INTERIM EXTREME WEATHER FIRE RISK MITIGATION PLAN

Date: July 2021

CONTENT

1. INTRODUCTION

Transport Canada's *Prevention and Control of Fires on Line Works Regulations* require that when a railway company becomes aware of a fire on the right of way, it must ensure that steps are taken to extinguish or control the fire as soon as practicable. These steps are set out in more detail in CN's Fire Preparedness Plan and Fire Hazard Reduction Plan.

These steps must include (a) the notification of the fire service that is responsible for the area where the fire is located if the fire cannot be extinguished or controlled without fire service assistance; and (b) the notification, if applicable, of the railway company that operates or maintains the line work.

Additionally, a key component of Ministerial Order 21-06 (MO 21-06) requires a railway to develop and implement an Interim Extreme Weather Fire Risk Mitigation (the Interim Plan), to address measures required when the fire danger level for a given area is "extreme" as reported for that area on the Canadian Wildland Fire Information System (CWFIS) published on the Department of Natural Resources Website (https://cwfis.cfs.nrcan.gc.ca/home) or on any other Government of Canada Website. The Interim Plan must at a minimum address fire detection, monitoring and response measures.

The following sets out CN's Interim Extreme Weather Fire Risk Mitigation Plan which details measures to be implemented during extreme fire danger level. This Interim Plan will be communicated to municipal and other local governments, including Indigenous governments, in order to receive comments for consideration in CN's final Extreme Weather Fire Risk Mitigation Plan.

2. TRAIN SPEED REDUCTION

When the fire danger level for a given area is "Extreme", train speeds will be adjusted taking into consideration a combination of ambient air temperature and permitted track speed.

3. ADDITONAL MEASURES DURING PERIODS OF EXTREME WEATHER

CN's Fire Preparedness Plan sets out CN's requirements for internal and external notification of a fire that is detected as well as procedures for extinguishing or controlling a fire. CN's Fire Hazard Reduction Plan sets out among other, CN's primary Wildfire Prevention Strategies in connection with known fire hazards. These plans detail measures taken by CN to reduce or eliminate fire hazards, including, detectors used to detect hot wheel bearings and wheels on railway cars, equipment maintenance procedures, operating instructions and track standards. For reference, attached is **Appendix B** – Additional operating instructions provided to CN employees and contractors, **Appendix C** - An excerpt of the current track standards, **Appendix D** – An inventory of CN Detectors by Subdivision. To enhance these measures, CN undertakes

the following measures to address potential fire risks during periods of extreme fire danger level.

3.1. ADDITONAL METHODS OF FIRE DETECTION

In addition to the requirements of the CN's Fire Preparedness and Fire Hazard Reduction Plans, CN implements the following additional measures to detect, mitigate and respond to fire risks along its railway during periods of "extreme" fire danger level.

- Increased use of end of train locomotive placement targeted to enable behind the train inspections to monitor for evidence of fire.
- Engineering will complete a fire patrol when ambient temperature is over 30 degrees Celsius and fire rating is Extreme between hours of 11:00 and 22:00, unless no trains have passed on that calendar day
- Engineering will patrol specific areas under extreme fire danger conditions when the following occurrences have been reported:
    - Dragging equipment/broken wheel identified visually or through way side inspection
    - Hot wheels or bearings identified visually or through way side inspection

3.2. ADDITIONAL FIRE SUPPRESSION CAPACITY

CN's Fire Preparedness Plan details CN's procedures for extinguishing or controlling fires. Specifically, it requires that if a fire on the right of way poses any danger to safe operation or the public in general, rail traffic must be halted and, if considered safe to do so, immediate suppression action must be taken using the resources reasonably and lawfully available to contain the fire. Employees are required to stay at the scene of the fire until released. If CN personnel cannot extinguish the fire easily, they must immediately request assistance from the appropriate fire service. It is important to note that CN employees are not trained fire fighters and are not expected to put themselves or others at risk to extinguish fires. The proper authorities will be notified in the event of an uncontrollable fire. CN's Fire Preparedness Plan also details CN's available firefighting equipment across its network.

