

Attachment 3

Other Information & Policies

DESIGNATED SUBSTANCES SURVEY REPORT – MATHESON STATION FINAL

Ontario Northland
Northlander Passenger Rail Service

March 13, 2024
FIRM PROJECT NO.: 073613 | CLIENT NO.: 36424453



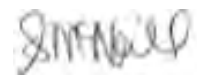




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Prepared for:
 **Ontario Northland**

 **GANNETT
FLEMING**

Authorization

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Revision History

Version Number	Date	Purpose of Submittal	Comments
Rev 0	March 13, 2024	Final report submission.	Ontario Northland indicated there were no comments.

This submission was completed and reviewed in accordance with the Quality Assurance Process for this project.

Report
DESIGNATED SUBSTANCES SURVEY
Matheson Station, Matheson, Ontario

Client

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Project No. 2300877AT

January 4, 2024



January 4, 2024

Reference No.2300877AT

Gannett Fleming
Royal Bank Plaza
200 Bay Street, Suite 1600
Toronto, ON M5J 2J3

Attention: Amber Saltarelli, MCIP, RPP, PMP

**RE: Designated Substances Survey Report
Matheson Station, Matheson, Ontario**

Enclosed is a copy of designated substances survey report related to the above noted site.

For and on behalf of HLV2K Engineering Limited

A handwritten signature in blue ink, appearing to read "Irfan", is written over a faint, light blue grid background.

Irfan Ahmad Khokhar, Ph.D., P.Eng.
Vice-President and Principal

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1 INTRODUCTION

HLV2K Engineering Limited. (HLV2K) was retained by Gannett Fleming (the Client) to conduct designated substances and hazardous materials (DSHM) survey for the property located at 385 Railway Street, Matheson, Ontario (the Site).

Representatives of HLV2K were on-site to conduct the survey on November 16, 2023. Access and information to the building was provided by the owner of the property (Ontario Northland).

The area involved in the work plan for this survey included the accessible areas of the main floor and the basement of the building located at 385 Railway St, Matheson, ON. The components suspected of containing asbestos and lead paint were identified, logged, and, where necessary, sampled and sent to CALA (Canadian Association for Laboratory Accreditation) accredited laboratories for analysis.

A total of Thirty-nine (39) bulk samples were collected from the Site. Thirty-two (32) samples were collected for asbestos-containing materials, and the remaining seven (07) samples were obtained for lead concentration. Some samples might be analyzed with separate layers depending on the type of the sample. The following is a list of suspected asbestos-containing materials found on the Site:

- Drywall
- Joint Compound
- Floor Tile
- Caulking
- Plaster
- Insulation
- Pipe Wrap
- Ceiling Tile
- Asphalt pavement surrounding the building.

According to the laboratory analysis results and Ontario Regulation 490/09 standards, none (0) of the sample collected from the Site contained asbestos.

The test result also determined that two (02) of the paint sample contains greater than 0.1% lead by weight (1000 ppm*) and two (02) of the paint sample contains greater than 0.5% lead by weight (5000 ppm*).

Please see **Appendix A** for the Sample location map. The Site Photos are shown in **Appendix B**. The certificate of laboratory analysis is presented in **Appendix C**.

*ppm = parts per million

2 METHODOLOGIES

Site sampling for the Designated Substance Survey was performed on 16th November 2023, whereby all accessible areas of the Site were examined in reference to the scope of work.

The survey included limited destructive testing. However, it is still possible that materials may exist which could not be reasonably identified within the scope of the assessment, or which were not apparent or accessible during the site visit. Pipes covered behind drywall, above ceilings, or too far from reach using equipment, cannot be assessed without demolition of building/house materials; hence, they were not included in the survey. Additionally, areas that were not accessible were not sampled, and therefore were also not included as part of this investigation. Therefore, suspected asbestos-containing and other designated substance-containing materials may be present in these areas. A survey was conducted on all accessible areas.

A total of thirty-nine (39) samples were collected from the Site, Twenty-eight (28) samples collected from the building were submitted to Prime Analytical Lab for asbestos analysis (Please see Appendix C for samples record log and laboratory results) and four (4) samples collected from the asphalt pavement were submitted to Microvi Laboratories for Asbestos Analysis (Please see Appendix D for samples record log and laboratory results). The samples were analyzed using Polarized Light Microscopy (PLM) technique (following method EPA/600/R-93/116). This standard is specified by Ontario Regulation 278/05 as the method for establishing whether the material is asbestos-containing and defining the content and type of asbestos.

The remaining seven (07) samples were submitted for laboratory analysis as a paint chip sample suspected of having greater than 0.1% (1000 ppm) lead by dry weight and were analyzed accordingly. The paint chip samples were analyzed using ICP-MS following method EPA 6020. The regulations set the Environmental Abatement Council of Canada's (EACC) 2014 Lead Guideline for Construction, Renovation or Repair, which considers paints or surface coatings containing greater than 0.1% lead by weight (1000 ppm) but less than 0.5% lead by weight (5000 ppm) to be lead-containing paints or surface coatings. Paints or surface coatings containing equal to or greater than 0.5% lead by weight (5000 ppm lead) are considered lead-based paints or surface coatings.

3 SITE DESCRIPTION

The Site is located on the west side of Railway St, in Matheson, ON. The Site was previously being used as station building located at 385 Railway St, Matheson, ON



Figure 1: The site located at 385 Railway Street, Matheson, ON. The building is outlined in red.

4 REGULATORY REQUIREMENTS

4.1 Designated Substance Regulations

This report for Designated Substances is made to fulfill the Owners requirements under Section 30 of the Ontario Occupational Health and Safety Act, (the 'OHS'), Revised Statutes of Ontario 1990, c. O.1. The building/house owner must provide this report to all contractors working on the Site. Subsequently, all contractors must furnish this report to their subcontractors. The Designated Substances defined under the OHS and their corresponding regulations at the time of the survey are summarized in Table 1.

"Designated Substance" as defined by the OHS means "a biological, chemical or physical agent or a combination thereof prescribed as a designated substance to which the exposure of a worker is prohibited, regulated, restricted, limited or controlled." The OHS has issued specific regulations under Section 30 of the Act for these substances. The Designated Substance Regulations identified under the Industrial Regulation of the OHS, provide guidance on exposure and medical monitoring, permissible occupational exposure limits, etc. Ontario Regulation 278/05 ('O.Reg. 278/05') regulates the disturbance of asbestos on construction projects and is enforced by the Ministry of Labour, Immigration, Training and Skills Development of Ontario ('MLTSD').

Table 1: Designated Substances and Regulations

Substance	Regulations
Acrylonitrile	O. Reg. 490/09: Designated Substances
Arsenic	O. Reg. 490/09: Designated Substances
Asbestos	O. Reg. 490/09: Designated Substances
Designated Substance -Asbestos on construction projects and in building/houses and repair operations*	O. Reg. 278/05
Benzene	O. Reg. 490/09: Designated Substances
Coke Oven Emissions	O. Reg. 490/09: Designated Substances
Ethylene Oxide	O. Reg. 490/09: Designated Substances
Isocyanates	O. Reg. 490/09: Designated Substances
Lead	O. Reg. 490/09: Designated Substances
Mercury	O. Reg. 490/09: Designated Substances
Silica	O. Reg. 490/09: Designated Substances
Vinyl Chloride	O. Reg. 490/09: Designated Substances

* Note: The disturbance of asbestos on construction projects is specifically regulated by Ontario Regulation 278/05. It classifies all disturbances of Asbestos as Type 1, Type 2 or Type 3, each of which is associated with defined work practices. All asbestos material waste is subject to special handling and disposal practices and must be removed prior to partial or full demolition. Disposal of asbestos waste is subject to General Waste Management Regulation O. Reg. 347 as amended by 461/05.

The Federal Chlorobiphenyls Regulation, SOR/91-152 prohibits the use of PCBs in electrical transformers, capacitors and associated electrical equipment manufactured in or imported into Canada after July 1, 1980. The Federal Chlorobiphenyls Regulation SOR/92-507 and Ontario Regulation 362 outline the handling, storage, and disposal of PCBs and PCB-containing equipment. The Occupational Health and Safety Act (R.S.O. 1990) places duties on employers to take reasonable precautions to ensure that the health and safety of workers are adequately protected. General guidelines and requirements are dictated for all hazardous materials. All substances or combinations of substances, whether biological, chemical, or physical in nature, deemed to fall under the criteria of a "designated substance" are subject to special treatment by workplaces in accordance with a set of substance-specific rules and regulations.

4.2 Waste Disposal Regulations

The Waste Management Regulations below govern the transport and disposal of construction and asbestos waste. These regulations are listed in Table 2.

Table 2: Summary of Waste Disposal Regulations

Regulation name	Found under
Environmental Protection Act - General Waste Management	*R.R.O. 1990, O. Reg. 347
Environmental Protection Act - General Waste Management -Management of Asbestos Waste	*R.R.O. 1990, O. Reg. 347, Section 17
Environmental Protection Act - Waste Management - PCB's	*R.R.O. 1990, O. c
Dangerous Goods Transportation Act	**R.S.O. 1990, c. D.1

*R.R.O. - Revised Regulations of Ontario, 1990

**R.S.O. - Revised Statutes of Ontario, 1990

5 DESIGNATED SUBSTANCE RESULTS

5.1 Acrylonitrile

Acrylonitrile is a human-made chemical. It is a colorless, volatile, flammable liquid that can be dissolved in water and that evaporates quickly. Acrylonitrile is released into the environment primarily from chemical production and plastic product industries. Acrylonitrile is not suspected to be present on the Site.

5.2 Arsenic

Arsenic is a naturally occurring element widely distributed in the earth's crust because of natural weathering and erosion of rock, soil, and human activities. These include gold and base-metal processing, the use of pesticides containing arsenic, and coal-fired power generating stations. There is no evidence of arsenic being used or existing at the subject Site.

