'Babigo'Ining Ojibway Nation won the award for the best tasting water at the Northwestern Ontario Water and Wastewater Conference Symposium last August 2011 with two other Bimose Communities placing third and fifth out of 19 entrants.

— Charlene Mandamin, Chair, Bimose Tribal Council.

WCWC's "Safe Drinking Water Lessons from Outbreaks"

- Please open and watch preview PowerPoint presentation from the Walkerton Clean Water Center –WCWC, and then continue with this PowerPoint presentation:



First Nation Water Tragedies Past & Present

- Hundreds of water tragedies in all provinces
- Most are generally unknown and/or don't receive the attention of ones in Canadian cities or towns
- First Nations continue to die and have serious medical disorders as a result of unsafe drinking water
- Causes may be direct or indirect of providing safe drinking water

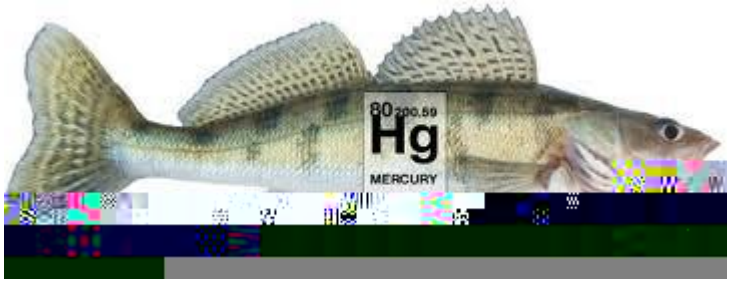
First Nation Water Tragedies

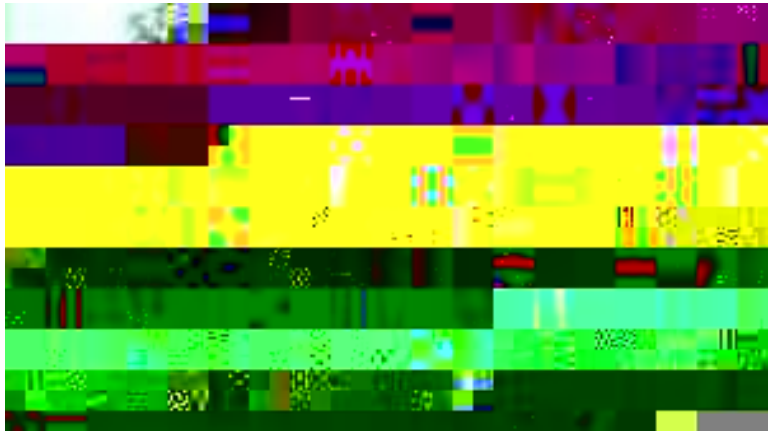
- Only a few listed for this short workshop will be briefly reviewed:
- Grassy Narrows First Nation (Wabaseemoong)
- Kashechewan First Nation
- Pikangikum First Nation
- Fort Chipewyan First Nation (Alberta)

Grassy Narrows First Nation

- GNFN and other downstream FN' (people of Wabaseemoong – Wabauskang) affected and terminally ill by water contamination from mercury
- Contamination sourced from discharged wastewater effluents from Dryden based chemical company
- Wastes discharged into water (Wabigoon & English Rivers)from 1962 to 1970

Grassy Narrows FN Tragedy





Kashechewan FN cont.

- Operators were reported to have discovered the problem
- Operators identified to not be adequately trained to run WTP
- Chlorine levels restored to 1.71 mg/L were thought to have caused impetigo and scabies
- Reports from 2001-2003 described FN as “a Walkerton-in-waiting”

KASHECHEWAN FN CONT.

1. E-coli and coliforms in source (sewage lagoons dammed and overflowing: in flood plane)
2. Dysfunctioning O & M in WTP
3. Tainted drinking water in storage and distribution
4. Regular monitoring (daily) would identify many inter-related concerns
5. Little to no management and training

Pikangikum First Nation

- April 15, 2011 a “State of an Emergency” for no supply of potable water and no running water in any form
- Several days without potable or running water
- On-reserve populations of 2400 must go to nearby lake if they want water (unsafe to drink)
- No choice, but to use contaminated water

Pikangikum FN cont.

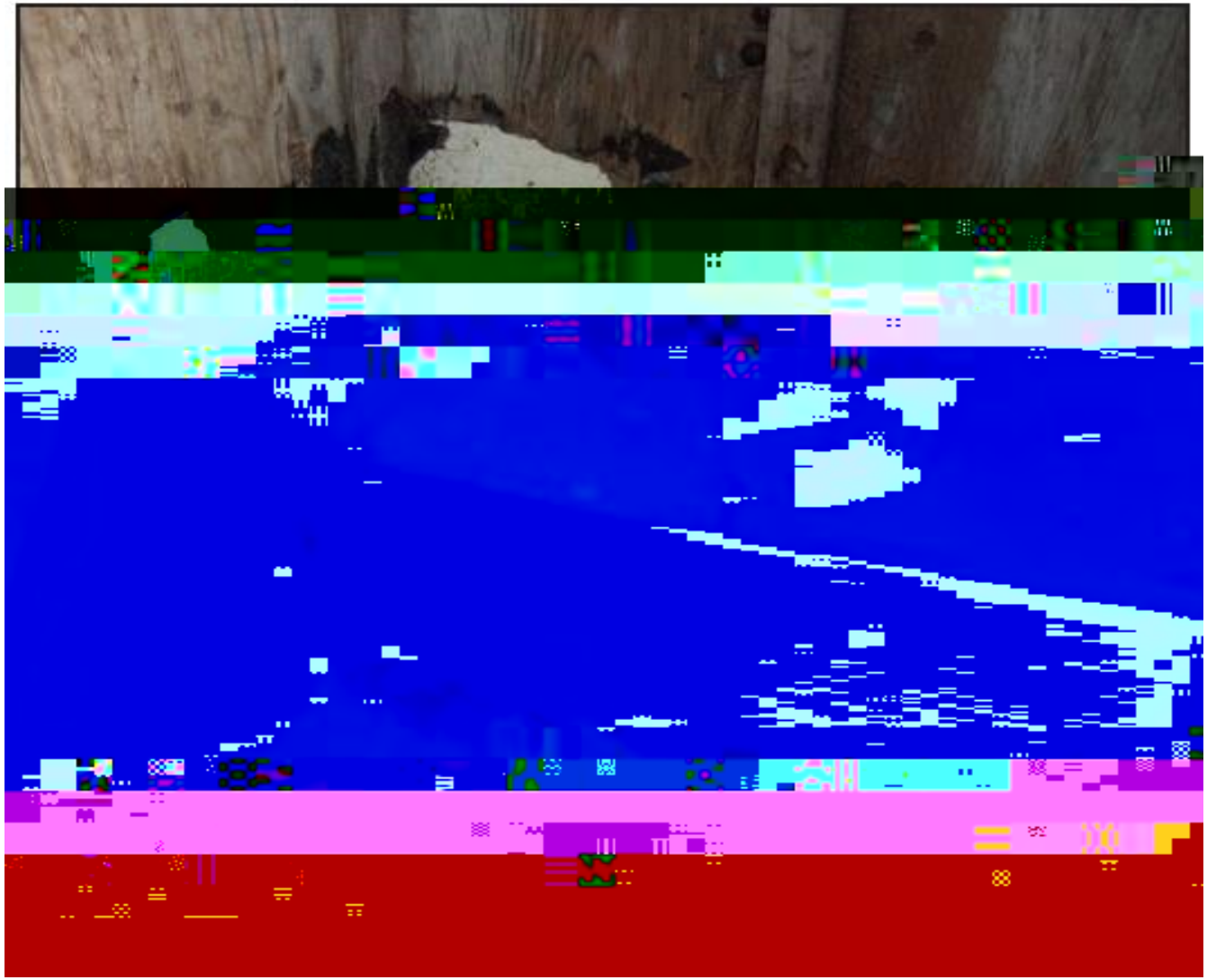
Pikangikum FN cont.

- Chronic problems with WTP
- Past government reports indicate water system is likely to break down sooner than later
- Over 90% of homes never connected for water distribution services (NO running water for cooking, cleaning & sanitation!)
- majority of outhouses are full and overflowing with sewage
- E-coli and coliforms in source water supply (Berens River)

Pikangikum FN cont.

- rate of gastrointestinal infections, skin infections, lice infestations, urinary tract infections, and eye and ear infections are higher than in other regional First Nation
- One of the highest suicide rates in the WORLD!
- Suicides linked to lack of necessities for good health: education and clean water!

Pikangikum FN cont.



Pikangikum cont.

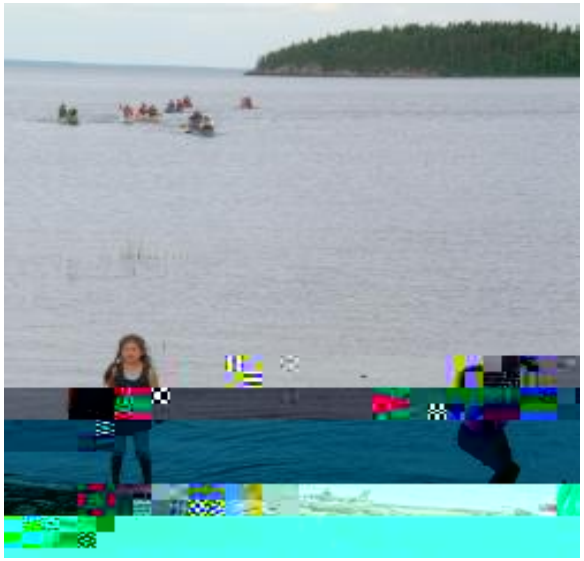
1. Source raw water contaminated with e-coli and coliforms
2. Dated and deficient WTP (many breakdowns and petroleum leaks)
3. Storage inadequate (can't be maintained safely), insecure water points and 90% with no connection to water supply (30 of 378 homes)
4. Monitoring confirms problems
5. Management is limited due to resources

Fort Chipewyan First Nation Northern Alberta

- In late 2000's doctors starting to realize unusually high rate of incidences and illnesses
- Unusually high rates of usually very rare illnesses: colon, liver, blood & bile duct cancers (usually 1 in 100000: 5 in 750-1200 in Fort Chip)
- Other various cancers, auto-immune diseases, the number of people with diabetes, renal failure, hypertension, and then certain specific types of cancer (testicular, uterine, etc.)

Fort Chipewyan cont.

- Source waters found to have levels of arsenic, total phenols, and lead
- Water levels at historic lows because of damming and high usages up
- Need for a modern day WTP



Please watch videos for stories:

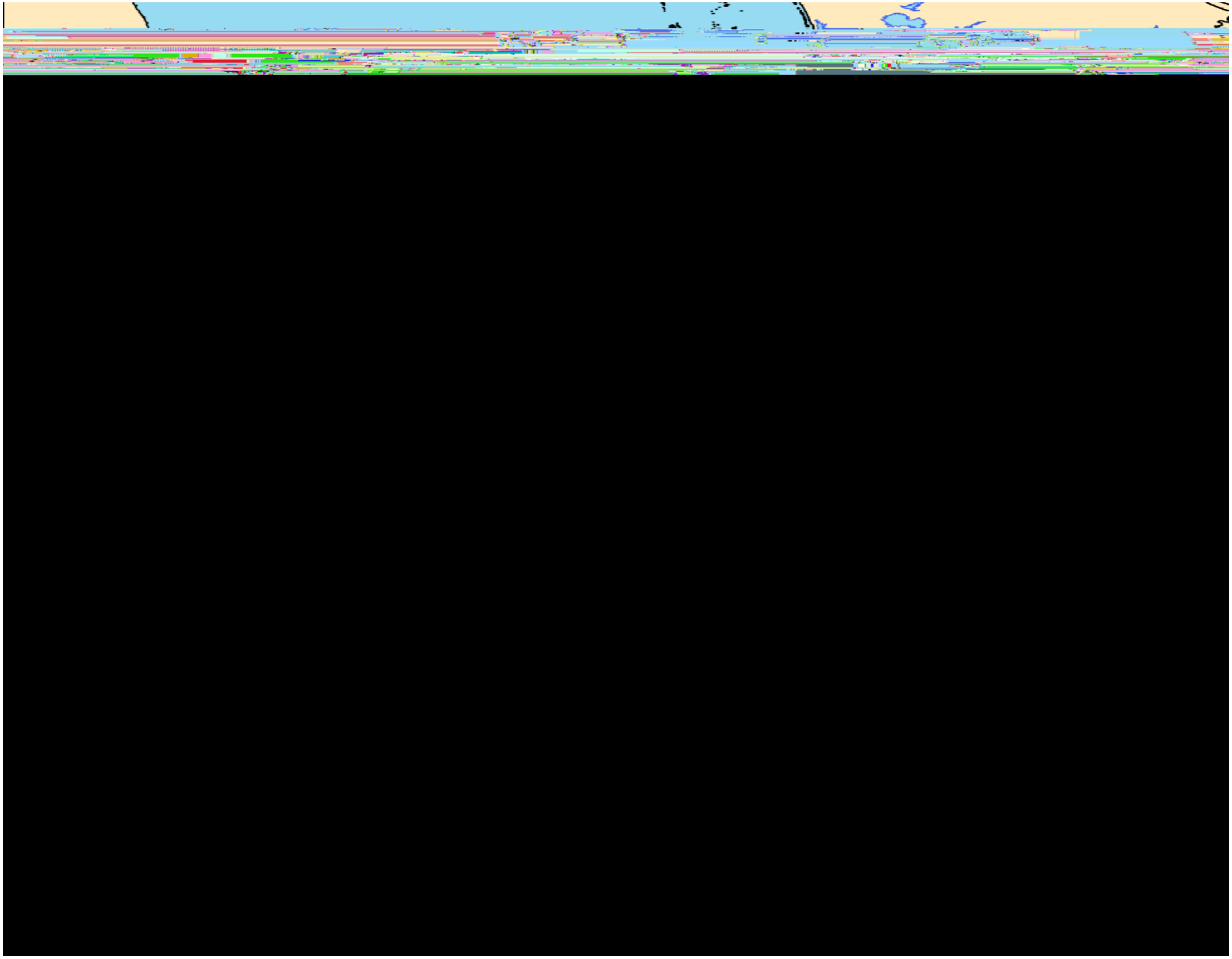
- http://punkoryan.com/2010/09/07/photo-story-fort-chipewyan-water-and-health-concerns