In addition to requirements contained in CN's Fire Preparedness Plan, CN provides the following additional details on fire suppression capacity available during periods of Extreme fire danger levels as well as additional measures put in place to reduce associated risk.

3.2.1. Right of Way Maintenance

Fire suppression equipment for the maintenance of CN's right of way is used to prevent fires from occurring or to extinguish fires while in the incipient stage resulting from normal

work operations. Planned work on the CN right of way includes an assessment of fire conditions and mitigation measures when a fire risk exists. Fire suppression equipment for right of way maintenance varies throughout the CN network and by subdivision. Minimum required equipment is dependent on work being performed and fire risk.

Track crews which perform track installation and track repairs have backpack sprayers (soft or poly) with inline pumps, Class A foam and various hand tools such as Pulaski tools, shovels, adzes, and fire flails. In addition, depending on work performed and location, truck mounted skid units or water tanks with pumps and hose with laydown equipment are on site.

Bridges and Structures crews have sprinkler systems that provide protection for 1,000 feet of timber deck ties. Sprinkler system contains hose, sprinkler heads, and pumps. CN currently has 81 of these sprinkler kits at various locations across Canada. A sprinkler kit is onsite with work crews while work is being performed areas when dry conditions exist. Additionally, Bridges and Structures crews are equipped with backpack sprayers (soft or poly) with inline pumps, Class A foam and various hand tools such as Pulaski tools, shovels, adzes, and fire flails.

3.2.2. Non Right of Way Maintenance

CN has access to firefighting trailers through mutual aid, contracted agreement and CN company-owned equipment that is staged at strategic locations across the network. CN's firefighting trailers are designed and positioned for flammable liquid and liquefied petroleum gas movements but also have fire pumps, hoses, bladder tanks and laydown equipment applicable to other fires along the right of way.

In addition, across Canada, CN has access to water tenders, pumps, foam, and hose with laydown equipment of various sizes and capacities through CN's contractor network. Water tenders can transport water to sites for direct use or for filling of dump tanks or bladders. Pumps, depending on the type, can deliver high volume water (dewatering pump) or high pressure (centrifugal pump). Hoses and laydown equipment are available from 1-inch forestry hose for suppression activities up to 10-inch hose for high volume distribution.

CN maintains two 20,000-gallon specialty upfitted tank cars for fire operations. These tank cars are equipped with multiple fire pumps, deck gun and hose with laydown equipment. The use of fire tank cars is limited when rail operations are shut down or forbidden from operations.

Attached as **Appendix A** is a map indicating location of firefighting assets available to CN.

3.2.3. Estimated Response Times

The following describes CN's estimated response times for deployment when a fire is detected under three distinct scenarios.

Engineering Work – Estimated Response Time - Immediate

If a fire occurs as part of CN's normal maintenance or planned work activities, CN personnel on site will take immediate suppression action using the resources on site If considered safe to do so. Additional CN resources or contracted resources will be mobilized to extinguish or contain the fire. If CN personnel cannot extinguish the fire while in the incipient stage, CN will immediately request assistance from the appropriate fire service through the CN Notification Process.

Fire called in by Train Crew – Estimated Response Time – Diligent

Any train crew that spots a fire or smoldering areas will immediately report the fire to CN's Rail Traffic Control (RTC). RTC will follow the CN Notification Process that will notify the appropriate fire services for the area and CN departments for resource mobilization of the closest fire asset.

Fire called in by General Public – Estimated Response Time – Diligent

Any report of a fire by the public through CN's Emergency Line will follow the CN Notification Process that will notify the appropriate fire services for the area and CN departments for resource mobilization of the closest fire asset.

For the purposes hereof, "immediate" response means immediate action upon trigger event (fire occurrence/determination that fire cannot be extinguished in the incipient stage), and "diligent" response means prompt response, taking into consideration all circumstances.