5.3 Asbestos

Information in this section of the report shall be provided to all prospective contractors who are likely to handle or disturb asbestos-containing materials and to employees who may work in close proximity and or disturb these materials. The survey of the building/house for hazardous materials consisted of a walk-through and physical examination of suspect materials in all accessible areas within the building/house. The physical examination is performed in order to assess the condition of the material or to examine for underlying layers.

Observations were based on a visual inspection and for potential materials that may contain asbestos substances and as required, were augmented with sampling and analysis. Samples were taken from representative locations of friable material and selected non-friable or manufactured products that are suspected of containing asbestos. The sample selection was based on the type of materials present within each portion of the building/house.

The following is a list of suspected asbestos-containing materials found on the Site:

Table 3: Asbestos Results (sampled on November 16, 2023)

Sample No.	Sample ID	Description/ Location	Sample Type	Asbestos Content
1	BS001	Roof - Top Layer	Roof Layer	Not detected
2	BS002	Roof - 2nd Layer	Roof Layer	Not detected
3	BS003	Caulking – Interior - Window - Office	Caulking	Not detected
4	BS004	Drywall - Office	Drywall	Not detected
5	BS005	Joint compound - Office	Joint Compound	Not detected
6	BS006	Ceiling tile - Office	Ceiling Tile	Not detected
7	BS007	Ceiling Insulation - Office	Ceiling Insulation	Not detected
8	BS010	Floor Tile (Green) -+ Mastic (On Wood) - Office	Floor Tile	Not detected

Sample No.	Sample ID	Description/ Location	Sample Type	Asbestos Content
9	BS011	Floor Tile (White) -+ Mastic (On Wood) - Office	Floor Tile	Not detected
10	BS012	Plaster - B/W Bricks - Garage	Plaster	Not detected
11	BS014	Caulking - Room 1	Caulking	Not detected
12	BS015	Drywall - Room 1	Drywall	Not detected
13	BS016	Floor tile- White- Room 1	Floor Tile	Not detected
14	BS017	Joint Compound - Room 1	Joint Compound	Not detected
15	BS018	Ceiling Tile - Room 1	Ceiling Tile	Not detected
16	BS019	Drywall - Kitchen	Drywall	Not detected
17	BS020	Brick - Garage	Brick	Not detected
18	BS021	Caulking - Kitchen	Caulking	Not detected
19	BS022	Floor Tile - Green - Waiting Area	Floor Tile	Not detected
20	BS023	Floor Tile - White Waiting Area	Floor Tile	Not detected
21	BS024	Drywall - Ticket Area	Drywall	Not detected
22	BS025	Plaster - Above False Ceiling - Ticket Area	Plaster	Not detected
23	BS026	Drywall - Washroom 1	Drywall	Not detected
24	BS027	Drywall - Waiting Area	Drywall	Not detected
25	BS028	Joint Compound - Waiting Area	Joint Compound	Not detected
26	BS030	Plaster - Stairs Wall - Basement	Plaster	Not detected
27	BS032	Plaster - basement	Plaster	Not detected
28	BS035	Caulking - Outside	Caulking	Not detected
29	S-1	Asphalt S-1 (West)	Asphalt	Not detected
30	S-2	Asphalt S-1 (North)	Asphalt	Not detected
31	S-3	Asphalt S-1 (South)	Asphalt	Not detected
32	S-4	Asphalt S-1 (East)	Asphalt	Not detected

According to the laboratory analysis results and Ontario Regulation 490/09 standards, none (0) of the samples collected from the Site contained asbestos.

Please see **Appendix B** for the sample location map. **Appendix C** for selected Site photos.

The certificate of laboratory analysis is presented in **Appendix D**.

5.4 Benzene

Benzene is a highly flammable, clear, colorless, sweet-smelling liquid and is commonly found in petroleum hydrocarbons, including gasoline and diesel. Benzene can be found in the air, water, and soil. Benzene occurs in the air primarily due to fumes and exhaust produced from gasoline use. No evidence of benzene was observed to be present on Site.

5.5 Coke Oven Emissions

Coke oven emissions are complex mixtures of coal and coke particles, various vapours, gases, and tars. The primary use of coke (pure carbon) is in the extraction of metals from their ores. Coke Ovens Emissions were not noted and would not be expected to be present in the building.

5.6 Ethylene Oxide

Ethylene oxide is a colorless gas with a sweet odour. Ethylene Oxide (EtO) is produced in large volumes and is primarily used as a chemical intermediate in the manufacture of several industrial chemicals. Ethylene oxide was not noted and would not be expected to be present in the building.

5.7 Isocyanates

Isocyanates are widely used in the manufacture of flexible and rigid foams, fibers, coatings such as paints and varnishes, and elastomers. Isocyanates are not expected to be present within this building.

5.8 Lead

Lead from paint chips and lead dust can be serious hazards. Peeling, chipping, chalking, or cracking lead-based paint is a hazard and needs immediate attention. Lead-based paint that is in good condition is usually not a hazard. Lead dust can form when lead-based paint is dry scraped, dry sanded, or heated.

Lead is regulated under O. Reg. 490/09 under the Occupational Health and Safety Act and should therefore be handled in accordance with the regulation. The MLITSD Regulation respecting Lead states that the Ministry's designated substance regulation (O. Reg. 490/09) for Lead, specifies occupational exposure limits (OELs) for Lead is 0.05 milligrams per cubic meter (mg/m³) of air as an 8-hour daily or 40-hour weekly time-weighted average.

There are no specific MLITSD regulations regarding Lead in paint; however, industry guidelines make use of regulations set by the Environmental Abatement Council of Canada's (EACC) 2014 Lead Guideline for Construction, Renovation, or Repair. EACC considers paints or surface coatings containing greater than 0.1% lead by weight (1000 ppm) but less than 0.5% lead by weight (5000 ppm) to be lead-containing paints or surface coatings. Paints or surface coatings containing equal to or greater than 0.5% lead by weight (5000 ppm lead) are considered lead-based paints or surface coatings.

Seven (07) paint chip samples were collected from the Site and sent for laboratory analysis. The test result determined that two (02) of the paint sample contains greater than 0.1% lead by weight (1000 ppm*) and two (02) of the paint sample contained even greater than 0.5% lead by weight (5000 ppm*).

Table 4: Lead Results

Sample No.	Sample ID	Description/Location	Sample Type	Presence of Lead (Pb)
1	BS008	Green - Office	Paint Chip	No
2	BS009	Cream - Office	Paint Chip	No
3	BS013	Gray - Room 1	Paint Chip	No
4	BS029	Blue - Wood Panel - Outside	Paint Chip	≥5000ppm
5	BS031	Cream - On Wood - Basement	Paint Chip	1000ppm<Lead<5000ppm
6	BS033	Cream - Basement	Paint Chip	1000ppm<Lead<5000ppm
7	BS034	White - Wood Panel - Outside	Paint Chip	≥5000ppm

Please see **Appendix B** for the sample location map. **Appendix C** for selected Site photos.

The certificate of laboratory analysis is presented in **Appendix D**.

5.9 Mercury

Mercury is found naturally in the environment in several forms. Examples of industrial sources include emissions of coal-fired power plants, burning municipal and medical waste. In its elemental form, mercury is a shiny, silver-white, liquid metal used in thermometers and some electrical switches. Mercury vapor may be present in the tubes of fluorescent light fixtures. During the Site visit, fluorescent light fixtures were found within the Site.

Mercury-containing thermostats were not observed on the Site. This type of thermostat should be removed prior to any scheduled renovations/demolitions (if encountered).

The presence of mercury in fluorescent light tubes and thermostats poses minimal risk to occupants or workers provided the equipment is handled properly, and the mercury is not allowed to escape. Before demolition activities commence, light tubes and thermostats should be removed intact to prevent the mercury vapor and liquid from escaping. It is good management practice to take precautions to avoid mercury vapors from becoming airborne during building/house demolition.

Exposure to airborne mercury is regulated under O. Reg 490/09, Regulation Respecting Mercury made under the Occupational Health and Safety Act. The current Time Weighted Average Exposure Value ('TWAEV') for mercury vapor is 0.025 mg/m³ (except alkyl compounds). Mercury waste must be handled and disposed of according to O. Reg. 347, and may be subject to Toxicity Characteristic Leaching Procedure (TCLP) Criteria (Schedule 4) of this regulation.

5.10 Silica

Crystalline silica, or silicon dioxide (SiO₂), is the basic component of sand, quartz, and granite rock. Silica can be found in all of the following materials: Brick, Concrete, Cement mortar, Granite, Sandstone, Topsoil, and Asphalt. Silica should always be assumed to be present in the building materials.

Disturbance of materials containing silica will occur during the demolition of walls and ceilings, saw-cutting floor slabs, and removal of lay-in acoustic ceiling tiles containing silica and is regulated under O.Reg 490/09. The current TWAEV for respirable particulate matter of crystalline – silica(Quartz/Tripoli) is 0.1 mg/m³ and crystalline – silica(Cristobalite) is 0.05 mg/m³.

The demolition and site cleanup of building/house materials containing silica should be conducted in accordance with the Ontario Ministry of Labour's 2004 document Guideline: Silica on Construction Projects, Type 1, Type 2 and Type 3 operation. Precautions such as work practices, ventilation, and the use of personal protective equipment should be used to reduce overall dust levels and reduce worker exposures to airborne silica to the lowest practical level.

5.11 Vinyl Chloride

Vinyl chloride is a colourless, flammable gas at normal temperatures with a mild, sweet odour. The main source of environmental releases of this substance has been in the form of emissions and wastewater resulting from the production of polyvinyl chloride (PVC) plastics. Vinyl chloride was not noted and is not to be expected to be present in the building.

6 HAZARDOUS SUBSTANCES RESULTS

6.1 Chlorofluorocarbons (CFCs)

The air conditioning unit was observed on Site (Ticket Area). Refrigerator was also observed on site. These units may contain CFC. Air conditioning unit that are older could contain chlorofluorocarbons (CFCs) and must be handled in accordance with the applicable regulations, which include the removal of the CFCs from the unit for disposal at an appropriately licensed facility. The production of CFCs was phased out by 1996.