Crisis on Tap

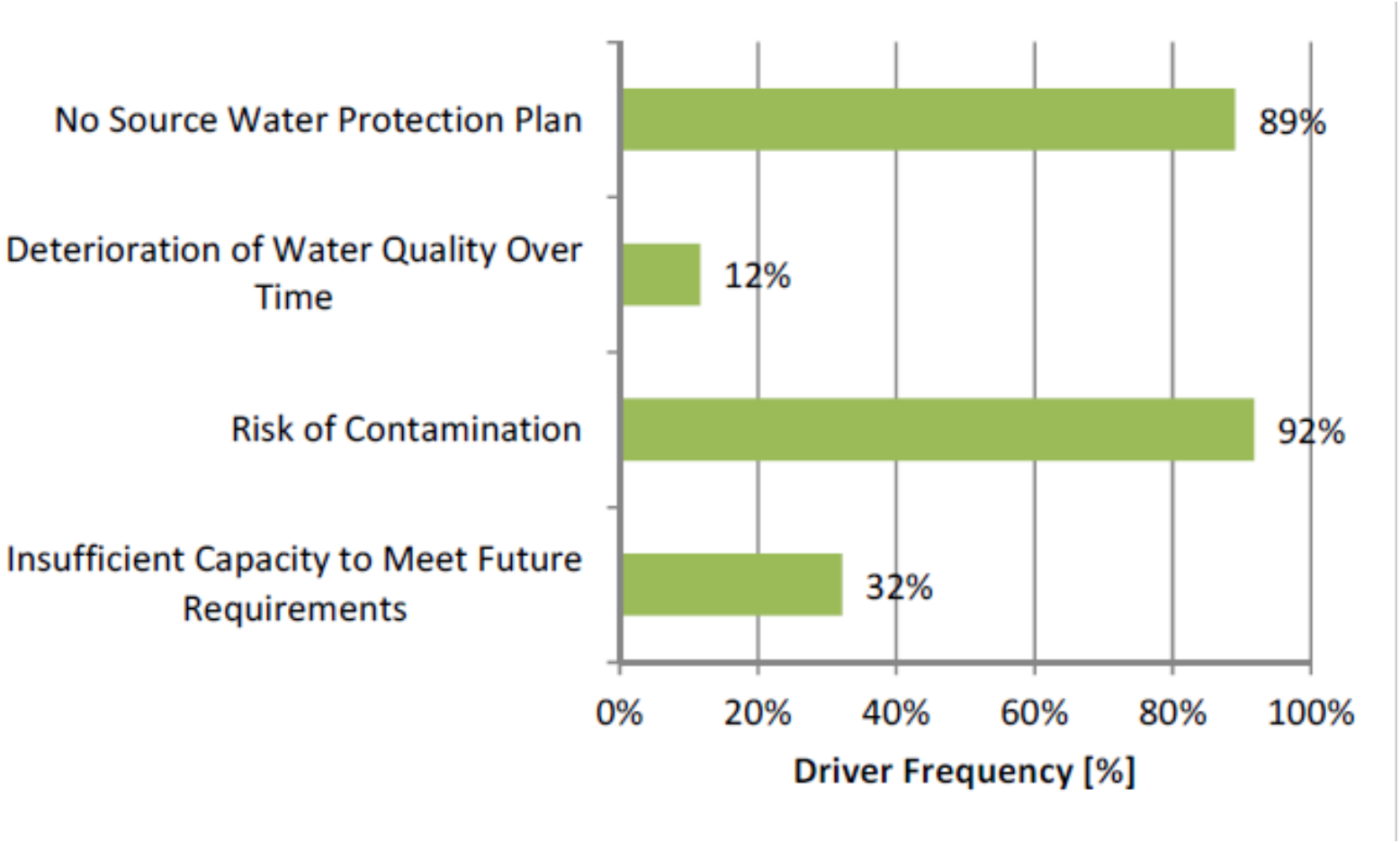
- Please watch important video “Crisis on Tap” from the “Center for Aboriginal Health Research -CAHR