3.3. ENHANCEMENTS TO VEGETATION CONTROL MEASURES

As outlined in CN's Fire Preparedness and Fire Risk Reduction Plans, CN practices Integrated Vegetation Management (IVPM) throughout its operations, which is aligned with CN's goal to take all reasonable steps to prevent wildfires. CN's IVMP is applicable to all CN operations and includes all track ballasts, right-of-way (ROW) and station grounds including rail yards and all property owned or controlled by CN. CN's IVMP utilizes the principles of Integrated Vegetation Management. CN conducts all vegetation management activities in a sustainable and responsible manner to minimize any potential negative impacts within environmentally sensitive areas.

During periods of Extreme fire danger levels, CN will also implement the following enhancements to its IVPM.

- CN personal will identify debris or waste vegetation generated from the act of brush cutting on the CN Right-of-Way that represents a significant fire hazard and arrange for its removal if safe to do so.

- No brush cutting will be performed during periods of extreme fire danger except in the case of emergencies or where required to maintain safe railway operations (eg. obstruction to crossing sightlines).

- All the debris or waste vegetation generated during periods of extreme fire danger from the act of brush cutting must be removed from the CN Right-of-Way as it is generated if safe to do so.

- Weed spraying is not considered a high risk

    - Trucks spray 8' from centre line of track, only covering the ballast portion of track

    - Vegetation decomposes within 2 weeks

3.4. ENHANCED EQUIPMENT AND LOCOMOTIVE INSPECTION PROCESSES

CN's Fire Hazard Reduction Plan sets out CN's equipment and locomotive maintenance program.

In addition to the above, the following identifies CN's enhanced equipment and locomotive inspection processes implemented during periods where there is potential for a fire danger level of "extreme".

- Roots Blower Engine
    - spark inspection on all Roots blower locomotives (March-October)

    - Work scope includes inspection and cleaning of exhaust system, including retention traps and exhaust stack.

- Turbocharged Engines
  Below is the maintenance plan in place for all turbocharged engines. In addition, all locomotives will receive a spark inspection during the spring (March-May).

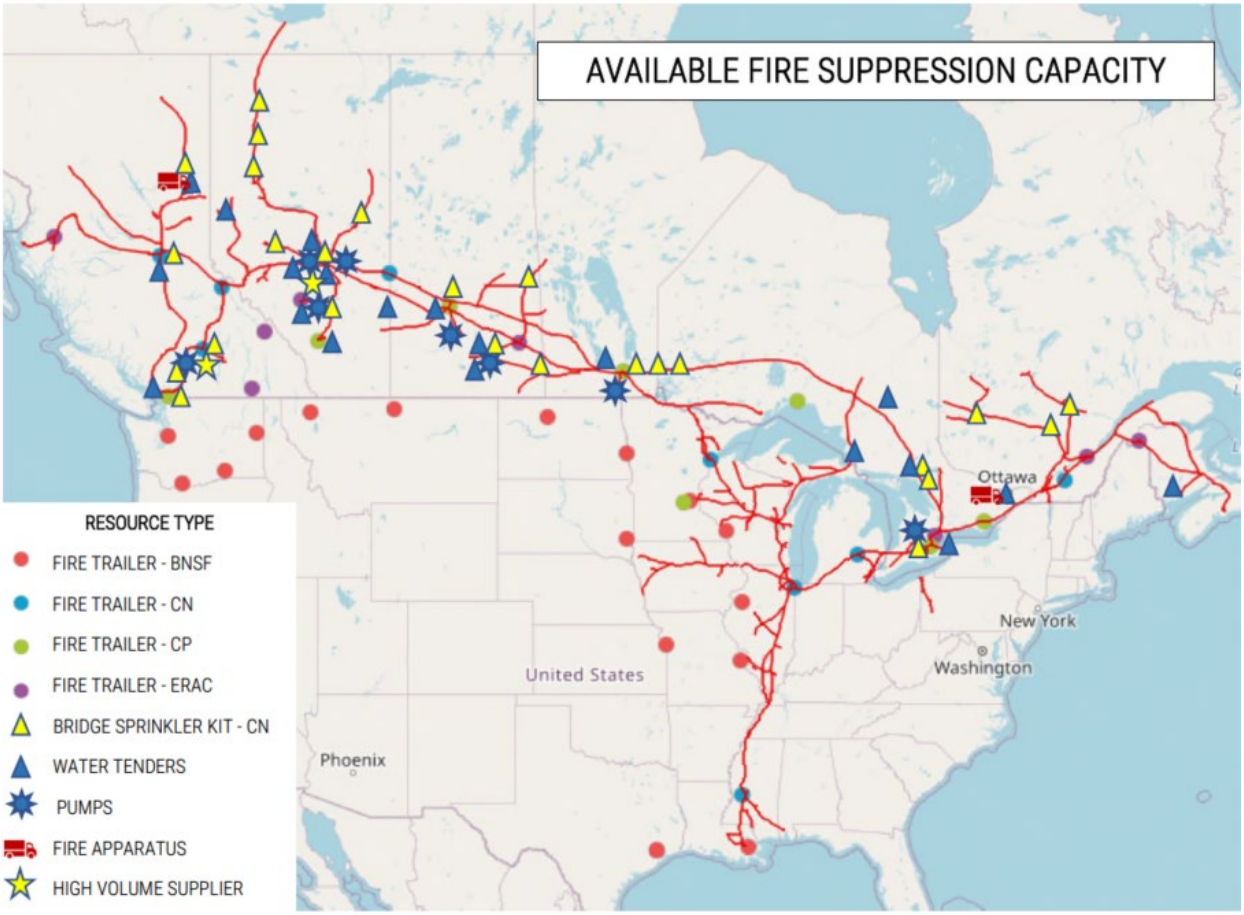
    - Tier 0, 1 Turbocharged Engines
        - 92 day Spark inspection cycle
        - The inspection includes visual inspection of entire exhaust system, including inspection and cleaning of eductor tube.