6.2 Polychlorinated Biphenyls (PCBs)

Transformer units within the building, potentially containing polychlorinated biphenyls (PCBs), were not identified on Site. The PCB materials, if present, are common in a majority of the older building and should not present a hazard to occupants during normal use. Prior to renovation/demolition of the building/house(s), collect any electrical equipment, potentially containing PCBs, and inspect it for disposal at an appropriately licensed facility. If a PCB-containing transformer is found on the Site, it must be removed in accordance with municipal and provincial guidelines.

Fluorescent fixtures with ballasts were present on the Site. Based on the Federal Regulation, ballasts with date codes succeeding 1980 should not contain PCBs. If found to be otherwise, PCB waste must be handled and disposed of according to O. Reg. 362 – PCB waste management under the Environmental Protection Act of Ontario (RSO 1990) and may be subject to TCLP Criteria (O.Reg 347, Schedule 4) of the regulation.

6.3 Urea Formaldehyde Foam Insulation (UFFI)

Urea Formaldehyde Foam Insulation (UFFI) was installed primarily in wall cavities during the 1970's as an energy conservation measure. Its appearance is like ordinary shaving cream. Dry, it can be a white or tan color, and fluffy like Styrofoam. To ascertain if UFFI is present in building/houses, samples of insulation must be taken for lab analysis. The presence of UFFI in a building/house does not determine if formaldehyde vapors are present, as these fumes can come from other areas in the building/house as well. Building/houses installed with UFFI many years ago are unlikely to have high levels of formaldehyde vapors unless, for example, the insulation is damp and interior walls are cracked, or the foam is exposed. On the survey day, no UFFI was observed on the Site. However, it is possibly present on the Site in a discrete area.

7 OTHER SUBSTANCES

7.1 Underground Structures

Underground parking structure was not present at the Site.

7.2 Miscellaneous Chemicals

Cleaning and other miscellaneous chemicals were not observed. The cleaning and other miscellaneous chemicals should be properly stored and in the manufacturer's containers with manufacturer labels and in good condition.

7.3 Mould

Visible mould was observed in the basement during the Site visit.

8 CONCLUSIONS

- A total of thirty-nine (39) bulk samples were collected from the Site.
- Thirty-two (32) suspected asbestos-containing materials were identified and sampled from the Site, and the remaining seven (07) samples were obtained for lead concentration.
- None (0) of the samples collected for asbestos contain asbestos.
- Two (02) of the paint sample contains greater than 0.1% lead by weight (1000 ppm*) and two (02) of the paint sample contains greater than 0.5% lead by weight (5000 ppm*).

Sample ID	Description/Location	Sample Type	Presence of Lead (Pb)
BS029	Blue - Wood Panel - Outside	Paint Chip	≥5000ppm
BS031	Cream - On Wood - Basement	Paint Chip	1000ppm<Lead<5000ppm
BS033	Cream - Basement	Paint Chip	1000ppm<Lead<5000ppm
BS034	White - Wood Panel - Outside	Paint Chip	≥5000ppm

- Lead Abatement protocols should be followed as these have been provided in Appendix E.
- Mould abatement should be carried out according to EACC (Environmental Abatement Council of Canada) guidelines (Appendix F).
- Fluorescent lights/fixtures were observed throughout the whole site; these units potentially contain mercury. Please refer to section 5.9 for more details.
- The air conditioning unit and a refrigerator were observed on the Site. These units potentially contain chlorofluorocarbons (CFCs). Please refer to section 6.1 for detailed information.
- Any disturbance of building materials containing silica should be conducted in accordance with the Ontario Ministry of Labour's 2004 document Guideline: Silica on Construction Projects as a Type 1, 2 or 3 operation. Precautions such as work practices, ventilation, and the use of personal protective equipment should be used to reduce overall dust levels and reduce worker exposures to airborne silica to the lowest practical level.
- No evidence suggesting the presence of acrylonitrile, arsenic, benzene, ethylene oxide, isocyanates, vinyl chloride, and coke oven emissions was identified during the site visit.
- This report represents findings based on the samples collected for this designated substance survey. Any renovation contractor engaging in demolition or renovations at the subject building/house must immediately notify the owner if any hazardous materials not previously identified in this report were encountered in the building/house during the renovation/demolition. All work in that area must stop until the material is classified by HLV2K and appropriate procedures are provided for the management of the same material. It should be noted that there was very limited access to the roof for sampling.
- The contractor may substitute alternative procedures to those specified above, where procedures are approved in writing, and there is no increased risk to workers. Where a conflict occurs between these specifications and local, provincial, or federal regulations, the more stringent protocol should apply.

9 SURVEY LIMITATIONS

While this report provides an overview of existing potential concerns at the time of sampling, the assessment findings are limited by the availability of information at the time of the assessment and accessibility to confined areas within the Site building/house.

Some inherent limitations exist as to the thoroughness of this assessment due to the nature of building/house construction. Some reasonable extrapolation was required from the findings of the assessment.

Asbestos bulk samples have been analyzed using Polarized Light Microscopy (PLM) analysis as regulated in Ontario Regulation 278/05. Small asbestos fibers may be missed by PLM due to the resolution limitations of the optical microscope. Therefore, negative PLM results cannot be guaranteed. Electron Microscopy can be used as a confirming technique.

The field observations, measurements, and analysis are considered sufficient to form a general inventory of hazardous materials at the Site. It is possible that materials may exist which could not be reasonably identified within the scope of the assessment, or which were not apparent or accessible during the site visit. This assessment did not address possible contaminants in the soil or groundwater at the Site, underground or aboveground storage tanks, drums or vessels, sumps, chemical, fuel, and waste storage practices, and waste disposal practices.

10 CLOSURE

We trust this report is to your satisfaction. Should you have any questions concerning the above, please feel free to contact our office.

For and on behalf of HLV2K Engineering Limited



Irfan Ahmad Khokhar, Ph.D., P.Eng.
Vice-President and Principal

APPENDICES

**Appendix A:
Limitations of Report**

Limitations of Report

HLV2K has prepared this report for the exclusive use of the Client in evaluating the survey of the Site building/house at the time of the HLV2K Site visit. HLV2K will not be responsible for the use of this report by any third party, or reliance on or any decision to be made based on it without the prior written consent of HLV2K. HLV2K accepts no responsibility for damages, if any, by any third party as a result of decisions or actions based on this report. No other warranty, expressed or implied, is made.

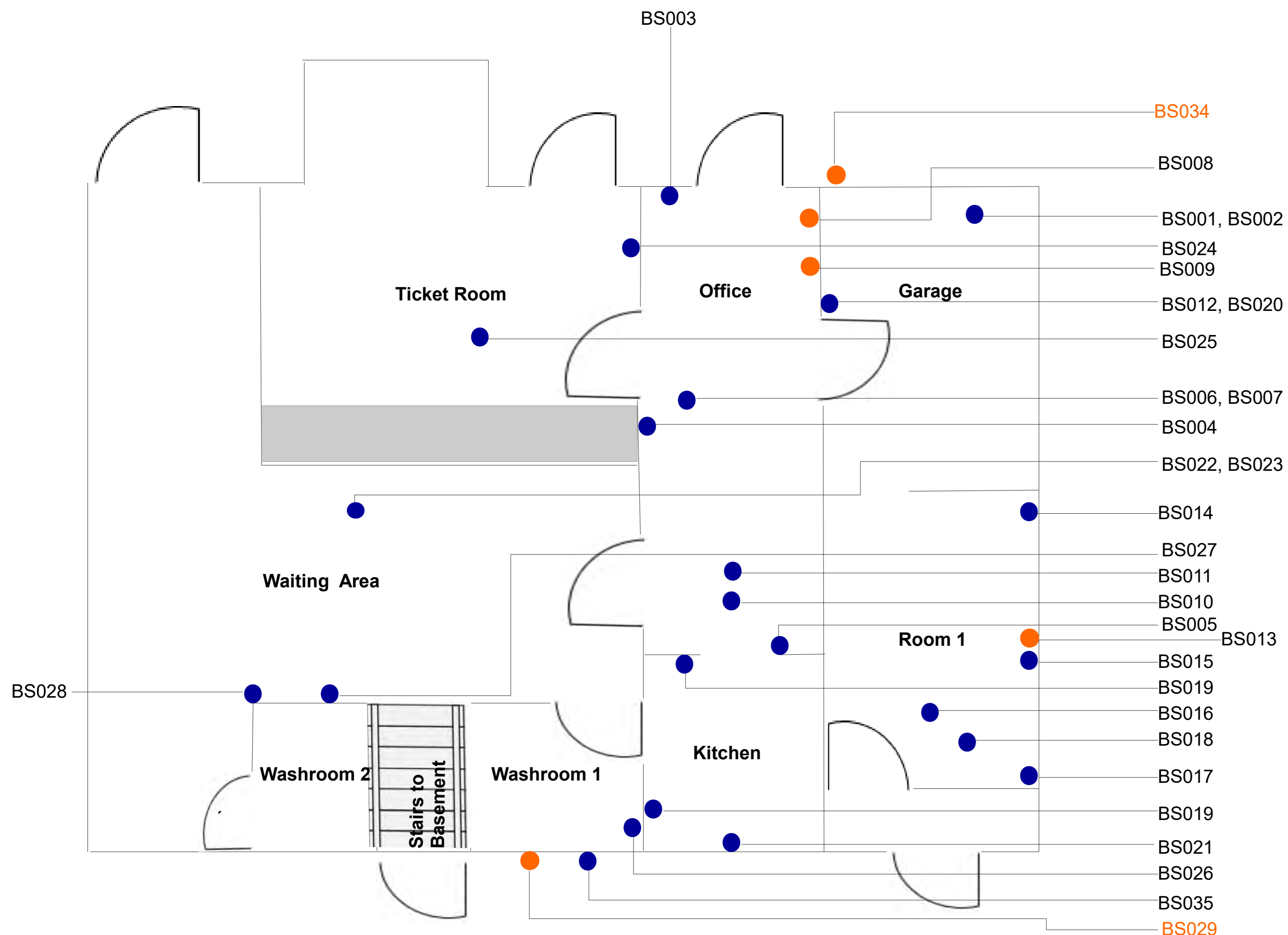
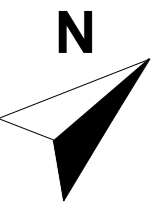
This report presents an overview of issues of concern with the Site building/house materials, reflecting HLV2K's best judgment using information reasonably available at the Site at the time of HLV2K's Site visit. HLV2K has prepared this report using information understood to be factual and correct and shall not be responsible for conditions arising from information or facts that were concealed or not fully disclosed to HLV2K at the time of the Site visit.