- http://www.youtube.com/watch?v=Ixmht-g2C5s&NR=1&feature=endscreen

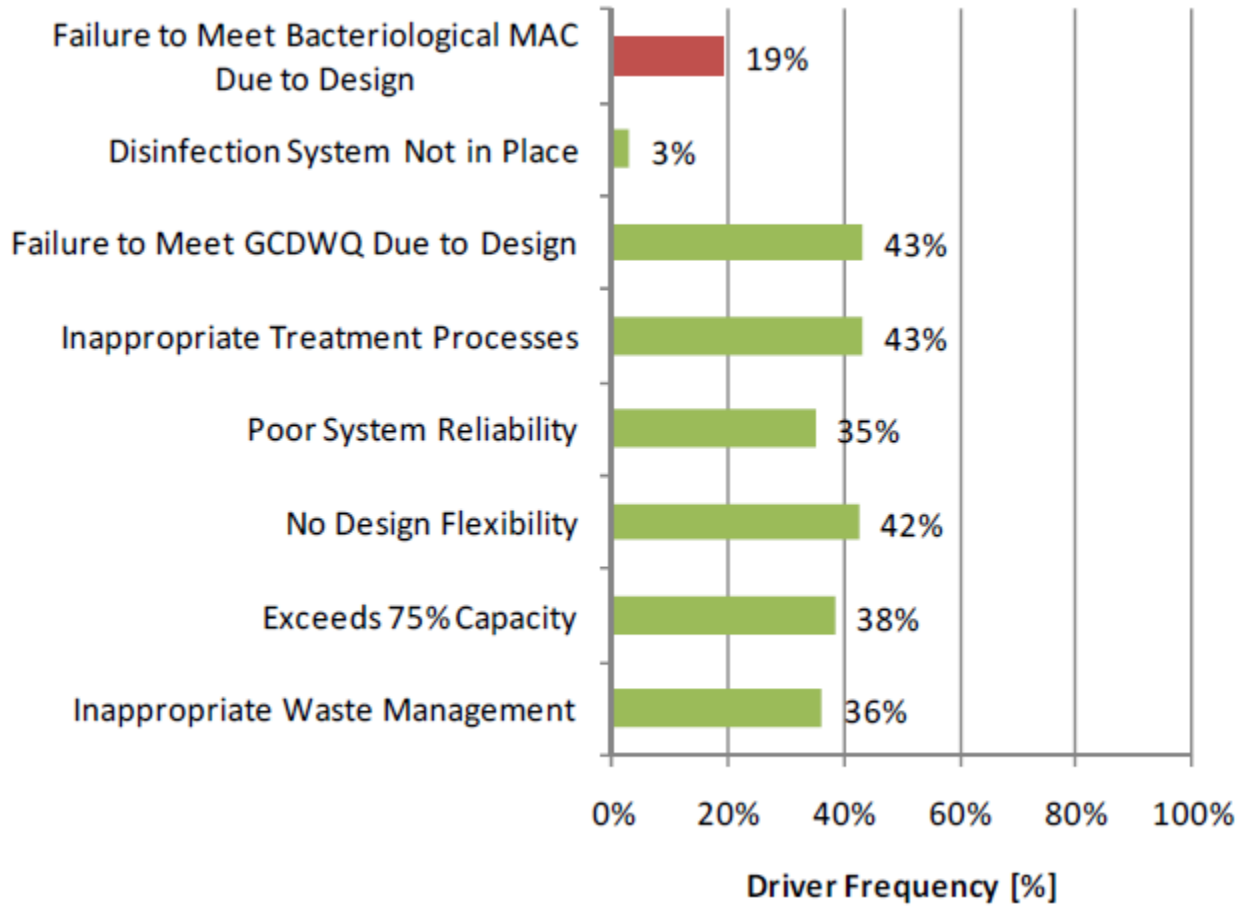
Water System Risk Level in Ontario



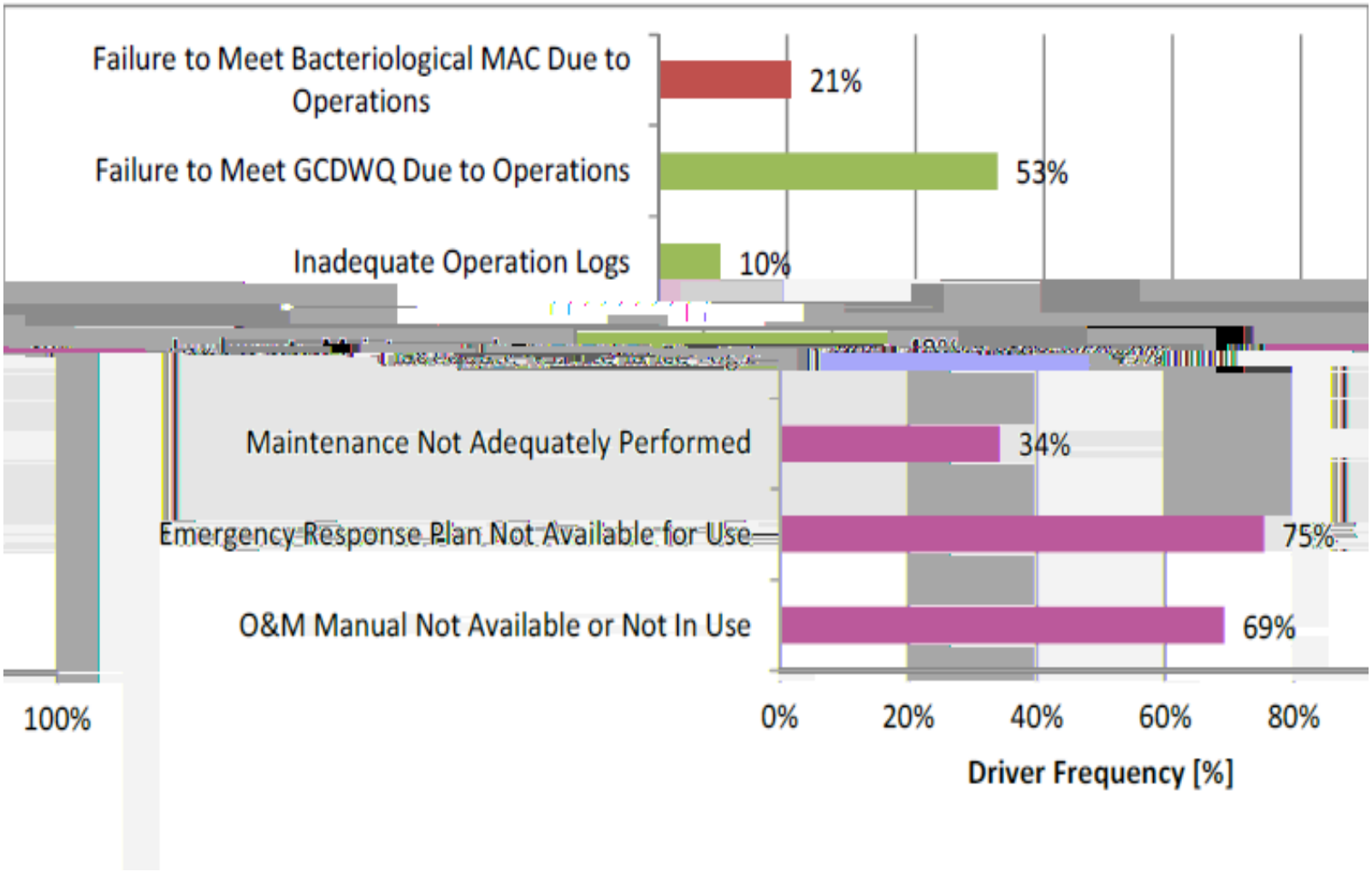
Source Risks for FN Water Systems



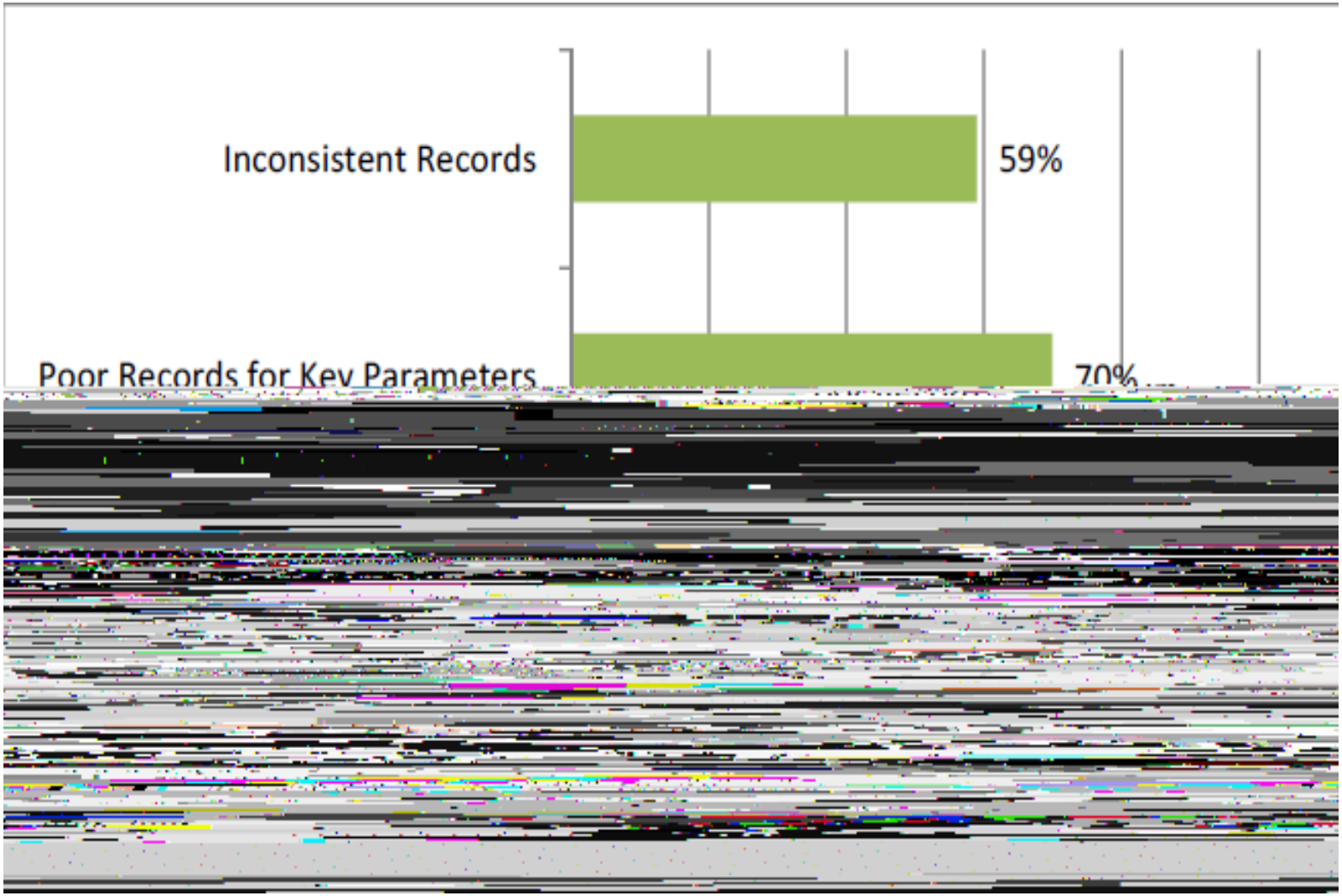
Design Risks for FN Water Systems



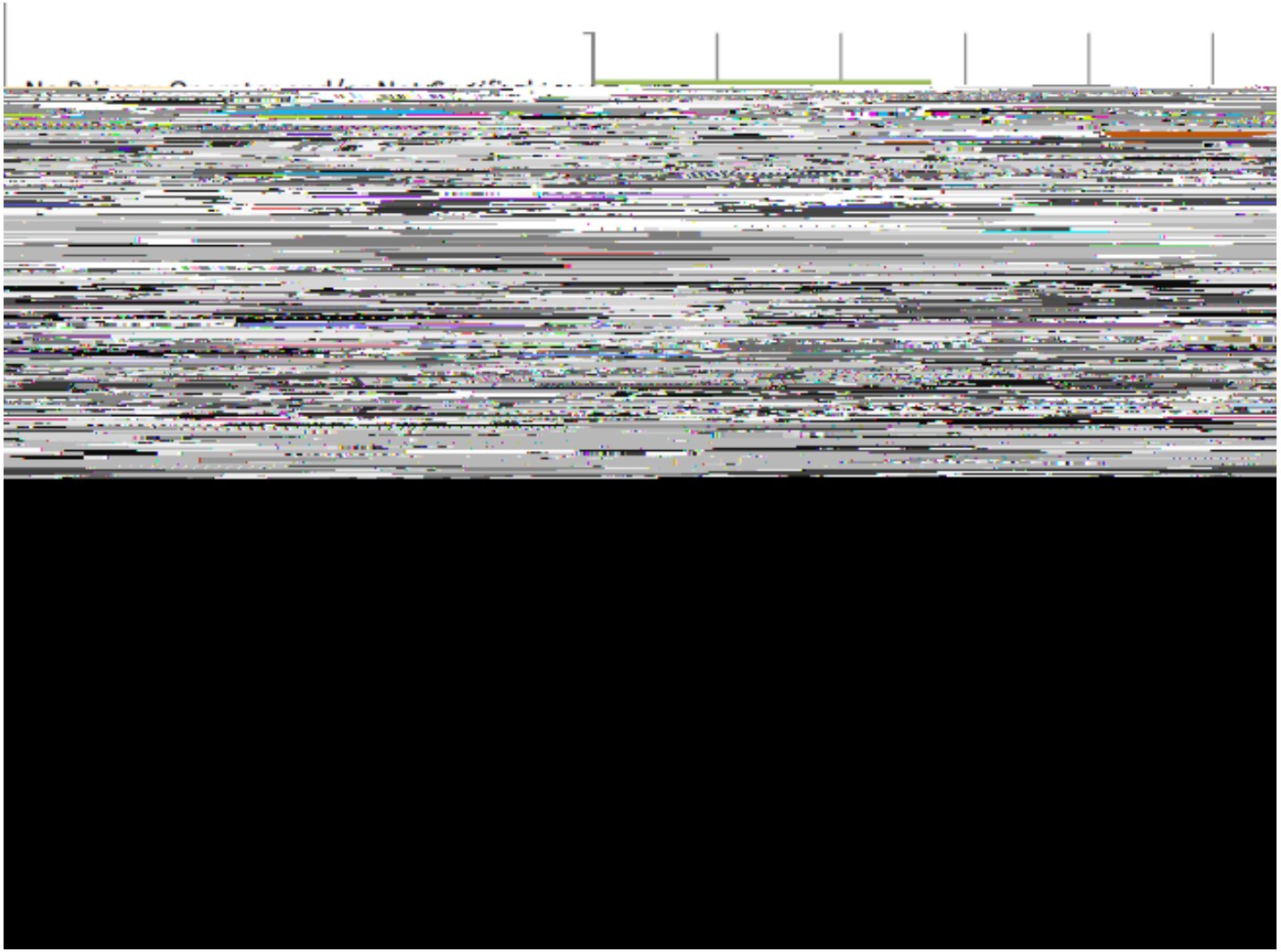
Operations Risk Drivers for FN Water Systems



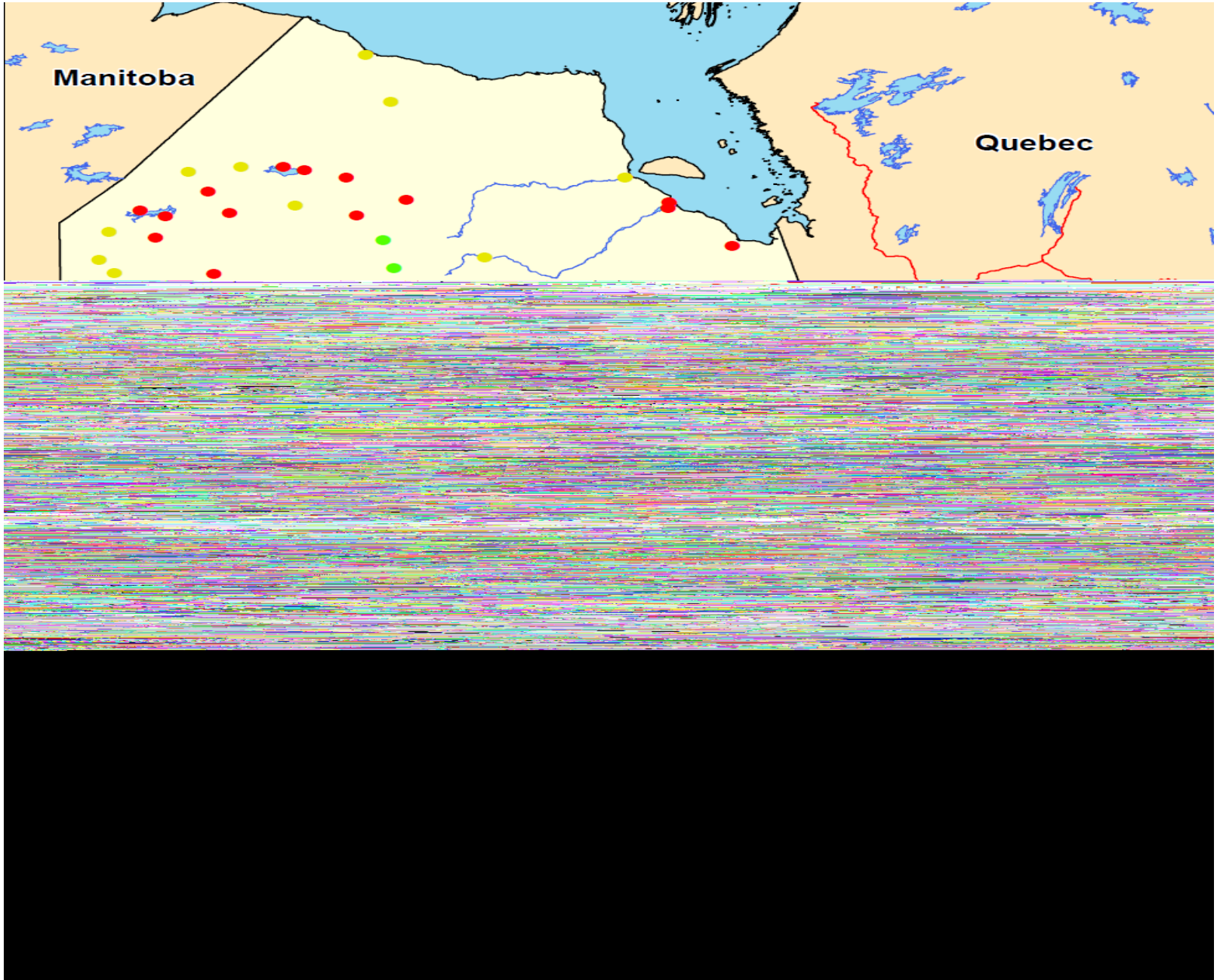
Reporting Risk Drivers for FN Water Systems



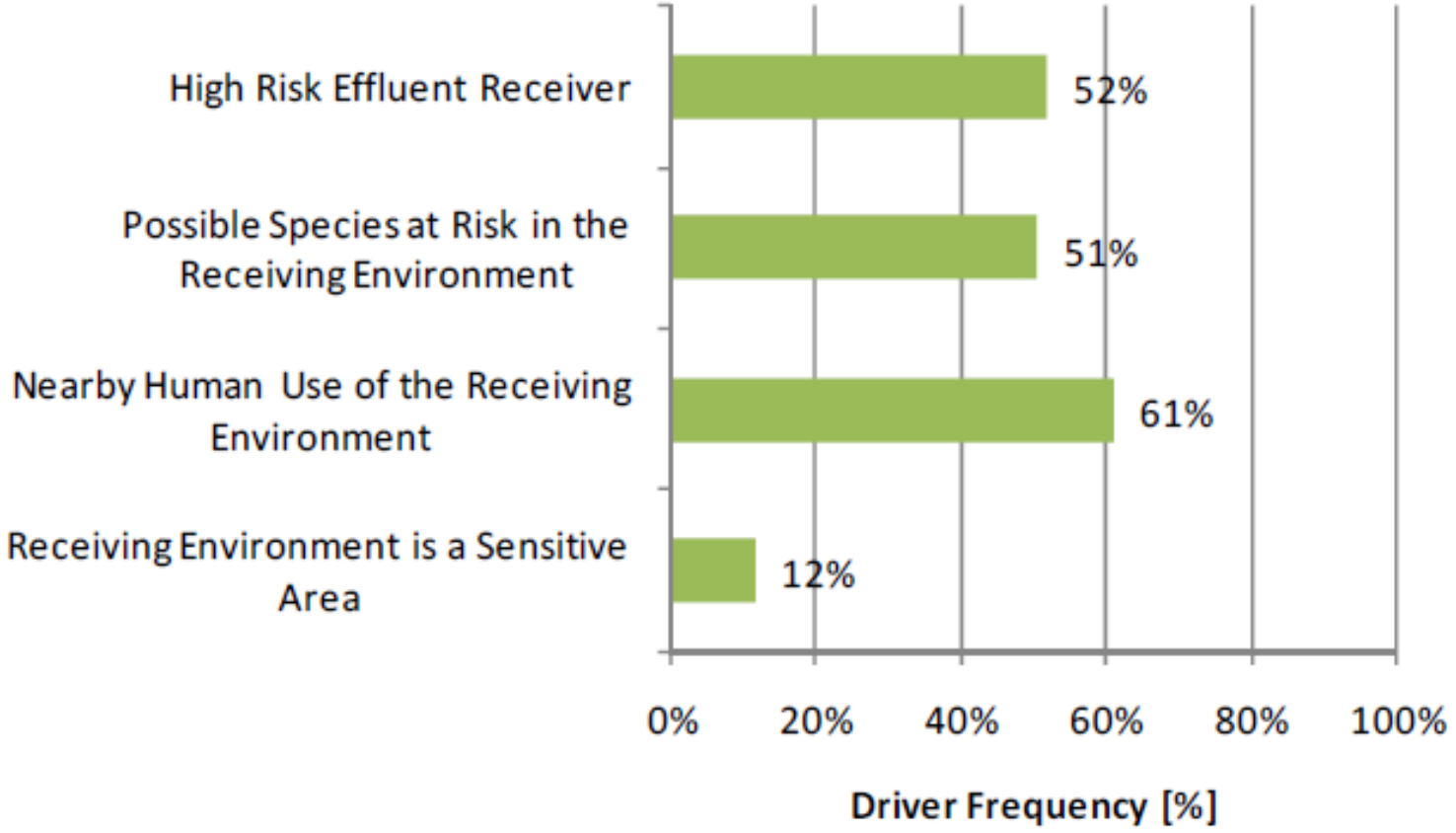
Operator Risk Drivers for FN Water Systems