    - Tier 2, 3, 4 Turbocharged Engines
        - 184-day Spark inspection cycle
        - The inspection includes visual inspection of entire exhaust system, including inspection and cleaning of eductor tube.

- All cars / equipment which have received an alarm for a hot wheel or hot axle, after being checked by conductor, will be set out at the next available location for full inspection and brake test by a qualified mechanical employee regardless of inspection status

Appendix A

MAP – LOCATION OF SPECIALIZED FIRE-FIGHTING ASSETS AVAILABLE TO CN



ERAC references Emergency Response Assistance Canada (https://www.erac.org/), Canada's dangerous goods emergency preparedness and response organization.

Appendix B

EXCERPTS FROM GENERAL OPERATING INSTRUCTIONS

Operating instructions provided to CN employees and contractors

General Additional Operating Instructions

1. Grass or weeds may not be burned on the right-of-way without proper authorization. Any required federal, provincial or local permits must be obtained before burning begins. All applicable fire regulations shall apply.

2. There shall be no smoking, use of open flames or ignition sources where flammable materials are stored or handled.

3. All flammable liquids/substances are to be placed in approved containers and Workplace Hazardous Materials Information System (WHMIS) labels applied. Ensure the availability of Material Safety Data Sheets where applicable.

4. Flammable liquids/substances shall not be disposed of in sewer systems, drains or garbage containers used for general disposal

5. Flammable liquids/substances shall not be stored in open containers. Ensure proper storage procedures with proper ventilation away from sources of heat or ignition.

6. Compressed gas cylinders must be stored in a designated location offering protection from passing vehicles or falling objects. All cylinders shall be secured in a vertical position with empty cylinders separated from full ones. Cylinders shall be stored in accordance with applicable fire codes.

7. Metal contact (ground /bonding cable) must be maintained between containers while transferring flammable liquids.

8. Filling gasoline tanks inside buildings or other enclosed spaces or while an internal combustion engine is running is prohibited.

9. Firefighting equipment must be maintained in operating condition and must be readily accessible at all times. If fire extinguishers are discharged for any reason, they must be re-charged immediately or replaced by fully charged extinguishers.