The reported information is believed to provide a reasonable representation of the general environmental conditions in the areas of investigation. It should be noted that the data presented herein were collected at specific locations and may vary between these locations.

No subsurface investigation was required in the scope of work for the Site. No other warranty, expressed or implied, is made.

1. The work performed in this report was carried out in accordance with our proposal. The conclusions presented herein are based solely upon the scope of services and time, and budgetary limitations described in our contract.
2. The report has been prepared in accordance with generally accepted survey and/or engineering practices. No other warranties, either expressed or implied, are made as to the professional services provided under our proposal contract.
3. The services performed and outlined in this report were based, in part, upon visual observations of the site and attendant structures. Our opinion cannot be extended to portions of the Site which were unavailable for direct observation, reasonably beyond the control of HLV2K.
4. The objective of this report was to survey the hazardous materials at the Site, given the context of our contract, with respect to existing environmental regulations within the applicable jurisdiction. Compliance of past owners with applicable local, provincial, and federal government laws and regulations was not included in our contract for services.
5. Our visual observations relating to potential designated materials in the environment at the Site are described in this report. It should be noted that other compounds or materials may be present in the site environment.
6. The conclusions of this report are based, in part, on the information provided by others. The possibility remains that unexpected environmental conditions may be encountered at the Site in locations not specifically investigated. Should such an event occur, HLV2K. must be notified in order that we may determine if modifications to our conclusions are necessary.
7. The utilization of HLV2K services during the implementation of any remedial measures will allow HLV2K to observe compliance with the conclusions and recommendations contained herein. It will also provide for changes as necessary to suit field conditions as they are encountered.
8. Any use which a third party makes of this report or any reliance on or decisions to be made based on it are the responsibility of such third parties. HLV2K accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this report

Appendix B:
Sample Location Plan



**Sample Location Plan
(1st Floor)**

Legends:

- Asbestos Sample
- Lead Sample

Labeled In: Asbestos Containing Sample Location Lead Containing Sample Location

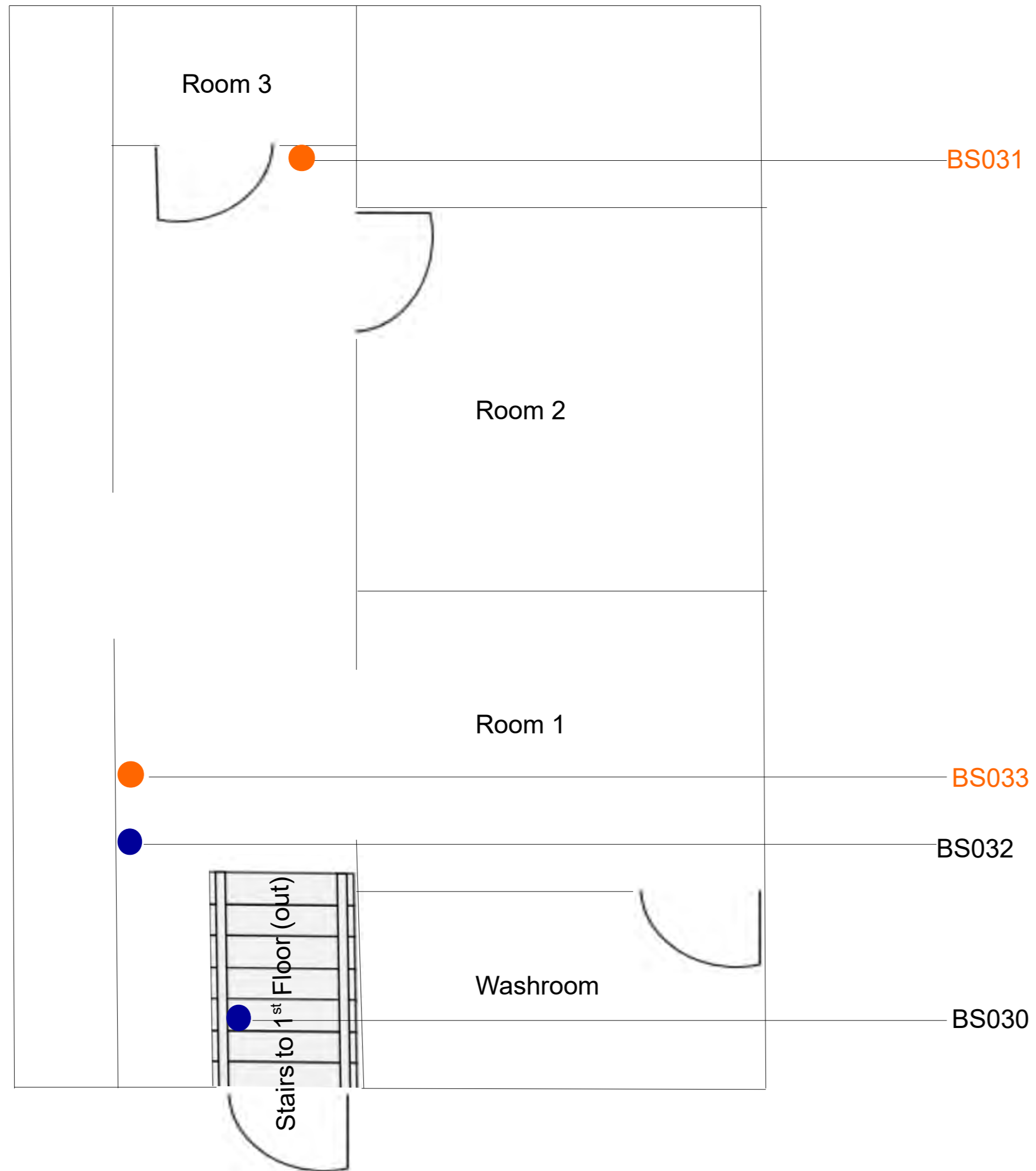
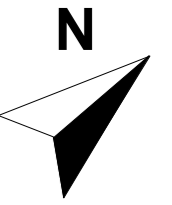
Client:
Gannett Fleming

Site Address:
385 Railway St, Matheson, ON P0K 1N0

Project No: 2300877AT

Date: November 23, 2023

Drawn By: HH



Sample Location Plan (Basement)

Legends:

- Asbestos Sample
- Lead Sample

Labeled In: **Asbestos Containing Sample Location** **Lead Containing Sample Location**

Client:
Gannett Fleming

Site Address:

385 Railway St, Matheson, ON P0K 1N0

Project No: 2300877AT

Date: November 23 2023

Drawn By: HH

**Appendix C:
Site Photos**



Photo 1: Site building facing North.



Photo 2: Site building facing South



Photo 3: Site Basement



Photo 4: Site Basement



Photo 5: Room 1

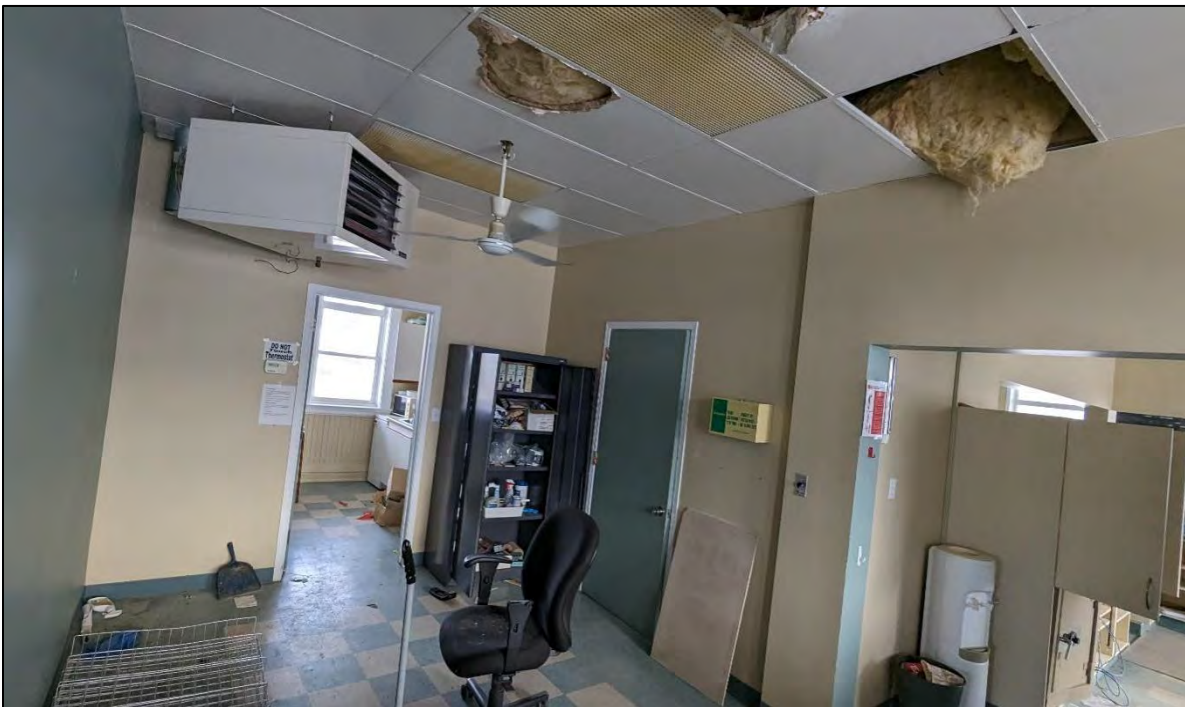


Photo 6: Office



Photo 7: Kitchen



Photo 8: Waiting Area



Photo 9: Waiting Area



Photo 40: Ticket Area

Appendix D:
Certificates of Laboratory Analysis



Test Report:
Bulk Asbestos Analysis by Polarized Light Microscopy
EPA Method: 600/R-93/116 &
40 CFR, Part 763, Subpart E, App. E