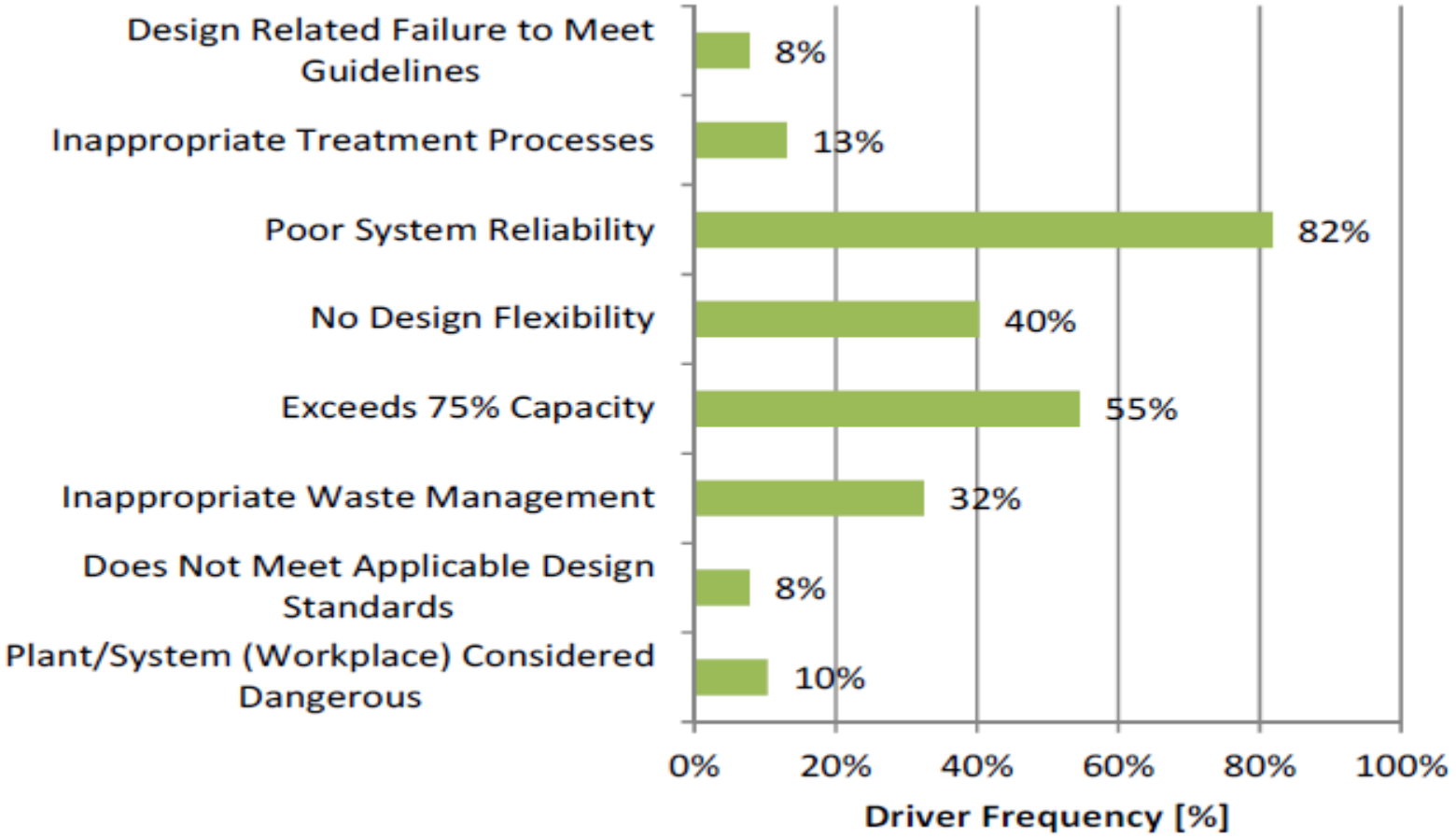
Wastewater System Risk Level in Ontario



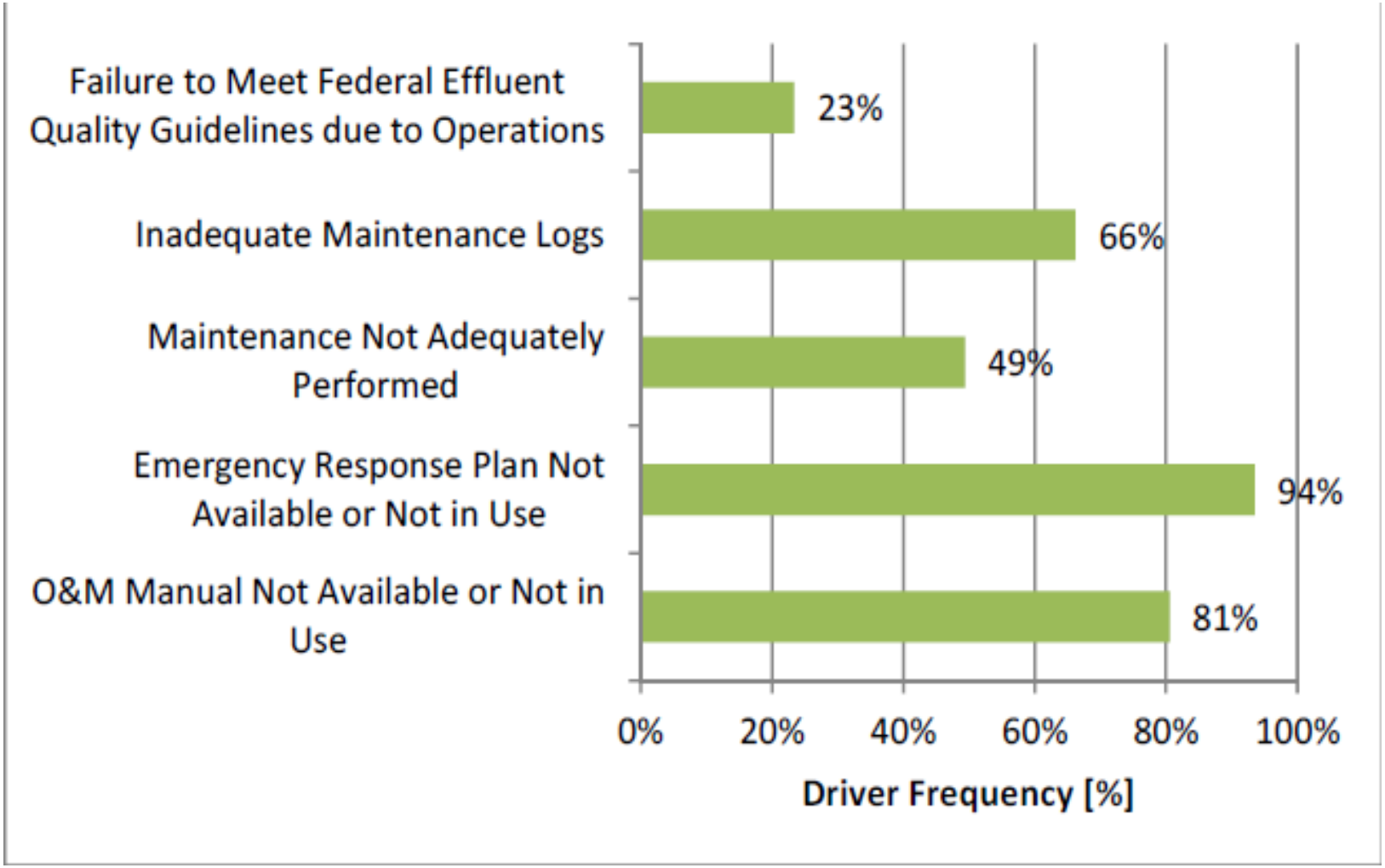
Effluent Risks from FN Wastewater Systems