10. Fire doors must never be locked, blocked or tied open.

Fire prevention on locomotives

In the event of a fire on a locomotive, whether at the engine or in the electrical equipment, the following procedure should be followed:

- Shut down engine immediately.
- Pull battery switch if practicable.
- Pull all cables and disconnect hoses between the locomotive on fire and other locomotives in the consist.
- If possible, determine the location of the fire. It may be necessary to break electrical cabinet seals in order to properly direct fire extinguisher at flames.
- If it appears that the fire cannot be brought under control, a member of the operating crew should immediately notify the proper authorities so that assistance may be obtained as soon as possible.
- Using the remaining locomotives of the consist, the locomotive on fire should be placed on a siding in a remote location, (properly secured) to prevent further damage to railway and private property.

Appendix C

EXCERPTS FROM CN STANDARDS FOR FIRE PREVENTION (AS PER ENGINEERING TRACK STANDARDS T.S.11.0)

FIRE PREVENTION

1. Prevention of fires on to property and structures must be considered at the beginning of each task when working on the right of way.

2. Fire risk is highest during spring when dry grasses are prevalent. Fire risk can also rise in the summer during extreme hot and dry periods, and anytime work is performed near wooden structures. Local, State or Provincial agency warnings or advisories should be noted when working in these types of conditions. Use the higher of the agency or CN activity rating.

3. HOT WORK is any activity which involves cutting, grinding, welding or open flames.

4. The RIGHT OF WAY AND BRIDGE FIRE RISK ASSESSMENT, MITIGATION AND EMERGENCY RESPONSE form must be completed prior to performing any hot work when fire risk exists.

5. FIRE WATCH is a person assigned to observe a location during and after hot work. The fire watch will:
   a. Have communications and contact information adequate to request assistance or contact the RTC.
   b. Be equipped with sufficient firefighting equipment to suppress flare-ups.
      i. The firefighting equipment will be a minimum of a filled 5 gallon back pack sprayer, and
      ii. One round nose shovel and adze.
   c. Be stationed in a safe position to fight fires as work is being performed.
   d. Remain at the location for a minimum of two hours after the work is completed.

6. Fire prevention, fire awareness training and firefighting preparedness are mandated in Canada by Transport Canada's "Rules for the Control and Prevention of Fires on Railway Rights-of-Way". These rules outline:
   a. The right's of a fire service inspector to request inspection of the right-of-way assess fire risk and training.
   b. The requirements of the Railway to train, staff and provide equipment to prevent or fight fires.
   c. To provide training records which will include:
      i. Location and duration of training.
      ii. Names and titles of trainer(s) and participants.
      iii. Subject matter of the training course.

d. The responsibility of the Railway for fires along, or originating from the right-of-way.

e. Limitations on days or time of day that hot work can be performed.

7. These items are also addressed locally by respective Provincial natural resources management governments and some State's Department of Natural Resources (or equivalent). These agencies have standards and guidelines pertaining to fire risk index fuel values (combustible materials present), required firefighting equipment, fire prevention and fire fighting training, and minimum fire watch inspection times.
Consult these requirements when planning to perform work

   a. Be aware that environmental management agencies can restrict work activities based on "High" or "Extreme" fire risk rating.

8. Local Supervisors will:

   a. Ensure crews know the agency fire risk rating and work restrictions.

   b. Ensure crews have firefighting equipment inventory that is required.

   c. Maintain supplementary firefighting assets where required.

   d. Have an updated fire fighting action plan where required.

   e. Have a fire plan for critical or strategic structures,

   f. Arrange for track patrols during periods of extreme fire danger.

      i. Be aware of on going fires.

      ii. Be aware of wind speed and direction when active fires are present.

      iii. Provide constant monitoring of bridges if situations require.

9. Risk factors which need to be considered prior to performing hot work along the right-of-way include:

   a. Dry or dead vegetation.

   b. Ties or timbers stacked and/or distributed along the right-of-way.

   c. Weather, such as recent precipitation or lack thereof, wind speed and direction, temperature, humidity and forecasts.

   d. Structural materials such as timber caps, stringers, piling or posts and ties. When these components are cracked, rotting or decayed the possibility of igniting increases.

   e. Clothing – greasy or oily clothes can be ignited during cutting or grinding activities.

   f. Smoking – smoking materials must be rubbed out and buried or disposed of properly.

g. Equipment – Steel tracked equipment or cutting heads have the potential to throw sparks into combustible materials.

h. Fueling – ensure gas powered machines are fueled on a noncombustible surface, and after the machine has cooled to minimize the possibility of igniting in the event of a fuel spill.

i. Vehicles must not be parked in locations where hot exhaust systems could ignite dry vegetation.