Prime Analytical Inc. • 707 Kipling Ave, Etobicoke, ON M8Z 5G4 • (T) 647-348-1400
<http://www.primeanalytical.com> • contact@primeanalytical.com

To: Mohit Chopra
 Martech Group
 40-6635 Kitimat Rd.
 Mississauga, ON
 L5C 1Y6

Phone: 519-572-6729
Lab ID: PLM23315
Date Received: Nov 17, 2023
Date Reported: Nov 17, 2023

Project: Matheson - ON

Client Sample ID: BS001

Date Analyzed: 2023-11-17

Description/Location: Roof - Top Layer

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-1A	Black Fibrous Homogeneous	Non Detect	15% Cellulose 10% Mineral Wool	Other 75%	

Client Sample ID: BS002

Date Analyzed: 2023-11-17

Description/Location: Roof - 2nd Layer

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-2A	Black Fibrous Homogeneous	Non Detect	15% Cellulose	Other 85%	

Client Sample ID: BS003

Date Analyzed: 2023-11-17

Description/Location: Caulking - INT. Window - Office

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-3A	Black Non-Fibrous Homogeneous	Non Detect		Other 100%	

Client Sample ID: BS004

Date Analyzed: 2023-11-17

Description/Location: Drywall - Office

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-4A	Grey Non-Fibrous Homogeneous	Non Detect		Other 100%	

Disclaimer: The results are only related to the samples reported above as received and may not be reproduced, except in full, without written approval by Prime Analytical Inc. Non-Detected (ND)= <0.5%. We recommend that analysis of floor tiles, vermiculite and/or heterogeneous soil samples be conducted by TEM for confirmation of "Non-Detected" by PLM. Prime Analytical Inc. bears no responsibility for sample collection activities, analytical method limitations, or handling prior to receipt at the laboratory. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. The test report should not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any other agency of the U.S. Government. Estimated uncertainty of measurement data is available upon request. Samples will be disposed of 90 days after the results have been reported.

Client Sample ID: BS005**Date Analyzed:** 2023-11-17**Description/Location:** Joint compound - Office

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-5A	White Non-Fibrous Homogeneous	Non Detect		Other 100%	

Client Sample ID: BS006**Date Analyzed:** 2023-11-17**Description/Location:** Ceiling tile - Office

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-6A	Grey Fibrous Homogeneous	Non Detect	40% Cellulose 40% Mineral Wool	Other 20%	

Client Sample ID: BS007**Date Analyzed:** 2023-11-17**Description/Location:** Ceiling Insulation - Office

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-7A	Yellow Fibrous Homogeneous	Non Detect	90% Fibre Glass	Other 10%	

Client Sample ID: BS010**Date Analyzed:** 2023-11-17**Description/Location:** Floor Tile (Green) -+ Mastic (On Wood) - Office

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-8A	Green Non-Fibrous Homogeneous	Non Detect		Other 100%	Floor tile
PLM23315-8B	Black Non-Fibrous Homogeneous	Non Detect		Other 100%	Mastic

Client Sample ID: BS011**Date Analyzed:** 2023-11-17**Description/Location:** Floor Tile (White) -+ Mastic (On Wood) - Office

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-9A	Beige Non-Fibrous Homogeneous	Non Detect		Other 100%	Floor tile
PLM23315-9B	Black Non-Fibrous Homogeneous	Non Detect		Other 100%	Mastic

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Client Sample ID: BS012

Date Analyzed: 2023-11-17

Description/Location: Plaster - B/W Bricks - Garage

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-10A	Grey Non-Fibrous Homogeneous	Non Detect		Other 100%	

Client Sample ID: BS014

Date Analyzed: 2023-11-17

Description/Location: Caulking - Room 1

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-11A	Black Non-Fibrous Homogeneous	Non Detect		Other 100%	

Client Sample ID: BS015

Date Analyzed: 2023-11-17

Description/Location: Drywall - Room 1

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-12A	Grey Non-Fibrous Homogeneous	Non Detect		Other 100%	

Client Sample ID: BS016

Date Analyzed: 2023-11-17

Description/Location: Floor tile- White- Room 1

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-13A	White Non-Fibrous Homogeneous	Non Detect		Other 100%	Floor tile
PLM23315-13B	Black Non-Fibrous Homogeneous	Non Detect		Other 100%	Mastic

Client Sample ID: BS017

Date Analyzed: 2023-11-17

Description/Location: Joint Comp. - Room 1

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-14A	White Non-Fibrous Homogeneous	Non Detect		Other 100%	

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Client Sample ID: BS018**Date Analyzed:** 2023-11-17**Description/Location:** Ceiling Tile - Room 1

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-15A	Grey Fibrous Homogeneous	Non Detect	40% Cellulose 40% Mineral Wool	Other 20%	

Client Sample ID: BS019**Date Analyzed:** 2023-11-17**Description/Location:** Drywall - Kitchen

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-16A	Grey Non-Fibrous Homogeneous	Non Detect		Other 100%	

Client Sample ID: BS020**Date Analyzed:** 2023-11-17**Description/Location:** Brick - Garage

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-17A	Red Non-Fibrous Homogeneous	Non Detect		Other 100%	

Client Sample ID: BS021**Date Analyzed:** 2023-11-17**Description/Location:** Caulking - Kitchen

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-18A	Grey Non-Fibrous Homogeneous	Non Detect		Other 100%	

Client Sample ID: BS022**Date Analyzed:** 2023-11-17**Description/Location:** Floor Tile - Green - Waiting Area

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-19A	Green Non-Fibrous Homogeneous	Non Detect		Other 100%	Floor tile
PLM23315-19B	Black Non-Fibrous Homogeneous	Non Detect		Other 100%	Mastic

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Client Sample ID: BS023

Date Analyzed: 2023-11-17

Description/Location: Floor Tile - White Waiting Area

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-20A	Beige Non-Fibrous Homogeneous	Non Detect		Other 100%	Floor tile
PLM23315-20B	Black Non-Fibrous Homogeneous	Non Detect		Other 100%	Mastic

Client Sample ID: BS024

Date Analyzed: 2023-11-17

Description/Location: Drywall - Ticket Area

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-21A	Grey Non-Fibrous Homogeneous	Non Detect		Other 100%	

Client Sample ID: BS025

Date Analyzed: 2023-11-17

Description/Location: Plaster - Above False Ceiling - Ticket Area

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-22A	Grey Non-Fibrous Homogeneous	Non Detect		Other 100%	

Client Sample ID: BS026

Date Analyzed: 2023-11-17

Description/Location: Drywall - Washroom 1

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-23A	Grey Non-Fibrous Homogeneous	Non Detect		Other 100%	

Client Sample ID: BS027

Date Analyzed: 2023-11-17

Description/Location: Drywall - Waiting Area

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-24A	Grey Non-Fibrous Homogeneous	Non Detect		Other 100%	

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Client Sample ID: BS028

Date Analyzed: 2023-11-17

Description/Location: Joint Comp. - Waiting Area

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-25A	White Non-Fibrous Homogeneous	Non Detect		Other 100%	

Client Sample ID: BS030

Date Analyzed: 2023-11-17

Description/Location: Plaster - Stairs Wall - Basement

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-26A	Grey Non-Fibrous Homogeneous	Non Detect		Other 100%	

Client Sample ID: BS032

Date Analyzed: 2023-11-17

Description/Location: Plaster - basement

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-27A	Grey Non-Fibrous Homogeneous	Non Detect		Other 100%	

Client Sample ID: BS035

Date Analyzed: 2023-11-17

Description/Location: Caulking - Outside

Lab #	Appearance	Asbestos	Other Materials		Notes
			Fibrous	Non-Fibrous	
PLM23315-28A	White Non-Fibrous Homogeneous	Non Detect		Other 100%	

Analyst(s)

Shothri Maharaj (33)

PLM23315


Approved Signature

Disclaimer: The results are only related to the samples reported above as received and may not be reproduced, except in full, without written approval by Prime Analytical Inc. Non-Detected (ND)= <0.5%. We recommend that analysis of floor tiles, vermiculite and/or heterogeneous soil samples be conducted by TEM for confirmation of "Non-Detected" by PLM. Prime Analytical Inc. bears no responsibility for sample collection activities, analytical method limitations, or handling prior to receipt at the laboratory. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. The test report should not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any other agency of the U.S. Government. Estimated uncertainty of measurement data is available upon request. Samples will be disposed of 90 days after the results have been reported.