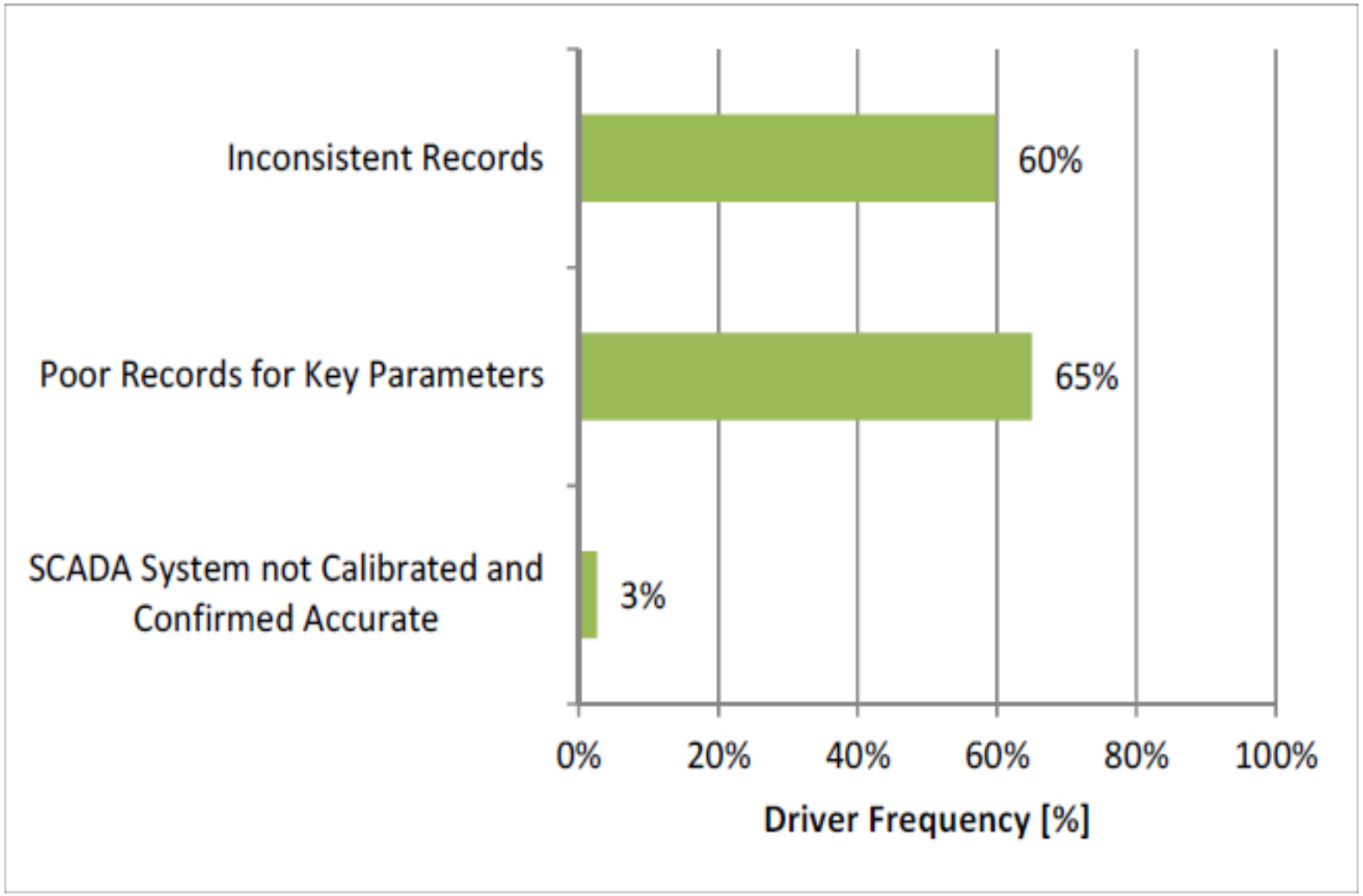
Design Risks for FN Wastewater Systems



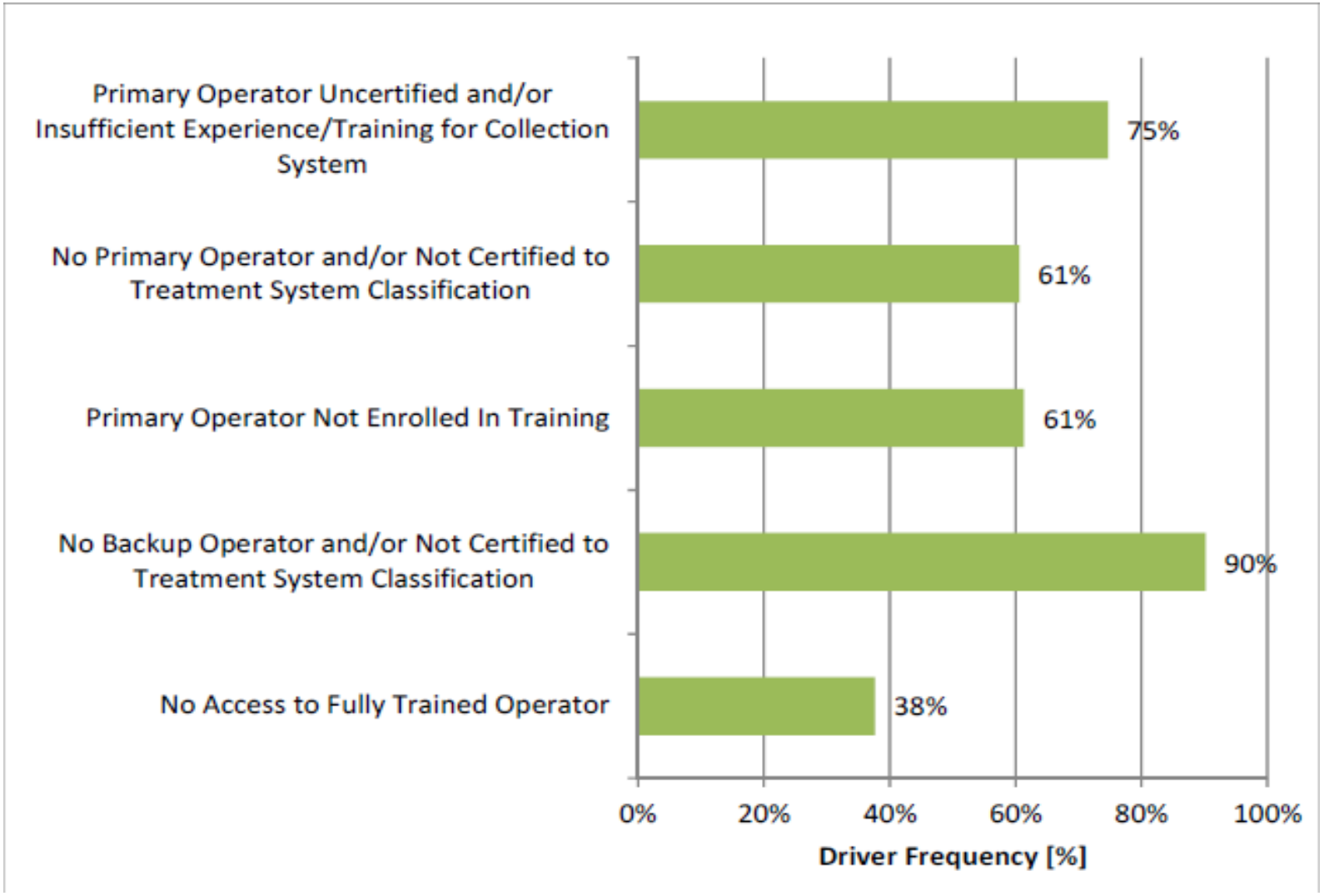
Operations Risk Drivers for FN Wastewater Systems



Reporting Risk Drivers for FN Wastewater Systems



Operator Risk Drivers for FN Wastewater Systems



REGION: ONTARIO
January 2011

Table E.1: Individual First Nation Water Risk Summary

Legend: High Risk | Medium Risk | Low Risk

Band #	Band Name	System #	System Name	Water Source	Treatment Class	Source Risk	Design Risk	Operations Risk	Report Risk	Operator Risk	Final Risk Score
242	Aroland	7130	Aroland Water Treatment System	Groundwater	Level I	4.0	1.0	8.0	6.0	7.0	5.1
141	Beausoleil	7159	Cedar Point Water Treatment System	Groundwater	Level I	6.0	1.0	8.0	10.0	1.0	8.0
229	Chapleau Ojibway	7229	Chapleau Ojibwe Water Treatment System	Groundwater	Level I	6.0	2.0	3.0	5.0	1.0	2.8
218	Dokis	7222	Dokis Water Treatment System	Groundwater	Level I	9.0	6.0	8.0	8.0	1.0	8.0
199	Garden River First Nation	NEW001	ECHO RIVER WATER TREATMENT SYSTEM	Groundwater	Level I	7.0	5.0	7.0	8.0	1.0	5.3
199	Garden River First Nation	7147	Garden River Water Treatment System	Groundwater	Level I	7.0	8.0	6.0	6.0	1.0	5.7
231	Henvey Inlet First Nation	7224	Henvey Inlet Pumphouse #2 Water Treatment System	Groundwater	Level I	6.0	2.0	8.0	7.0	4.0	8.0
162	Hiawatha First Nation	NEW002	HIAWATHA APARTMENT COMPLEX	Groundwater	Small System	6.0	8.0	5.0	4.0	1.0	5.1
205	Lac Seul	15905	Kejick Bay Water Treatment System	Groundwater	Level I	7.0	8.0	9.0	10.0	9.0	8.6
205	Lac Seul	15906	Whitefish Bay Water Treatment System	Groundwater	None	7.0	8.0	8.0	10.0	8.0	8.1
219	Matachewan	7226	Matachewan Water Treatment System	Groundwater	Level I	4.0	2.0	1.0	1.0	1.0	1.6
226	Mattagami	7227	Mattagami Water Treatment System	Groundwater	Level I	3.0	3.0	8.0	10.0	6.0	5.8
203	Mishkeegogamang	7189	Mishkeegogamang (Ten House) Well Water Treatment System	Groundwater	Level II	6.0	8.0	8.0	4.0	6.0	8.0
203	Mishkeegogamang	NEW002	WELL AT ACE LAKE	Groundwater	Level I	8.0	8.0	8.0	10.0	6.0	8.0
200	Mississauga	7146	Mississauga Water Treatment System	Groundwater	Level II	7.0	4.0	6.0	10.0	4.0	5.5
140	Mississaugas of Scugog Island First Nation	15899	Mississauga's of Scugog Island Pumphouse #1	Groundwater	Small System	4.0	8.0	2.0	1.0	1.0	3.7
140	Mississaugas of Scugog Island First Nation	15900	Mississauga's of Scugog Island Pumphouse #2	Groundwater	Small System	4.0	1.0	8.0	1.0	1.0	3.4
140	Mississaugas of Scugog Island First Nation	NEW001	MISSISSAUGAS OF SCUGOG ISLAND PUMPHOUSE #3	Groundwater	Small System	4.0	2.0	8.0	1.0	1.0	3.7
220	Nipissing First Nation	7191	Nipissing - Arts Lane Water System	Groundwater	Level I	7.0	3.0	5.0	9.0	1.0	4.2
220	Nipissing First Nation	7195	Nipissing - Dushessnay Well 1	Groundwater	Level I	7.0	8.0	7.0	9.0	1.0	6.3
220	Nipissing First Nation	7196	Nipissing - Dushessnay Well 2, 3 and 4	Groundwater	Level I	6.0	4.0	8.0	10.0	1.0	5.4
220	Nipissing First Nation	7214	Nipissing - Harry Couchie Water Treatment System	Groundwater	Level I	9.0	8.0	6.0	9.0	1.0	6.2
220	Nipissing First Nation	7213	Nipissing - Meadow Site Water Treatment System	Groundwater	Level I	7.0	8.0	8.0	9.0	1.0	8.0
220	Nipissing First Nation	7192	Nipissing - VLA Water System	Groundwater	Level I	9.0	8.0	8.0	9.0	1.0	6.8
151	Northwest Angle No.33	7126	Angle Inlet Water Treatment System	Groundwater	Level II	6.0	7.0	8.0	1.0	1.0	8.0
235	Obashkaandagaang	6532	Obashkaandagaang Water Treatment System	Groundwater	Small System	6.0	8.0	8.0	10.0	1.0	8.0
235	Obashkaandagaang		SOUTH END PUMPHOUSE	Groundwater	Small System	6.0	8.0	10.0	10.0	1.0	8.0
192	Ojibways of the Pic River First Nation	7185	Pic River Water Treatment System	Groundwater	Level II	5.0	5.0	8.0	10.0	1.0	8.0
179	Sagamok Anishnawbek	7152	Sagamok Water Treatment System	Groundwater	Level I	5.0	2.0	4.0	9.0	1.0	3.4
201	Serpent River First Nation	7148	Serpent River Pumphouse #1	Groundwater	Level I	8.0	4.0	8.0	10.0	3.0	6.0
201	Serpent River First Nation	7149	Serpent River Pumphouse #2	Groundwater	Level II	7.0	4.0	10.0	10.0	3.0	6.5
201	Serpent River First Nation	7150	Serpent River Pumphouse #3	Groundwater	Level I	6.0	4.0	10.0	10.0	3.0	8.0
137	Shawanaga First Nation	7198	Shawanaga Water Treatment System	Groundwater	Level II	10.0	5.0	8.0	10.0	3.0	6.5
145	Taykwa Tagamou Nation	7143	New Post Water Treatment System	Groundwater	Level I	3.0	8.0	8.0	9.0	5.0	8.0
202	Thessalon	7153	Thessalon Water Treatment System	Groundwater	Level I	9.0	8.0	8.0	6.0	5.0	8.0
233	Wahgoshig	7230	Wahgoshig Water Treatment System	Groundwater	Level I	2.0	1.0	8.0	9.0	1.0	4.0
136	Wasauksing First Nation		COMMUNITY WELL (SODA'S)	Groundwater	None	6.0	8.0	8.0	10.0	1.0	8.0
136	Wasauksing First Nation		SIXPLEX WELL	Groundwater	Small System	5.0	4.0	8.0	10.0	1.0	8.0
234	Wawakapewin	7168	Wawakapewin Water Treatment System	Groundwater	Small System	7.0	7.0	6.0	10.0	8.0	7.2
125	Anishnaabeg of Naongashiing	6482	Saug-A-Gaw-Sing Water Treatment System	Groundwater GUDI	Level II	8.0	4.0	10.0	8.0	7.0	7.2
221	Chapleau Cree First Nation	7139	Chapleau Cree Water Treatment System	Groundwater GUDI	Level II	10.0	8.0	8.0	5.0	1.0	6.5
166	Chippewas of the Thames First Nation	7174	Chippewas of the Thames Water Treatment System	Groundwater GUDI	Level I	9.0	9.0	3.0	5.0	1.0	5.2
161	Curve Lake	7201	Curve Lake Water Treatment System	Groundwater GUDI	Level I	10.0	8.0	5.0	10.0	1.0	6.1
159	Mohawks of Akwesasne	6485	Akwesasne Wade Lafrance Rd. Pumphouse house	Groundwater GUDI	Level I	10.0	8.0	8.0	10.0	1.0	7.0
167	Moravian of the Thames	7175	Moravian of the Thames Water Treatment System	Groundwater GUDI	Level I	10.0	8.0	8.0	7.0	1.0	8.0
220	Nipissing First Nation	8076	Nipissing - Beaucage Village Water Treatment System	Groundwater GUDI	Level I	10.0	8.0	8.0	10.0	1.0	8.0
220	Nipissing First Nation	7212	Nipissing - Business/School Water Treatment System	Groundwater GUDI	None	9.0	8.0	8.0	9.0	10.0	8.6
220	Nipissing First Nation	7194	Nipissing - Garden Village Water System	Groundwater GUDI	Level II	10.0	8.0	1.0	4.0	2.0	4.5
146	Peawanuck	7193	Peawanuck Water Treatment System	Groundwater GUDI	Level I	8.0	5.0	9.0	10.0	4.0	8.0
195	Pic Mobert	15903	Pic Mobert North New Pumphouse Water System	Groundwater GUDI	Level I	10.0	8.0	10.0	10.0	2.0	8.0
130	Rainy River First Nations	7165	Manitou Rapids Water Treatment System	Groundwater GUDI	Level III	9.0	8.0	8.0	1.0	1.0	6.0
201	Serpent River First Nation	7151	Serpent River Pumphouse #5	Groundwater GUDI	Level II	10.0	4.0	9.0	10.0	3.0	8.0