10. Work activities addressed in these instructions include, but are not limited to:

a. Routine work – defined as work performed on the right-of-way such as cutting rail, any welding, hand grinding, applying signal bond wires, etc.

b. Work on structures, in timber lined tunnels or snow sheds:

i. Rail related work (cutting, welding, hand grinding, applying signal bond wires, etc.).

ii. Dragging rail along the right-of-way and over bridges.

iii. Bridge work involving cutting with saw or torch, welding or grinding.

iv. Rail grinding with self propelled machines.

11. The minimum briefing for any Hot Work fire must include:

a. Completing the RIGHT OF WAY AND BRIDGE FIRE RISK ASSESSMENT, MITIGATION AND EMERGENCY RESPONSE form.

b. The nearest fire department or fire service.

c. The contact number for fire / emergency services

d. Access to the location and directions to the site.

e. Any warnings, advisories or work restrictions issued by any agencies concerning fire risk status.

f. Fire fighting equipment on hand and ensuring operability of such equipment.

i. A minimum of two 5 gallon backpack sprayers with foaming nozzles.

ii. A minimum of two round nose shovels.

iii. A minimum of two adzes.

iv. Fire equipment to be staged no more than 50 feet from the work location.

12. For routine work during High or Extreme fire conditions, additional fire protection will include:

a. Increasing the quantity of water carried onboard trucks to at least 90 gallons which includes at least 4 filled 5 gallon backpack sprayers with foaming nozzles.

b. Foam fire suppressant added to the water supply.

c. Centrifugal pumps with at least 100 feet of 1 1/2" diameter hose.

d. Wetting of the area where sparks may be generated and in the direction of the wind.

e. Use of spark screens for all cutting, welding and grinding.

f. Wetting of area after work is complete.

g. Posting a fire watch for at least two hours after work is completed.

13. Any hot work on a structure or in a timber lined structure will include:

a. A briefing with the B & S Supervisor and the Track Supervisor detailing the work to be performed.

b. A site inspection to identify all hazards, in particular fire hazards including the structure itself.

i. Remove piled timbers, dry grasses or brush if necessary.

c. Wetting of the immediate area and materials in the direction the wind is blowing prior to commencing hot work:

i. Foam fire suppressant additive must be mixed with water.

ii. Protect foam from entering the waterway.

iii. Foam will make ties slippery and extreme caution needs to be exercised.

d. Fire proof mats or packing sand will be placed to protect timber.

e. Spark shields will be used on timber structures in all conditions.

i. When possible, direct rail cutting sparks toward the center line of the track.

f. Cutting of structural components or rail will be made:

i. With a Saws-all or shear for sway brace and hook bolts, drift pins, etc.

ii. Using abrasive saws for cutting rail.

iii. Using a torch as the last option and only after discussing with the B & S Supervisor and Track Supervisor.

iv. Using chain saws to cut wood components.

g. Wet the entire area as often as required both during the work and after the work is completed.

h. A fire watch will remain with the bridge for a minimum of 2 hours.

14. Long term bridge construction or repair projects, which involve pile driving, significant torch cutting or other fire risk, will have a fire fighting and prevention plan which includes pumps and hoses utilizing either river water or a minimum 300 gallon portable water tank.

15. Rail on a bridge requiring flash butt welding, thermite welding or rail end build-up shall be welded off the bridge, when possible, and then installed on the bridge after all work on the weld is finished. However, if there is no alternative but to perform the welding on a bridge, follow the precautions below:

    a. The briefing will include all items listed in the above sections.

    b. Bridge ties must be spread at the joint to be welded.

    c. For thermite welds, a 1/4" thick steel sandbox, partially filled with dry sand, will be placed between the ties in case of thermite weld run through.

    d. If required, position an employee in a safe location under the structure to watch for and fight fires.

    e. Fire watch will be posted for at least two hours after final work is completed.