Lead Analysis via XRF Analyzer

Prime Analytical Inc. • 707 Kipling Ave, Etobicoke, ON M8Z 5G4 • (T) 647-348-1400
<http://www.primeanalytical.com> • contact@primeanalytical.com

To: Mohit Chopra
Martech Group
40-6635 Kitimat Rd.
Mississauga, ON
L5C 1Y6

Phone: 519-572-6729
Lab ID: PB23053
Date Received: Nov 17, 2023
Date Reported: Nov 20, 2023

Project: Matheson - ON

ID:	Description/Location:	Presence of Lead (Pb):
BS008	Green - Office	No
BS009	Cream - Office	No
BS013	Gray - Room 1	No
BS029	Blue - Wood Panel - Outside - Lead detected at ≥ 1000 ppm by XRF Analyzer	Yes
BS029	Blue - Wood Panel - Outside - Lead detected at ≥ 5000 ppm by XRF Analyzer	Yes
BS031	Cream - On Wood - Basement - Lead detected at ≥ 1000 ppm by XRF Analyzer	Yes
BS031	Cream - On Wood - Basement - Lead detected at ≥ 5000 ppm by XRF Analyzer	No
BS033	Cream - Basement - Lead detected at ≥ 1000 ppm by XRF Analyzer	Yes
BS033	Cream - Basement - Lead detected at ≥ 5000 ppm by XRF Analyzer	No
BS034	White - Wood Panel - Outside - Lead detected at ≥ 1000 ppm by XRF Analyzer	Yes
BS034	White - Wood Panel - Outside - Lead detected at ≥ 5000 ppm by XRF Analyzer	Yes

Analyst(s)
Theo Madill (11)
PB23053


Approved Signature

Disclaimer: The results are only related to the samples reported above and may not be reproduced, except in full, without written approval by Prime Analytical Inc. Prime Analytical Inc. bears no responsibility for sample collection activities, analytical method limitations, or handling prior to receipt at the laboratory. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. The test report should not be used to claim product certification, approval. Estimated uncertainty of measurement data is available upon request. Samples will be disposed of 90 days after the results have been reported.

Laboratory Analysis Report

Client: HLV2K Engineering Limited
Address: 2179 Dunwin Dr. Unit#4
 Mississauga, ON
 L5L 1X2
Tel.: (905) 569-9765 x 202
Attn: Kourosh Mohammadi
Email: kourosh.mohammadi@HLV2K.com
irfan.khokhar@HLV2K.com


Microvi Lab Job #: 23-5399
Client's Project ID: 2300877AT
P.O. #: N/A
Date Sampled: 16-Nov-23
Date Received: 22-Nov-23
Date Reported: 24-Nov-23
Project Location: Matheson Station,
 Matheson, ON

Analysis Requested:	Asbestos by PLM
Sample Description:	4 Bulk Samples

Client Sample ID / Description	Lab Sample ID	Sample Matrix	Asbestos Content (% by Weight / Type)
Asphalt S-1 (West)	23-5399-01	Asphalt Core	None Detected
Asphalt S-2 (North)	23-5399-02	Asphalt Core	None Detected
Asphalt S-3 (South)	23-5399-03	Asphalt Core	None Detected
Asphalt S-4 (East)	23-5399-04	Asphalt Core	None Detected

Note:

1. Ontario Regulation 278/05 (O. Reg. 278/05) defines an "asbestos-containing" material as that with an asbestos content equal to or greater than 0.5% by weight.
2. Asbestos analysis has been performed in accordance with Microvi Laboratories Standard Operating Procedure M-01 Rev 1.0 based on NIOSH analytical method 9002, fourth edition: Asbestos (bulk) by PLM.
3. The results apply to the samples as received and relate only to the samples analyzed.
4. The report shall not be reproduced except in full.

Approved by: 

 Walter Wang
 Laboratory Manager

Appendix E:
Lead Abatement Protocol

LEAD ABATEMENT PROTOCOL
Matheson Station, Matheson, Ontario

Client

GANNETT FLEMING
Royal Bank Plaza
200 Bay Street, Suite 1600
Toronto, ON M5J 2J3

Prepared by:



2179 Dunwin Drive, Unit 4
Mississauga, ON L5L 1X2

Project No. 2300877AT

December 12, 2023



December 12, 2023

Reference No.2300877AT

Gannett Fleming
Royal Bank Plaza
200 Bay Street, Suite 1600
Toronto, ON M5J 2J3

Attention: Amber Saltarelli, MCIP, RPP, PMP

**RE: Lead Abatement Protocol
Matheson Station, Matheson, Ontario**

Enclosed is a copy of lead abatement protocol related to the above noted site.

For and on behalf of HLV2K Engineering Limited

A handwritten signature in blue ink, appearing to read "Irfan", is written over a faint, light blue grid background.

Irfan Ahmad Khokhar, Ph.D., P.Eng.
Vice-President and Principal

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1 INTRODUCTION

HLV2K Engineering Limited. (HLV2K) was retained by Gannett Fleming (the Client) to provide the Lead Abatement Protocol for the property located at 385 Railway Street, Matheson, Ontario (the Site).

HLV2K performed the Designated Substance Survey (DSS) for the aforementioned property on November 16, 2023. During the survey, elevated levels of lead were identified.

Lead is regulated under O. Reg. 490/09 under the Occupational Health and Safety Act and should therefore be handled in accordance with the regulation. The Ministry of Labour (MOL) Regulation respecting lead states that the Ministry's designated substance regulation (O. Reg. 490/09) for lead, specifies occupational exposure limits (OELs) for lead is 0.05 milligrams per cubic meter (mg/m³) of air as an 8-hour daily or 40-hour weekly time-weighted average.

According to EACC (Environmental Abatement Council of Canada), paints or surface coatings with lead content exceeding 0.1% lead by weight (1000 ppm) but less than 0.5% lead by weight (5000 ppm) are deemed lead-containing. Those with concentrations equal to or surpassing 0.5% lead by weight (5000 ppm) are classified as lead-based.

The following table illustrates the samples that were identified to have elevated lead levels.

Table 1.1: Lead Results

Sample No.	Sample ID	Description/Location	Sample Type	Presence of Lead (Pb)
4	BS029	Blue - Wood Panel - Outside	Paint Chip	≥5000ppm
5	BS031	Cream - On Wood - Basement	Paint Chip	1000ppm<Lead<5000ppm
6	BS033	Cream - Basement	Paint Chip	1000ppm<Lead<5000ppm
7	BS034	White - Wood Panel - Outside	Paint Chip	≥5000ppm

The Lead Abatement Protocols adhere to the EACC Lead Guidelines of 2014. However, these protocols have been slightly adjusted to align with the specific requirements of the Site.

2 LEAD ABATEMENT GUIDELINES:

Work is classified based on the type of disturbance or activity that may cause lead exposure and/or the anticipated airborne concentration of lead.

NOTE: Work is sorted by potential lead exposure and expected airborne lead levels. Applying a barrier or new paint to lead-containing material isn't considered a Lead Operation, including when using low-lead paints on existing lead-based coatings.

2.1 Class 1 Operations:

- Removal of lead-containing or lead-based paints and surface coatings with a chemical gel/stripper or paste.
- Removal of materials coated with lead-containing or lead-based paints and surface coatings, using non-powered hand tools, where the material remains chiefly intact and is not crumbled, pulverized or powdered.
- Removing lead-containing or lead-based paints or surface coatings with a heat gun.
- Removing lead-containing and lead-based paints and surface coatings using a high-pressure water jet (e.g. pressure washer).

2.2 Class 2 Operations:

- Removal of lead-containing or lead-based paints and surface coatings or lead-containing materials using a power tool that has an effective dust collection system equipped with a HEPA filter.
- Removal of lead-containing mortar using handheld non-powered tools.
- Removal of lead-containing and lead-based paints and surface coatings or lead-containing materials by scraping or sanding (including wet sanding) using non-powered hand tools.

2.3 Class 3 Operations:

Class 3 is divided into two sub-classes.

3A Operations

- Removal of lead-containing or lead-based paints and surface coatings or lead-containing materials using a power tool without an effective dust collection system equipped with a HEPA filter.
- Removal of lead-containing mortar using a powered cutting device.

3B Operations

- Abrasive blasting of lead-containing and lead-based paints and surface coatings or lead-containing materials (including wet, slurry and dry abrasive blasting and dry-ice blasting)

3 MEASURES AND PROCEDURES:

3.1 Class 1:

- Mandatory washing facilities with basin, clean water, soap, and towels. Workers must use them after leaving the work area and before eating, drinking, or smoking.
- Respirators and coveralls are not required if following general safety procedures. Workers requesting them shall be provided with the same.
- Workers shall not eat, drink, chew or smoke in the work area.
- At regular intervals, clean up dust and waste, and deposit in a sealed container labeled as lead waste. Clean with a damp cloth or HEPA-filtered vacuum. Place in a clean bag just before removal from the work area and dispose of it frequently.
- 6 mil polyethylene bags can be used for waste, suitable for the waste type. Double bagging is recommended.
- Drop sheets shall be used below all lead operations that may produce dust, chips, or debris containing lead.
- Dry removal of lead-containing or lead-based paints and surface coatings shall be minimized whenever possible.
- Use wet methods to minimize dust generation, such as wetting surfaces, employing wet mist, wet scraping, and wet shoveling.
- All equipment, tools, respirators and clothing shall be cleaned by damp wiping, or with a vacuum equipped with a HEPA filter, prior to removal from the work area.
- If the material (fibrous or porous) cannot be adequately protected from lead dust or waste, it shall be removed and disposed of.
- Water from cleaning or removal must be contained and disposed of as per relevant legislation.

3.2 Class 2:

- Mandatory washing facilities with basin, clean water, soap, and towels. Workers must use them after leaving the work area and before eating, drinking, or smoking.
- Provide respirators, gloves, coveralls, and other PPE. Workers must wear them.
- Mandatory signage and controlled access. Sufficient signs warning of lead hazard, stating restricted access to those in protective clothing.
- Regularly clean dust and waste, and deposit in a dust-tight container labeled as lead waste. Clean with a damp cloth or HEPA-filtered vacuum. Place in a clean bag just before removal and dispose of frequently.
- The use of 6 mil polyethylene bags as a waste container is acceptable provided it is appropriate for the type of waste. Double bagging of waste is recommended.
- Drop sheets shall be used below all lead operations that may produce dust, chips, or debris containing lead.
- Air-handling (supply and return) systems servicing the area of the Class 2 Operation shall be removed from service or isolated to prevent migration of lead through the air handling system.