First Nation Surface Water Risks

153	Anishinabe of Wauzhushk Onigum	15902	Bald Indian Bay Water Treatment Plant	Surface Water	Level I	7.0	8.0	6.0	10.0	1.0	8.0
153	Anishinabe of Wauzhushk Onigum	6484	Wauzhushk Onigum Water Treatment Unit - 2nd Portage	Surface Water	Level I	9.0	8.0	4.0	10.0	1.0	5.7
143	Attawapiskat	7141	Attawapiskat Water Treatment System	Surface Water	Level III	9.0	8.0	10.0	10.0	2.0	7.7
180	Aundeck-Omni-Kaning	7219	Sucker Creek Water Treatment System	Surface Water	Level II	8.0	2.0	8.0	1.0	1.0	4.1
207	Bearskin Lake	7234	Bearskin Lake Water Treatment System	Surface Water	Level II	8.0	5.0	8.0	8.0	2.0	5.9
141	Beausoleil	7158	Christian Island Water Treatment System	Surface Water	Level II	7.0	2.0	8.0	5.0	1.0	8.0
124	Big Grassy	6466	Big Grassy Water Treatment System	Surface Water	Level II	8.0	2.0	8.0	8.0	1.0	4.8
197	Biinjitwaabik Zaaging Anishinaabek	7188	Rocky Bay Water Treatment System	Surface Water	Level II	8.0	1.0	8.0	1.0	1.0	3.8
228	Brunswick House	7228	Brunswick House Water Treatment System	Surface Water	Level I	8.0	1.0	8.0	10.0	9.0	6.3
216	Cat Lake	7236	Cat Lake Water Treatment System	Surface Water	Level III	8.0	4.0	8.0	6.0	10.0	7.0
138	Chippewas of Georgina Island	7157	Georgina Island Water Treatment System	Surface Water	Level II	9.0	6.0	2.0	5.0	9.0	5.6
171	Chippewas of Kettle and Stony Point	7177	Kettle and Stony Point Water Treatment System	Surface Water	Level II	10.0	5.0	8.0	2.0	1.0	5.3
122	Chippewas of Nawash	7203	Neyaashiinigmiing Water Treatment System	Surface Water	Level II	8.0	3.0	8.0	8.0	2.0	8.0
182	Constance Lake	7131	Constance Lake Water Treatment System	Surface Water	Level II	10.0	8.0	8.0	1.0	1.0	8.0
237	Deer Lake	6545	Deer Lake Water Treatment System	Surface Water	Level II	10.0	5.0	8.0	3.0	4.0	6.0
183	Eabametoong First Nation	7132	Eabametoong Water Treatment System	Surface Water	Level II	8.0	8.0	8.0	2.0	2.0	6.2
148	Eagle Lake	6529	Eagle Lake Water Treatment System	Surface Water	Level II	10.0	3.0	8.0	9.0	1.0	8.0
142	Fort Albany	7140	Fort Albany Water Treatment System	Surface Water	Level II	8.0	3.0	8.0	7.0	1.0	8.0
215	Fort Severn	6544	Fort Severn Water Treatment System	Surface Water	Level II	8.0	8.0	9.0	5.0	4.0	7.2
149	Grassy Narrows First Nation	6530	Grassy Narrows Water Treatment System	Surface Water	Level II	9.0	8.0	2.0	8.0	1.0	8.0
188	Gull Bay (Klashke Zaaging Anishinaabek)	7183	Gull Bay Water Treatment System	Surface Water	Level I	9.0	8.0	9.0	9.0	6.0	8.1
154	Iskatewizaagegan No. 39 Independent First Nat	6533	Shoal Lake 39 Water Treatment System	Surface Water	Level II	7.0	3.0	3.0	1.0	1.0	2.8
210	Kasabonika Lake	7170	Kasabonika Lake Water Treatment System	Surface Water	Level II	8.0	4.0	8.0	4.0	1.0	5.0
243	Kashechewan	7144	Kashechewan Water Treatment System	Surface Water	Level III	10.0	4.0	8.0	6.0	1.0	5.4
325	Kee-Way-Win First Nation	17010	Keewaywin's New Water Treatment System	Surface Water	Level II	7.0	3.0	8.0	2.0	3.0	4.8
212	Kingfisher	7171	Kingfisher Lake Water Treatment System	Surface Water	Level II	8.0	2.0	4.0	2.0	6.0	4.0
209	Kitchenuhmaykoosib Inninuwug	6541	Kitchenuhmaykoosib Water Treatment System	Surface Water	Level II	8.0	2.0	8.0	6.0	6.0	5.6
127	Lac La Croix	7162	Lac La Croix Water Treatment System	Surface Water	Level I	8.0	6.0	9.0	10.0	1.0	6.5
205	Lac Seul	6539	Frenchman's Head Water Treatment System	Surface Water	Level II	9.0	8.0	8.0	4.0	1.0	6.3
174	Magnetawan	7225	Magnetawan Water Treatment System	Surface Water	Level II	10.0	3.0	8.0	10.0	4.0	8.0
186	Martin Falls	7135	Marten Falls Water Treatment System	Surface Water	Level II	9.0	8.0	8.0	4.0	9.0	8.0
181	M'Chigeeng First Nation	14199	West Bay & Lakeview Water Treatment System	Surface Water	Level II	8.0	3.0	8.0	10.0	1.0	5.3
225	Michipicoten	7180	Michipicoten Water Treatment System	Surface Water	Level II	8.0	3.0	8.0	8.0	1.0	5.1
203	Mishkeegogamang	7190	Mishkeegogamang (New Osnaburgh) Water Treatment System	Surface Water	Level II	8.0	8.0	4.0	2.0	6.0	5.8
159	Mohawks of Akwesasne	15919	Akwesasne Cornwall Island West Water Treatment System	Surface Water	Level III	9.0	1.0	1.0	4.0	1.0	2.1
159	Mohawks of Akwesasne	6486	Akwesasne St. Regis Water Treatment System	Surface Water	Level III	9.0	1.0	8.0	3.0	2.0	4.3
164	Mohawks of the Bay of Quinte	6528	Airport Pumphouse and Treatment Facility	Surface Water	Level I	9.0	8.0	8.0	10.0	5.0	8.0
144	Moose Cree First Nation	7142	Moose Factory Water Treatment System	Surface Water	Level II	10.0	3.0	8.0	9.0	1.0	8.0
135	Moose Deer Point	7160	King Bay & Issac Bay Pumphouse Systems	Surface Water	Level II	6.0	8.0	1.0	3.0	1.0	3.8
213	Muskrat Dam Lake	6542	Muskrat Dam Lake Water Treatment System	Surface Water	Level II	8.0	10.0	10.0	8.0	2.0	8.0
128	Naicatchewenin	7163	Naicatchewenin Water Treatment System	Surface Water	Level I	9.0	8.0	6.0	4.0	1.0	5.7
158	Naotkamegwanning	6537	Whitefish Bay Water Treatment System	Surface Water	Level II	9.0	6.0	10.0	10.0	1.0	8.0
239	Neskantaga First Nation	7137	Neskantaga Water Treatment System	Surface Water	Level I	9.0	8.0	8.0	6.0	8.0	7.9
241	Nibinamik First Nation	7138	Nibinamik Water Treatment System	Surface Water	Level I	9.0	9.0	6.0	9.0	6.0	7.5
129	Nicickousemenecaning	7164	Nicickousemenecaning Water Treatment System	Surface Water	Level II	9.0	8.0	3.0	3.0	1.0	4.7

					Legend:	High Risk		Medium Risk		Low Risk	
Band #	Band Name	System #	System Name	Water Source	Treatment Class	Source Risk	Design Risk	Operations Risk	Report Risk	Operator Risk	Final Risk Score
204	North Caribou Lake	7233	North Caribou Lake Water Treatment System	Surface Water	Level III	9.0	4.0	8.0	10.0	4.0	6.3
238	North Spirit Lake	7128	North Spirit Lake Water Treatment System	Surface Water	Level I	8.0	6.0	8.0	8.0	2.0	6.2
151	Northwest Angle No.33	7127	NWA 33 Dog Paw Lake Water Treatment System	Surface Water	Level III	10.0	2.0	3.0	8.0	3.0	3.9
152	Northwest Angle No.37	6483	NWA 37 Regina Bay Water Treatment System	Surface Water	Level II	9.0	4.0	3.0	5.0	8.0	5.1
152	Northwest Angle No.37	15901	Windigo Island Water Treatment System	Surface Water	Level II	9.0	8.0	8.0	10.0	6.0	7.9
147	Ochiichagwebabigoining First Nation	7181	The Dalles Water Treatment System	Surface Water	Level II	8.0	1.0	3.0	1.0	1.0	2.3
131	Ojibways of Onigaming First Nation	7107	Onigaming Water Treatment System	Surface Water	Level II	7.0	1.0	1.0	7.0	1.0	2.2
169	Oneida Nation of the Thames	7176	Oneida Water Treatment System	Surface Water	Level I	10.0	9.0	9.0	10.0	1.0	8.0
191	Pays Plat First Nation	7184	Pays Plat Water Treatment System	Surface Water	Level I	8.0	3.0	8.0	10.0	4.0	5.9
195	Pic Mobert	7187	Pic Mobert South Water Treatment System	Surface Water	Level I	10.0	10.0	10.0	10.0	2.0	8.4
208	Pikangikum	6540	Pikangikum Water Treatment System	Surface Water	Level II	9.0	5.0	9.0	7.0	1.0	8.0
236	Poplar Hill	7129	Poplar Hill Water Treatment System	Surface Water	Level II	10.0	8.0	5.0	10.0	6.0	7.1
193	Red Rock	7186	Red Rock Water Treatment System	Surface Water	Level II	8.0	1.0	8.0	4.0	1.0	4.1
214	Sachigo Lake	7235	Sachigo Lake Water Treatment System	Surface Water	Level II	9.0	6.0	8.0	6.0	4.0	6.5
211	Sandy Lake First Nation	7179	Sandy Lake Water Treatment System	Surface Water	Level II	9.0	8.0	10.0	10.0	1.0	8.0
132	Seine River First Nation	7166	Seine River Water Treatment System	Surface Water	Level II	8.0	6.0	8.0	7.0	1.0	5.9
176	Shegulandah	7217	Shegulandah Water Treatment System	Surface Water	Level II	9.0	4.0	3.0	5.0	4.0	4.3
178	Sheshegwaning	7218	Sheshegwaning Water Treatment System	Surface Water	Level II	8.0	5.0	8.0	7.0	4.0	8.0
155	Shoal Lake No. 40		SHOAL LAKE 40 PUMPHOUSE 2	Surface Water	Small System	9.0	8.0	7.0	10.0	5.0	8.0
155	Shoal Lake No. 40		SHOAL LAKE 40 PUMPHOUSE 3	Surface Water	Small System	9.0	8.0	8.0	10.0	5.0	8.0
155	Shoal Lake No. 40		SHOAL LAKE 40 PUMPHOUSE 4	Surface Water	Small System	9.0	8.0	8.0	10.0	5.0	7.7
155	Shoal Lake No. 40		SHOAL LAKE 40 PUMPHOUSE 5	Surface Water	Small System	9.0	8.0	7.0	10.0	5.0	8.0
155	Shoal Lake No. 40		SHOAL LAKE 40 PUMPHOUSE 9	Surface Water	Small System	9.0	8.0	7.0	10.0	5.0	8.0
155	Shoal Lake No. 40	6534	Shoal Lake 40 Water Treatment System	Surface Water	Small System	9.0	8.0	8.0	10.0	5.0	8.0
121	Six Nations of the Grand River	7173	Six Nations Water Treatment System	Surface Water	Level III	9.0	8.0	8.0	1.0	1.0	8.0
259	Slate Falls Nation		BAND OFFICE PUMPHOUSE	Surface Water	Small System	8.0	8.0	8.0	10.0	7.0	8.0
259	Slate Falls Nation		PUMPHOUSE NO. 1	Surface Water	Small System	8.0	8.0	8.0	10.0	7.0	8.0
259	Slate Falls Nation		PUMPHOUSE NO. 2	Surface Water	Small System	8.0	8.0	8.0	10.0	7.0	8.0
259	Slate Falls Nation		PUMPHOUSE NO. 3	Surface Water	Small System	8.0	8.0	8.0	10.0	7.0	8.0
259	Slate Falls Nation		PUMPHOUSE NO. 4	Surface Water	Small System	8.0	8.0	8.0	10.0	7.0	8.0
259	Slate Falls Nation		PUMPHOUSE NO. 5	Surface Water	Small System	8.0	8.0	8.0	10.0	7.0	8.0
259	Slate Falls Nation		PUMPHOUSE NO. 6	Surface Water	Small System	8.0	8.0	8.0	10.0	7.0	8.0
259	Slate Falls Nation		PUMPHOUSE NO. 7	Surface Water	Small System	8.0	8.0	8.0	10.0	7.0	8.0
259	Slate Falls Nation		PUMPHOUSE NO. 8	Surface Water	Small System	8.0	8.0	8.0	10.0	7.0	8.0
259	Slate Falls Nation		PUMPHOUSE NO. 9	Surface Water	Small System	8.0	8.0	8.0	10.0	7.0	8.0
259	Slate Falls Nation	7232	Slate Falls Water Treatment System	Surface Water	Level III	8.0	4.0	10.0	10.0	6.0	7.2
133	Stanjikoming First Nation	7167	Stanjikoming Water Treatment System	Surface Water	Level II	10.0	8.0	5.0	9.0	1.0	6.0
222	Temagami First Nation	7197	Bear Island Water Treatment System	Surface Water	Level II	8.0	2.0	8.0	6.0	1.0	4.6
150	Wabaseemoong Independent Nations	6531	Wabaseemoong Water Treatment System	Surface Water	Level III	8.0	2.0	1.0	1.0	3.0	2.4
156	Wabauskang First Nation	6535	Wabauskang Water Treatment System	Surface Water	Level II	8.0	2.0	8.0	10.0	7.0	6.2
157	Wabigoon Lake Ojibway Nation	6536	Wabigoon Lake Water Treatment System	Surface Water	Level II	9.0	4.0	1.0	1.0	1.0	2.7
170	Walpole Island	6538	Walpole Island Water Treatment System	Surface Water	Level III	9.0	3.0	8.0	4.0	1.0	8.0
206	Wapekeka	7169	Wapekeka Water Treatment System	Surface Water	Level II	8.0	4.0	8.0	2.0	4.0	5.4
136	Wasauksing First Nation	7199	Wasauksing (Parry Island) Water Treatment System	Surface Water	Level I	8.0	6.0	8.0	10.0	1.0	6.2
240	Webequie First Nation	7136	Webequie Water Treatment System	Surface Water	Level II	8.0	3.0	10.0	1.0	6.0	8.0
230	Whitefish River	7215	Whitefish River Water Treatment System	Surface Water	Level II	9.0	5.0	2.0	1.0	1.0	3.3
175	Wikwemikong	7231	Wikwemikong Water Treatment System	Surface Water	Level II	10.0	4.0	8.0	4.0	1.0	5.2
217	Wunnumin	7172	Wunnumin Lake Water Treatment System	Surface Water	Level II	8.0	2.0	6.0	8.0	1.0	4.2
173	Zhilbaahaasing First Nation	7216	Zhilbaahaasing Water Treatment System	Surface Water	Level I	10.0	8.0	6.0	7.0	1.0	6.1

First Nation Wastewater Risks

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Table E.2: Individual First Nation Wastewater Risk Summary