16. Dragging rail on track causes heat build up on the rail being dragged and generates sparks which can ignite combustible materials. Track behind any rail dragging operation must be inspected for damage to rail fastenings and for fires or smoldering ties.

17. When dragging rail over an open deck bridge and temperatures are above 20°F (-10°C):

    a. The briefing will include all items listed in the above sections.

    b. Rail will not be dragged faster than 3 MPH across the bridge.

    c. Care must be taken to avoid "steel on steel" contact of rail on open deck bridges.

    d. At least one fire watches will remain at each structure for at least 2 hours after the move is completed,

18. Rail grinding with self propelled machines fire prevention requirements is covered in E.T.S. 1.4 GRINDING WITH SELF PROPELLED MACHINES.

19. In the event of a fire or flare up on or near any part of the structure, a fire watch will remain in place for a minimum of 4 hours after the fire has been extinguished and relieved of duty on after

Appendix D
INVENTORY OF CN DETECTORS

Subdivision	Number of Detectors		
	Hot Box	Hot Wheel	Dragging Equipment
Aberdeen	8	8	9
Albreda	10	10	16
Allanwater	11	5	11
Ashcroft	10	10	19
Assiniboine	1	1	1
Bala	21	11	22
Bedford	4	3	5
Blackfoot	7	7	9
Brazeau	2	2	2
Bulkley	10	10	14
Camrose	3	3	3
Caramat	18	11	19
Carberry	1	1	1
Chatham	1	1	1
Chetwynd	7	7	7
Clearwater	13	12	14
Coronado	2	2	2
Cromer	2	2	2
Drumheller	1	1	1
Drummondville	9	6	11
Dundas	10	6	14
Edson	28	23	38
Foothills	1	1	1
Fort Frances	8	8	8
Fort St. John	2	2	2
Fraser	10	8	12
Gladstone	3	3	3
Grande Cache	6	6	6
Grimsby	5	5	5
Guelph	1	0	1
Hagersville	1	1	1
Halton	7	4	11
Joliette	5	5	9
Kashabowie	6	6	6
Kingston	53	39	71
La Tuque	2	2	2
Lac La Biche	11	11	11
Lac St-Jean	8	8	13
Lampman	1	1	1
Letellier	1	1	1
Lillooet	4	4	4
Manning	5	2	5
Margo	3	3	3
Meander River	6	6	6

Subdivision	Number of Detectors		
	Hot Box	Hot Wheel	Dragging Equipment
Mont-Joli	5	4	5
Montmagny	6	5	6
Montreal	2	2	2
Napadogan	14	10	14
Nechako	8	8	8
Newcastle	4	4	4
Newmarket	4	3	4
Oakville	3	3	3
Okanagan	1	1	1
Oyen	1	1	1
Peace River	2	2	2
Pelletier	6	6	7
Prince George	4	4	4
Quappelle	4	4	5
Redditt	18	10	18
Rivers	30	18	37
Robson	3	3	3
Rosetown	4	4	5
Rouses Point	2	2	2
Ruel	23	18	23
Sangudo	3	3	3
Skeena	7	7	7
Slave Lake	5	3	5
Soo	5	5	5
Sorel	3	3	8
Sprague	8	8	9
Springhill	9	5	11
Squamish	6	6	6
Stamford	2	2	2
St-Hyacinthe	4	4	6
St-Laurent	3	3	3
St-Maurice	5	5	5
Strathroy	7	7	8
Stuart	1	1	1
Sussex	3	3	11
Telkwa	9	9	13
Tete Jaune	3	3	3
Three Hills	5	5	5
Togo	3	3	3
Tumbler	1	1	1
Turnberry	2	2	2
Val D'or	1	1	1
Vegreville	7	7	9

Subdivision	Number of Detectors		
	Hot Box	Hot Wheel	Dragging Equipment
Wainwright	22	22	39
Warman	1	1	1
Watrous	22	13	27
Westlock	4	4	4
Yale	10	10	16
York	3	3	5
Total	636	529	776