- Dry removal of lead-containing or lead-based paints and surface coatings shall be minimized whenever possible.
- Wet methods should be incorporated into the operation to reduce dust generation. Examples of wet methods include wetting surfaces, wet mist, wet scraping and wet shoveling.
- All equipment, tools, respirators and clothing shall be cleaned by damp wiping, or using a vacuum equipped with a HEPA filter, prior to removal from the work area.
- If the material (fibrous or porous) cannot be adequately protected from lead dust or waste it shall be removed and disposed of.
- Any water generated from cleaning or removal operations must be appropriately contained, treated or disposed of in accordance with applicable legislation.
- For dust-generating activities, use local mechanical ventilation to eliminate dust, mist, and fumes at the source. Maintain an air velocity at the source of no less than 0.5 m/sec (100 ft./min). Air discharged must pass through a HEPA filter.

3.3 Class 3:

- A competent supervisor must be present at all times during Class 3 Operations. Only workers and supervisors with proper training shall perform Class 3 Operations.
- Provide washing facilities with a wash basin, clean water, soap, and towels. Workers must use these facilities upon leaving the work area and before eating, drinking, or smoking.
- Mandatory signage and controlled access. Sufficient signs warning of the lead hazard, stating in large, clearly visible letters that (i) there is a lead hazard, and (ii) access to the work area is restricted to persons wearing protective clothing.
- Regularly clean up dust and waste. Place in a dust-tight container identified as lead waste. Clean using a damp cloth, HEPA-filtered vacuum, or place in a clean bag for a pristine exterior before frequent removal from the workplace.
- The use of 6 mil polyethylene bags as a waste container is acceptable provided it is appropriate for the type of waste. Double bagging of waste is recommended.
- Utilize enclosures to isolate the work area from other construction activities, minimizing lead exposure to individuals not directly involved. Limit the use of barriers only when full or partial enclosures are impractical.
- Drop sheets shall be used below all lead operations that may produce dust, chips, or debris containing lead.
- For Class 3a operations conducted indoors where work areas are not accessible to the public, barriers, partial enclosures, or full enclosures may be used. For all other Class 3 operations conducted indoors, full enclosures shall be used.
- For Class 3a and 3b operations conducted outdoors, barriers, partial enclosures, or full enclosures shall be provided.
- For dry abrasive blasting conducted outdoors, full enclosures should be provided.
- Prevent the spread of lead dust by maintaining a minimum negative air pressure of 0.02 inches of water column (5 pascals) within the enclosed area relative to the external area and/or achieving 6 air changes per hour. Regularly measure and log pressure differential readings during lead removal.

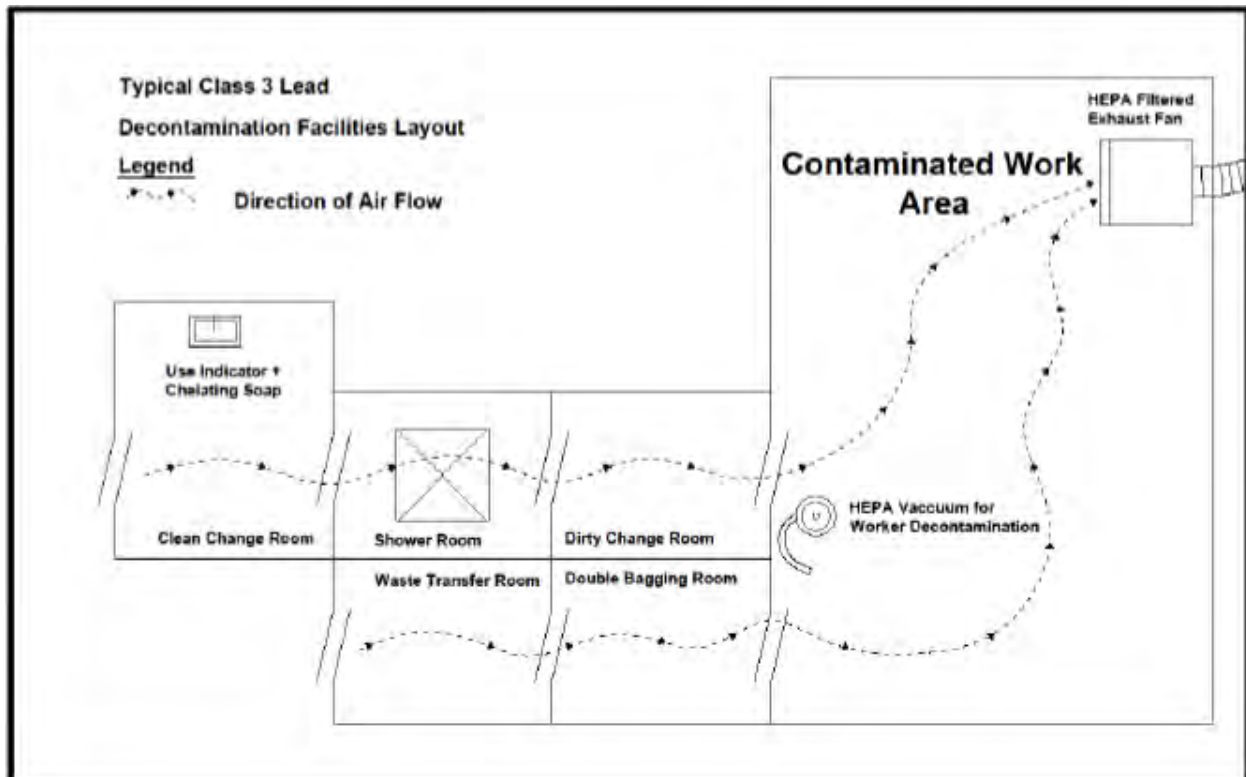
- Air-handling systems (supply and return) servicing the area of the Class 3 Operation shall be removed from service or isolated to prevent migration of lead through the air-handling system.
- Wet methods should be incorporated into the operation to reduce dust generation. Examples of wet methods include wetting surfaces, wet mist, wet scraping and wet shoveling.
- All equipment, tools, respirators and clothing shall be cleaned by damp wiping, or using a vacuum equipped with a HEPA filter, prior to removal from the work area.
- If the material (fibrous or porous) cannot be adequately protected from lead dust or waste it shall be removed and disposed of.
- Any water generated from cleaning or removal operations must be appropriately contained, treated or disposed of in accordance with applicable legislation.
- For dust-generating operations, introduce additional local mechanical ventilation to eliminate dust, mist, and fumes at the source. Ensure a minimum air velocity of 0.5 m/sec (100 ft./min) at the point of dust, mist, or fume generation. The air discharged from the local mechanical ventilation system should pass through a HEPA filter.

3.4 Class 3 Decontamination Facility

Establishing a decontamination facility is required for workers conducting Class 3 operations. The decontamination facility shall be located as close as practicable to the work area and shall consist of:

- A suitable area for taking off contaminated protective clothing.
- A shower that includes hot and cold water with individual controls, clean towels, and soap suitable for removing lead, a suitable area for changing into street clothes.

Refer to the following Class 3 Lead Operation Facilities Layout:



3.5 Class 3 Barriers, Partial Enclosures and Full Enclosures

- Use barriers to limit access to adequately protected workers with proper PPE and prevent entry of those not directly involved in the operation. Place ropes or barriers at a sufficient distance from the operation to allow lead-containing dust to settle.
- Partial enclosures, comprising vertical and/or horizontal tarps and drop sheets (e.g., polyethylene sheeting), should overlap and be securely fixed at the seams. While not recommended for significant dust generation, partial enclosures are suitable for containing flakes and chips.
- Full enclosures are secure, preventing fugitive emissions from reaching outside areas. Criteria for full enclosures include wind-proof materials, support from secure structures, fully sealed joints, entrances with airlocks, and general mechanical ventilation equipped with HEPA filters. During abrasive blasting operations, maintain an average minimum cross-draft capture velocity of 0.5m/s and a minimum down-draft capture velocity of 0.25m/s at the worker's breathing zone.

4 PERSONAL PROTECTIVE EQUIPMENT

The following table summarizes the PPE required:

Table 4.1: PPE Requirement during Abatement

Operation	Minimum Respirator Requirement	Lead Specific PPE
Class 1	Should not be necessary if the general procedures listed in class 1 measures and procedures. In the case the worker request to wear a respirator, a half-face air purifying respirator with N R or P series filters (95,99 or 100% efficiency)	Appropriate Gloves Coveralls, boots and respirators if asked by the worker
Class 2	NIOSH APF = 10 Half-face air purifying respirator with N R or P series filters (95,99 or 100% efficiency)	Appropriate gloves, coveralls and boot covers, respirator
Class3A	NIOSH APF = 50 Full-face air purifying respirator with N R or P series filters (95,99 or 100% efficiency) Tight-fitting powered air-purifying respirator with a high-efficiency filter.	Appropriate gloves, coveralls and boot covers, respirator
Class 3B	NIOSH APF ≥ 1000 Full-face piece supplied-air operated in pressure-demand positive-pressure mode	Appropriate gloves, coveralls and boot covers, respirator

5 CLOSURE

We trust this report is to your satisfaction. Should you have any questions concerning the above, please feel free to contact our office.

For and on behalf of HLV2K Engineering Limited

Irfan Ahmad Khokhar, Ph.D., P.Eng.
Vice-President and Principal

Appendix F:
EACC Mould Abatement Guidelines

EACC Mould Abatement Guidelines

Edition 3 (2015)

SECTION B: GENERAL PRECAUTIONS APPLICABLE TO ALL LEVELS OF MOULD ABATEMENT WORK

1. Protection of Occupants

- 1.1 The project authority should consider whether occupants should be removed from areas adjacent to the work area. The removal of occupants from spaces adjacent to the work area is not necessary in all cases but should be considered in the presence of Susceptible Occupants including but not limited to infants less than 12 months old, persons having undergone recent surgery, the elderly, immune suppressed people, or people with chronic inflammatory lung diseases.