Legend: High Risk | Medium Risk | Low Risk

Band #	Band Name	System #	System Name	Receiver Type	Treatment Class	Effluent Risk	Design Risk	Operations Risk	Report Risk	Operator Risk	Final Risk Score
171	Chippewas of Kettle and Stony Point	7734	Kettle and Stony Point Wastewater System	Creek	Level II	10.0	2.0	5.0	4.0	5.0	5.1
166	Chippewas of the Thames First Nation	7732	Chippewas of the Thames Wastewater System	Creek	Level III	8.0	8.0	8.0	10.0	1.0	8.0
142	Fort Albany	7716	Fort Albany Wastewater System	Creek	Level I	9.0	4.0	9.0	10.0	10.0	8.0
243	Kashechewan	7720	Kashechewan Wastewater System	Creek	Level I	7.0	4.0	9.0	10.0	9.0	7.4
120	Mississaugas of the Credit	7742	New Credit Wastewater System	Creek	Level I	10.0	2.0	5.0	4.0	1.0	4.3
169	Oneida Nation of the Thames	NEW001	ONEIDA COLLIN RUSSELL WASTEWATER SYSTEM	Creek	Level II	8.0	8.0	5.0	10.0	1.0	8.0
169	Oneida Nation of the Thames	7733	Oneida Village Wastewater System	Creek	Level I	9.0	5.0	7.0	10.0	1.0	6.0
121	Six Nations of the Grand River	7731	Six Nations of the Grand River Wastewater System	Creek	Level I	8.0	4.0	2.0	1.0	1.0	3.4
153	Anishinabe of Wauzhushk Onigum	7260	Bald Indian Bay Wastewater System	Lake, reservoir	Level I	9.0	3.0	5.0	10.0	5.0	5.8
125	Anishnaabeg of Naongashiing	7259	Saug-A-Gaw-Sing Wastewater Treatment System	Lake, reservoir	Level I	10.0	2.0	10.0	10.0	8.0	7.6
207	Bearskin Lake	7749	Bearskin Lake Wastewater System	Lake, reservoir	Level I	10.0	5.0	6.0	5.0	6.0	6.4
197	Biinjitiwaabik Zaaging Anishinaabek	7739	Rocky Bay Wastewater System	Lake, reservoir	Level II	10.0	5.0	8.0	8.0	6.0	7.2
216	Cat Lake	7751	Cat Lake Wastewater System	Lake, reservoir	Level I	10.0	6.0	6.0	4.0	10.0	7.4
237	Deer Lake	7705	Deer Lake Wastewater System	Lake, reservoir	Level II	10.0	5.0	7.0	10.0	5.0	7.0
149	Grassy Narrows First Nation	7694	Grassy Narrows Wastewater System	Lake, reservoir	Level II	10.0	4.0	8.0	10.0	6.0	7.2
154	Iskatewizaagegan No. 39 Independent First Nation	7696	Shoal Lake 39 Wastewater System	Lake, reservoir	Level II	9.0	2.0	5.0	10.0	3.0	5.1
210	Kasabonika Lake	7729	Kasabonika Lake Wastewater System	Lake, reservoir	Level II	9.0	9.0	10.0	10.0	6.0	8.7
325	Kee-Way-Win First Nation	7704	Keewaywin Wastewater System	Lake, reservoir	Level I	9.0	6.0	10.0	10.0	10.0	8.6
209	Kitchenuhmaykoosib Inninuwug	7700	Big Trout Lake Wastewater System	Lake, reservoir	Level I	8.0	6.0	9.0	8.0	5.0	7.1
181	M'Chigeeng First Nation	7744	Lakeview Communal Sewage System	Lake, reservoir	Level I	10.0	6.0	8.0	8.0	1.0	6.5
181	M'Chigeeng First Nation	7745	M'Chigeeng Village Communal Sewage System	Lake, reservoir	Level I	10.0	6.0	9.0	10.0	1.0	6.9
213	Muskrat Dam Lake	7702	Muskrat Dam Lake Wastewater System	Lake, reservoir	Level I	8.0	6.0	9.0	4.0	10.0	7.7
128	Naicatchewenin	7726	Naicatchewenin Wastewater System	Lake, reservoir	Level I	8.0	2.0	7.0	4.0	4.0	5.0
158	Naotkamegwanning	7693	Whitefish Bay Wastewater System	Lake, reservoir	Level I	10.0	8.0	8.0	10.0	5.0	8.0
241	Nibinamik First Nation	7712	Nibinamik Wastewater System	Lake, reservoir	Level I	8.0	6.0	8.0	10.0	5.0	7.1
204	North Caribou Lake	7748	North Caribou Lake Wastewater System	Lake, reservoir	Level I	9.0	8.0	10.0	4.0	5.0	7.7
214	Sachigo Lake	7750	Sachigo Lake Wastewater System	Lake, reservoir	Level I	8.0	5.0	4.0	4.0	5.0	5.2
175	Wikwemikong	7747	Wikwemikong Wastewater System	Lake, reservoir	Level II	10.0	8.0	8.0	4.0	1.0	6.6
143	Attawapiskat	7717	Attawapiskat Wastewater System	Large river	Level I	8.0	3.0	7.0	10.0	9.0	6.9
159	Mohawks of Akwesasne	7486	Akwesasne Block 97 RBC	Large river	Level I	8.0	5.0	8.0	4.0	1.0	5.4
159	Mohawks of Akwesasne	15920	Akwesasne Cornwall Island Arena RBC	Large river	Level I	10.0	3.0	4.0	2.0	1.0	4.1
159	Mohawks of Akwesasne	7297	Cornwall Island Akwesasne Mohawk School RBC	Large river	Level I	10.0	5.0	10.0	6.0	1.0	6.5
159	Mohawks of Akwesasne	7293	St.Regis Wastewater Treatment Plant	Large river	Level II	10.0	2.0	4.0	2.0	1.0	3.9
144	Moose Cree First Nation	7718	Moose Factory Wastewater System	Large river	Level II	8.0	6.0	8.0	10.0	10.0	8.1
146	Peawanuck	7743	Peawanuck Wastewater System	Large river	Level I	6.0	5.0	9.0	10.0	6.0	6.9
145	Taykwa Tagamou Nation	7719	New Post Wastewater System	Large river	Level I	4.0	4.0	9.0	10.0	6.0	6.2
172	Aamjiwnaang	7735	Aamjiwnaang Wastewater System	MTA	MTA	4.0	2.0	5.0	10.0	1.0	3.7
198	Batchewana First Nation	7721	Batchewana Sanitary Main	MTA	MTA	1.0	1.0	3.0	1.0	1.0	1.5
126	Couchiching First Nation	7724	Town of Fort Frances	MTA	MTA	2.0	2.0	7.0	1.0	1.0	2.9
185	Ginoogaming First Nation	7711	Town of Long Lac	MTA	MTA	1.0	8.0	7.0	10.0	8.0	6.0
184	Long Lake No.58 First Nation	7710	Town of Long Lac	MTA	MTA	5.0	8.0	9.0	10.0	10.0	8.2
164	Mohawks of the Bay of Quinte	7649	Town of Deseronto Wastewater System	MTA	MTA	5.0	3.0	3.0	4.0	1.0	3.1
188	Gull Bay (Kiashke Zaaging Anishinaabek)	7738	Gull Bay Wastewater System	River	Level I	7.0	5.0	8.0	10.0	10.0	7.6
127	Lac La Croix	7725	Lac La Croix Wastewater System	River	Level I	7.0	7.0	8.0	10.0	5.0	7.1
174	Magnetawan	7746	Magnetawan Wastewater System	River	Level II	9.0	5.0	7.0	10.0	4.0	6.6
238	North Spirit Lake	7706	North Spirit Lake Wastewater System	River	Level II	6.0	7.0	10.0	10.0	5.0	7.4
147	Ochiichagwebabigoining First Nation	7736	The Dalles Wastewater System	River	Level I	7.0	3.0	9.0	10.0	6.0	6.6
236	Poplar Hill	7707	Poplar Hill Wastewater System	River	Level II	6.0	1.0	8.0	10.0	10.0	6.4
130	Rainy River First Nations	7727	Manitou Rapids Wastewater System	River	Level I	7.0	8.0	8.0	4.0	1.0	6.0
211	Sandy Lake First Nation	7740	Sandy Lake Wastewater System	River	Level I	7.0	5.0	9.0	10.0	6.0	7.1
150	Wabaseemoong Independent Nations	7695	Wabaseemoong Wastewater System	River	Level II	7.0	3.0	8.0	10.0	6.0	6.3
170	Walpole Island	NEW001	ARENA WASTEWATER SYSTEM	River	Small System	9.0	8.0	8.0	10.0	10.0	8.6
206	Wapekeka	7728	Wapekeka Wastewater System	River	Level I	7.0	6.0	8.0	10.0	7.0	7.3

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						Legend:	High Risk		Medium Risk		Low Risk	
Band #	Band Name	System #	System Name	Receiver Type	Treatment Class	Effluent Risk	Design Risk	Operations Risk	Report Risk	Operator Risk	Final Risk Score
240	Webequie First Nation	7713	Webequie Wastewater System	River	Level II	5.0	8.0	10.0	1.0	7.0	8.0
140	Mississaugas of Scugog Island First Nation	0	APARTMENT COMPLEX	Sub-surface / Ground	Small System	4.0	3.0	8.0	1.0	5.0	4.6
159	Mohawks of Akwesasne	7294	AKWESASNE NO. 59 - Daycare (ARCHIVE)	Sub-surface / Ground	Level I	5.0	3.0	7.0	6.0	1.0	4.3
138	Chippewas of Georgina Island	0	GEORGINA ISLAND FIRST NATION WASTEWATER TREATMENT SYSTEM	Tile field	Small System	5.0	4.0	9.0	10.0	9.0	7.0
166	Chippewas of the Thames First Nation	NEW001	ANTLER RIVER SENIORS COMPLEX WWTP	Tile field	Small System	5.0	4.0	4.0	10.0	1.0	4.2
203	Mishkeegogamang	0	Teacherage and Nursing Residence Septic System	Tile field	Small System	4.0	1.0	7.0	1.0	10.0	4.9
123	Saugeen	NEW001	SAUGEEN WASTEWATER SYSTEM	Tile field	Small System	3.0	5.0	9.0	10.0	6.0	6.3
137	Shawanaga First Nation	0	TEN-PLEX SEPTIC SYSTEM	Tile field	Small System	3.0	5.0	9.0	10.0	10.0	7.1
242	Aroland	7714	Aroland Wastewater System	Wetland	Level I	3.0	1.0	9.0	10.0	7.0	5.5
182	Constance Lake	7708	Constance Lake Wastewater System	Wetland	Level I	2.0	5.0	2.0	1.0	1.0	2.4
218	Dokis	NEW001	DOKIS WASTEWATER TREATMENT SYSTEM	Wetland	Level I	6.0	2.0	9.0	10.0	10.0	6.9
183	Eabametoong First Nation	7709	Eabametoong Wastewater System	Wetland	Level I	2.0	6.0	6.0	2.0	1.0	3.8
215	Fort Severn	17014	Fort Severn Wastewater System	Wetland	Level I	4.0	7.0	10.0	10.0	5.0	7.0
187	Fort William	7737	Fort William First Nation Wastewater System	Wetland	Level I	4.0	4.0	10.0	10.0	10.0	7.3
212	Kingfisher	7730	Kingfisher Lake Wastewater System	Wetland	Level I	4.0	7.0	9.0	6.0	7.0	6.8
186	Martin Falls	7715	Marten Falls Wastewater System	Wetland	Level I	2.0	6.0	8.0	1.0	8.0	5.6
159	Mohawks of Akwesasne	NEW001	AKWESASNE CHAPMAN ROAD WETLAND TREATMENT SYSTEM	Wetland	Level I	6.0	5.0	8.0	4.0	1.0	5.0
159	Mohawks of Akwesasne	7298	Akwesasne Syne RBC/Lagoon	Wetland	Level I	6.0	6.0	10.0	4.0	1.0	5.8
239	Neskantaga First Nation	17015	Neskantaga Wastewater System	Wetland	Level I	2.0	3.0	6.0	1.0	6.0	3.9
220	Nipissing First Nation	NEW001	GARDEN VILLAGE STP	Wetland	Level II	5.0	1.0	3.0	2.0	1.0	2.4
208	Pikangikum	7703	Pikangikum Wastewater System	Wetland	Level I	4.0	3.0	8.0	10.0	7.0	5.9
132	Seine River First Nation	7723	Seine River Wastewater System	Wetland	Level I	6.0	4.0	7.0	4.0	1.0	4.5
222	Temagami First Nation	7741	Bear Island Wastewater System	Wetland	Level I	5.0	2.0	5.0	4.0	4.0	3.9
170	Walpole Island	7698	Walpole Island Residential Wastewater System	Wetland	Level II	4.0	8.0	9.0	10.0	10.0	8.0

Safe Drinking Water – Lessons from Outbreaks

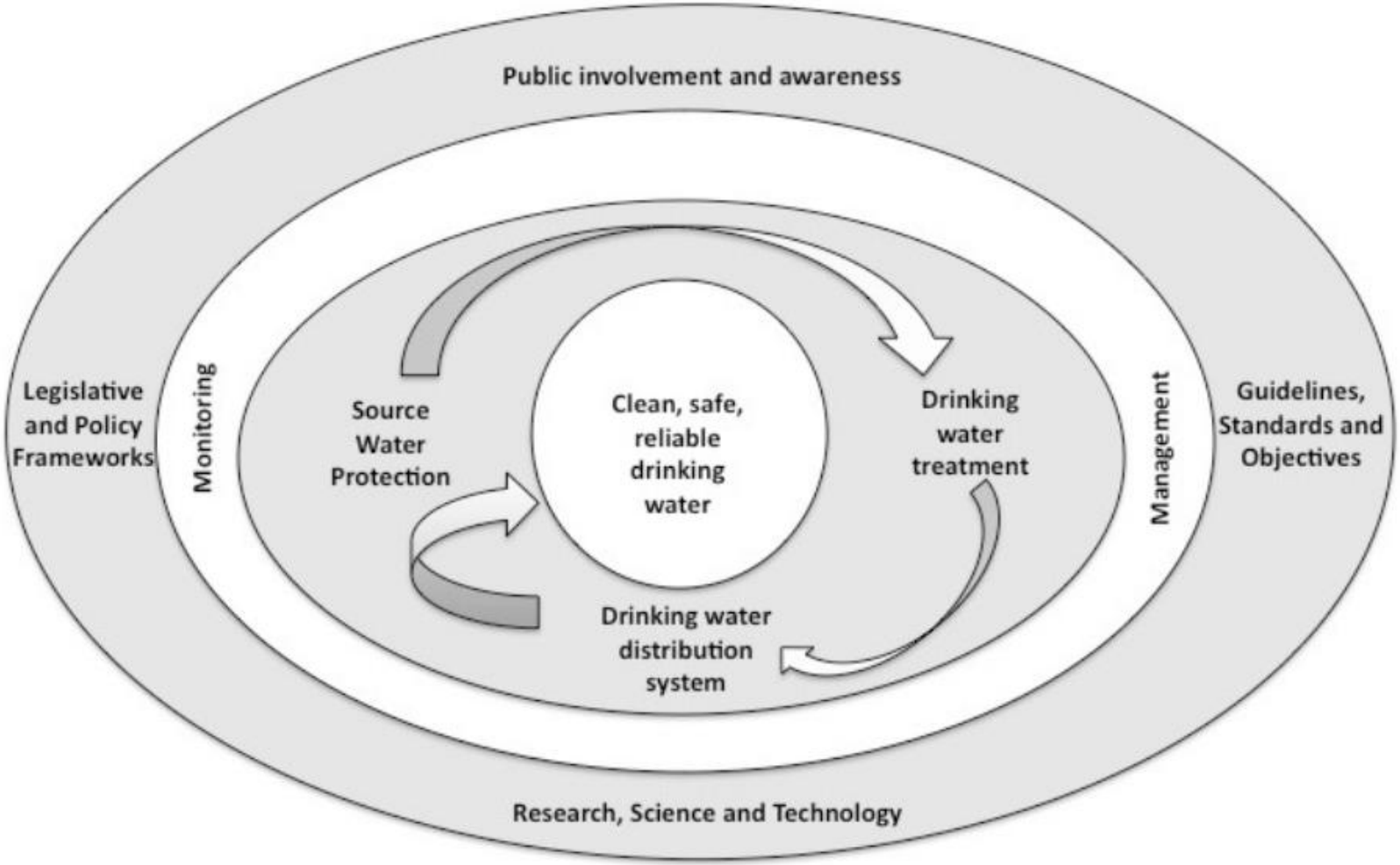
- Common themes: neglect risks, source contamination, limited treatment, poor operational decisions, lack of monitoring, delayed responses to crises, no emergency plans, corrective actions delayed or not done
- Multiple barriers help to reduce risks of contamination to negligible levels
- Multiple barrier concept has been advocated for many decades
- Promote a culture of identifying trouble, not hiding or avoiding it!
- Multiple or even single breakdown in any of barriers may cause the next water tragedy!

Is Your Water Safe?

Multiple Barrier Approach to Safe Water:

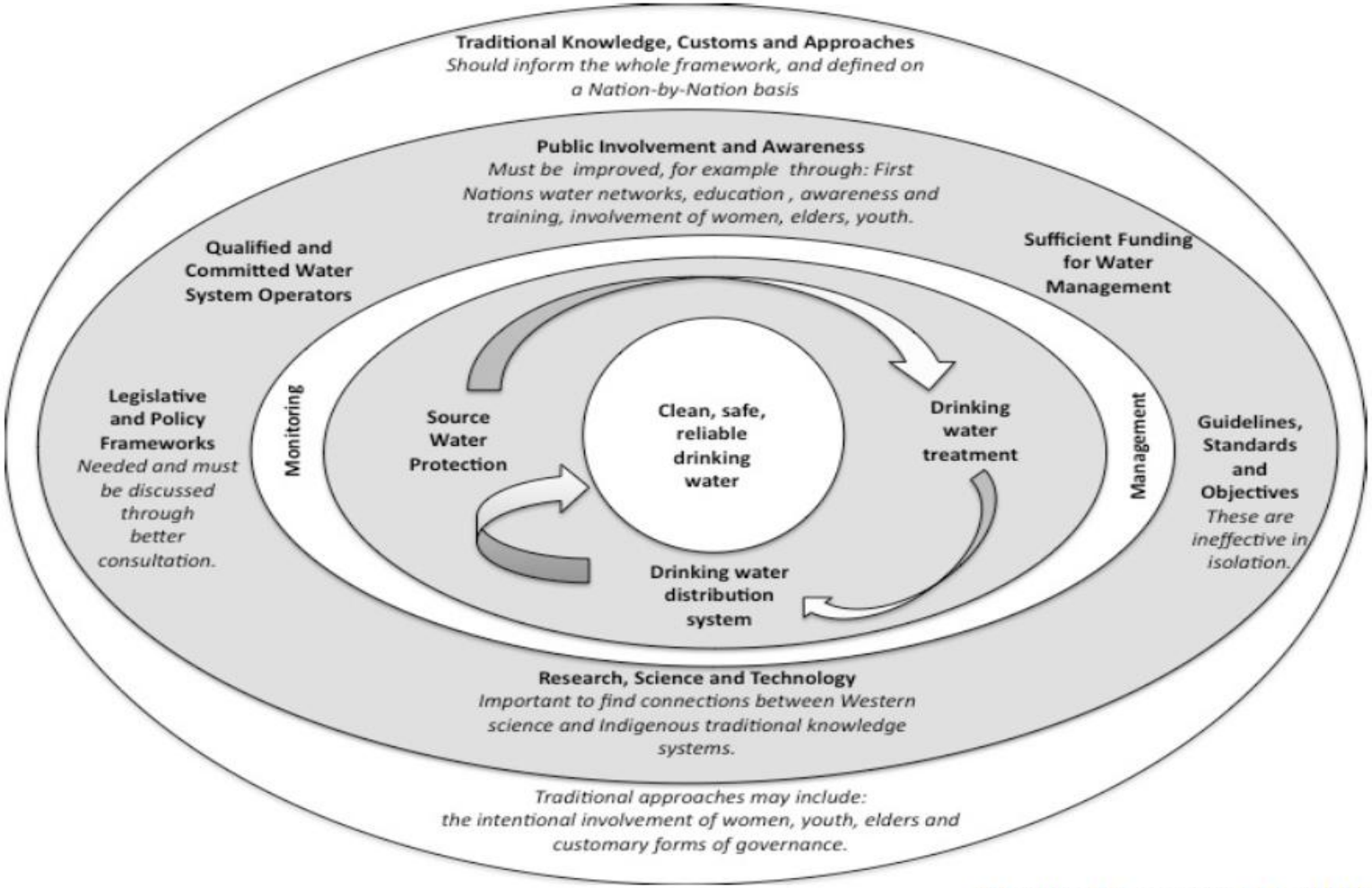
1. Source and protection of
2. Drinking water treatment
3. Storage and distribution of drinking water
4. Monitoring of drinking water
5. Management of drinking water
6. Public involvement and awareness
7. Legislative and policy frameworks
8. Guidelines, standards, and objectives
9. Research science, and technology

Multiple Barrier Approach



Reproduced from: CCME (2004, 16)

First Nation Multiple Barrier Approach



Modified from: CCME (2004, 16)

Safe Drinking Water for First Nation's Complex

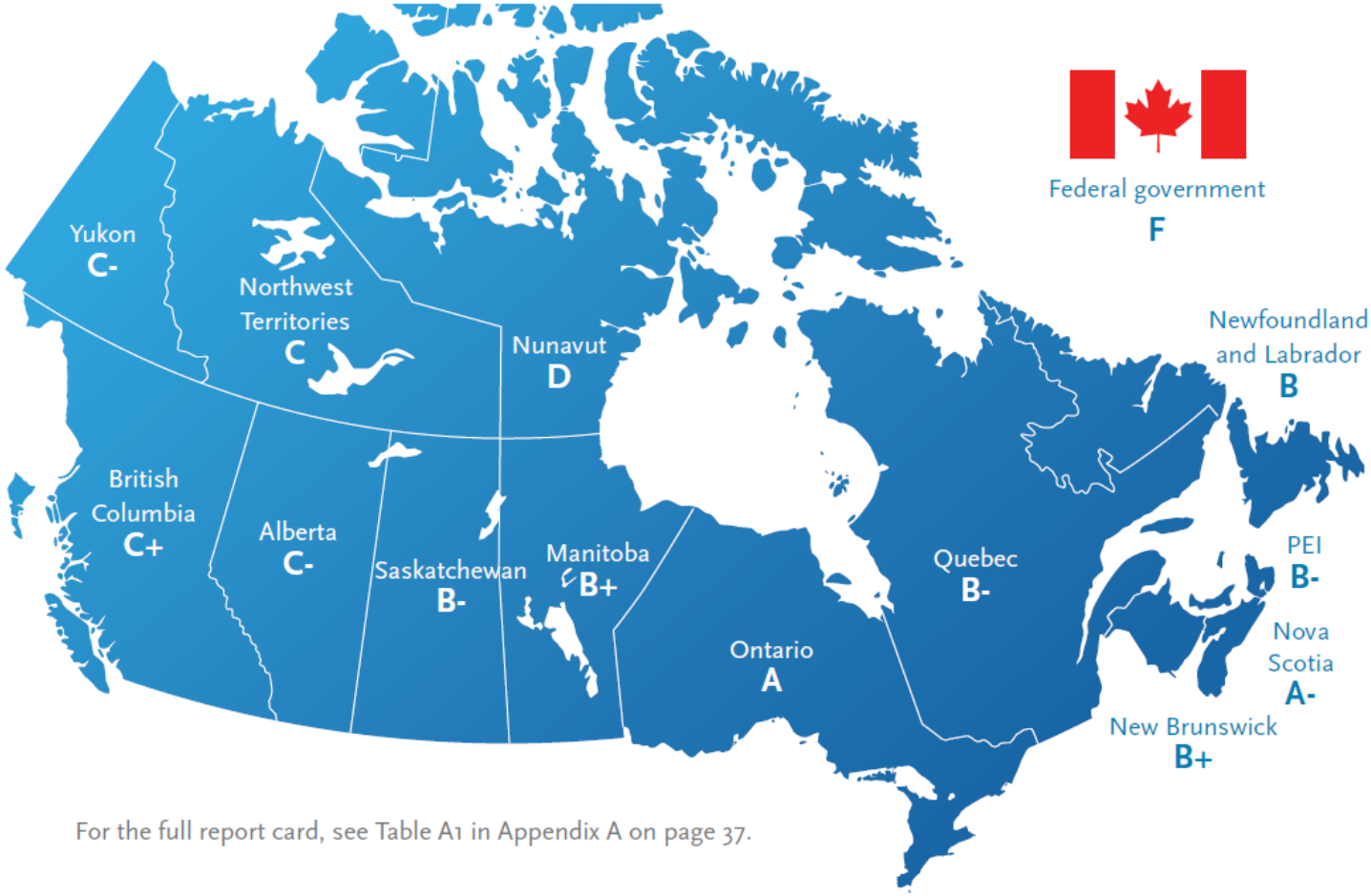
- Deficiencies identified in Multi Barrier Approach and numerous reports
- Funding and resources
- Aboriginal Rights
- Accord between all stakeholders
- Incorporation of traditional knowledge and values
- Water protection
- Need for reforms
- Timing
- Politics

First Nations in Need

- 832 homes in First Nations in Ontario without water of any kind…
- 1880 homes in First Nations in Canada without water of any kind
- Therefore, 44% of these First Nation homes without water are in Ontario

With a national average of 4.3 people per home: that's approximately 3578 people in Ontario and 8084 people nationally without water for drinking, cleaning, food preparation and sanitation!

Grading Water in Canada



For the full report card, see Table A1 in Appendix A on page 37.

Grading Water in Canada

TABLE A1: NATIONAL DRINKING WATER GRADES

Jurisdiction	Comments	2006 grades	2011 grades		
			Only 2006 factors	Source water protection	Compre-hensive
Ontario	Ontario has the most well-funded and ambitious program to protect source water. Ontario's standards for water treatment, testing, standards and reporting are as strong as or stronger than other Canadian jurisdictions.	A-	A	A	A
Federal Government	The Federal Government has made little progress in improving water in First Nation's communities. Budget cuts for Environment Canada and other agencies will likely hinder water protection efforts. The Federal Government is using drinking water funding to push an ideological agenda by making some funding only available to water systems that engage in public-private partnerships.	F	–	–	F

Final Thoughts

- Is safe drinking water attainable for First Nations?
- If so, is safe drinking water going to be sustainable?
- Protection of environment and natural resources are **relevant** for a sustainable future!

Final Thoughts

"Was the Walkerton tragedy an isolated incident brought about by an unlikely combination of events, or was it a warning of a more general problem? Unfortunately, tragedies of the sort experienced in Walkerton are not as uncommon as many may think. They typically involve the simultaneous failure of two or more barriers in systems operated with more complacency than rigour. "

Justice O'Connor, Walkerton Report – Part 2

Thank you –Chi-Miigwetch!

Any questions, comments or concerns?

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