2. Worker Training and Medical Pre-screening

- 2.1 Mould abatement workers shall be trained in the hazards of Mould Abatement and in the procedures to be followed. Training at a minimum shall include classroom and site instruction. Minimum training topics shall include: hazards of mould abatement; use and limitations of personal protective equipment such as respirators and gloves; proper abatement practices including site isolation, removal techniques, proper clean-up and decontamination procedures. General health and safety training should also be provided to workers, as required by the Occupational Health & Safety Act and regulations for construction sites, and waste handling and disposal regulations.
- 2.2 Workers must be fit to work with potential Mould or microbial exposure. Workers with a history of significant allergic disease (asthma, hay fever, hives, etc.) or with a potential immuno-compromised status (persons with an immune system disease, taking immune system suppression medication, etc.) should consult with an experienced physician to determine whether Mould removal activities, and the associated potential for exposure to pathogenic materials, would present an unacceptable health risk.
- 2.3 Mould Abatement workers who may encounter a risk of infectious disease from unsanitary water sources (sewage, river floods, etc.) should consult with an experienced physician regarding vaccinations to reduce the risk of infectious disease through available immunizations, particularly Hepatitis A and B, tetanus and polio.

3. Respiratory Protection

- 3.1 The respiratory protection in these procedures has been established for protection against fungal particulate material, for which a Respirator with a NIOSH-approved particulate filter will be adequate. Another type of Respirator may be required if the Mould Abatement will employ a Disinfectant with a volatile hazardous ingredient (e.g., household chlorine bleach). Consult MSDS data for specific respiratory protection in relation to specific cleaning products.
- 3.2 Respirators shall be NIOSH approved.
- 3.3 Workers should complete Respirator pre-screening as detailed in CSA Standard Z94.4-11, Selection, Care and Use of Respirators (Appendix E Figure E1) and, if required, consult with an experienced physician to determine if a Respirator can be used without serious difficulty.
- 3.4 Respirator wearers shall be Fit-tested for each type of Respirator, prior to use, following CSA Standard Z94.4-11, Selection, Care and Use of Respirators.

EACC Mould Abatement Guidelines Edition 3 (2015)

- 3.5 Follow CSA Standard Z180.1-13 as amended, for testing of breathing air quality for supplied air respiratory protection required for dry ice abrasive blasting (see Appendix C).
- 3.6 Clean and maintain the Respirator and battery pack (where applicable) in accordance with manufacturer's recommendations.
- 3.7 No facial hair or spectacle side arms, which affect the seal of the Respirator to the skin, are allowed.
- 3.8 Dispose of filters daily due to the potential growth of Mould spores on damp filter media.
- 3.9 Due to the nature and working conditions of Mould Abatement, Filtering Facepiece Respirators shall not be utilized for Level 2 or Level 3 Abatement projects.

4. Personal Protection and Hygiene

- 4.1 Refer to the EACC Guideline Construction Worker Hygiene Practices 2014. Workers shall wear appropriate eye protection including safety glasses or goggles that provide protection from external debris (not required with full face negative pressure respirator), chemical splashes, impact or dusty environments, dust-impermeable gloves appropriate for the work underway and water-impermeable gloves for application of detergent and/or Disinfectant. Refer to the MSDS for the detergent and/or Disinfectant for glove selection.
- 4.2 Wash face and hands after work at the Abatement project each time after exiting the Abatement work area.
- 4.3 For all levels of work, eating, drinking or smoking is prohibited in the work area.

5. Cleaning

- 5.1 Pre-clean any items that will be retained, whether removed from the work area or covered and left in the work area. Use appropriate and effective cleaning methods.
- 5.2 After bulk removal, clean the surrounding areas with a HEPA vacuum. No other type of vacuum can be used. If a HEPA vacuum is not available, wet wiping may be adequate for Level 1 work.
- 5.3 Do not dry sweep or dry whisk. Use power tools only if fitted with effective HEPA-filtered dust collection.
- 5.4 Wipe all non-Porous surfaces within the removal area with a detergent solution. Rinse with clear water as required.
- 5.5 As an option, a Disinfectant solution can be used in place of, or in addition to a detergent. Apply the Disinfectant as specified by the manufacturer, maintaining the surfaces wet for the prescribed period. Generally, surfaces to be disinfected must be cleaned of all dust and loose organic material prior to application of the Disinfectant. A Disinfectant is required where the work area has been contaminated with a significant pathogenic hazard (i.e., sewage floods).
- 5.6 The project authority should consider the use of a Disinfectant in hospital or health care settings, or in other settings where the project authority believes occupants to be significantly immunocompromised. Refer to the Health Canada and CSA guidelines for prevention of fungal infections in health care settings, given above.

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- 5.7 Use only disinfectants with current Health Canada DIN registration. Apply the disinfectant according to the DIN label, observing requirements for mixing, storage time, worker safety, pre-cleaning, contact time, and any requirements for rinsing.
- 5.8 These cleaning requirements apply to all exposed surfaces within the work area. The project authority will determine if soft goods and Porous materials can be adequately cleaned or must be disposed of.
- 5.9 Clean all equipment used in the Abatement work area by HEPA vacuuming or wet wiping. Equipment that cannot be readily cleaned shall be HEPA vacuumed and sealed in 6 mil polyethylene bags before removal from the work area.

6. Post Abatement Cleanup

- 6.1 Remove Polyethylene sheeting used during abatement by carefully rolling towards the centre of the work area. Clean any visible dust and debris using a HEPA vacuum.
- 6.2 Clean all tools, supplies and equipment in the work area using a HEPA vacuum and by wet wiping. Equipment that cannot be readily cleaned (e.g. vacuum hose, wire brushes, etc.) shall be HEPA vacuumed and sealed in 6 mil polyethylene bags or suitable sealed containers before removal from the work area.
- 6.3 Seal the intake and exhaust of HEPA Filtered Exhaust Fans (negative air machines) and clean the cabinet by wet wiping, before removal from the work area.
- 6.4 Leave the work area and surrounding areas dry and visibly free of dust and debris.

7. Waste Disposal

- 7.1 Remove all waste as contaminated material, including but not limited to building debris, disposable coveralls, Respirator filters and/or cartridges, and plastic sheeting. All waste should be immediately double-bagged into two 6-mil polyethylene bags, each individually sealed. If the material cannot be bagged, wrap in 2 layers of 6 mil Polyethylene Sheeting and seal with tape.
- 7.2 Transport and dispose of the waste material in compliance with local, provincial and federal regulations, including the Ontario Environmental Protection Act and any other regulations, which may apply to the Mould or the substrate on which the Mould was located.

8. Post-Abatement Drying

- 8.1 By the completion of the mould abatement, ensure the cause of the mould growth has been identified and an action plan initiated to prevent further mould growth. This action would include mitigation of the original cause of the mould contamination. This would include such factors as past flooding, moisture intrusion or elevated levels of relative humidity. Also, at completion of mould abatement check that the remaining finishes (e.g., concrete, wood framing, sub-floors) have been adequately dried so that mould growth will not re-occur when new finishes are installed. The work area may require further drying efforts before re-construction can commence.

CANADIAN RAIL OPERATING RULES

May 9, 2022 Version

The official version of the CROR, in its entirety, applies to all railway companies. Certain railway companies may not, as a practical matter, perform each and every activity that the CROR governs. In this case, for greater employee clarity, the railway company's rule book must contain the rules that govern activities they do perform.

Those rules shown as OPTIONAL may be adopted by a railway.

When used by a railway, they will not indicate the word "OPTIONAL" in that company's version of the CROR.

It is optional to print the CROR and Protection of Track Units and Track Work together as one book or separately as CROR book 1 and CROR book 2.

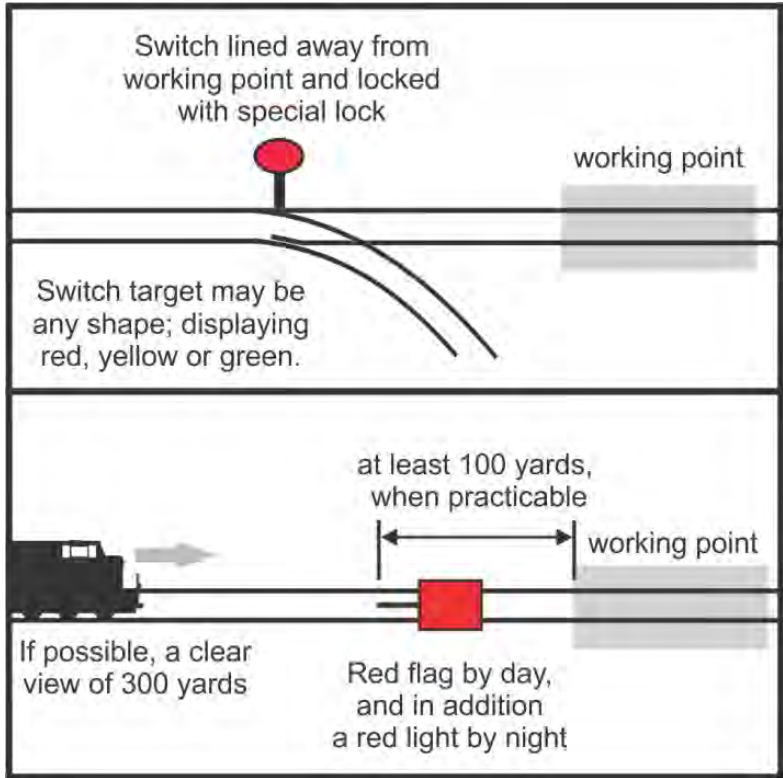
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GENERAL NOTICE

Safety and a willingness to obey the rules are of the first importance in the performance of duty. If in doubt, the safe course must be taken.

DEFINITIONS

For the purpose of these rules and special instructions, the following definitions apply:

ADVANCE SIGNAL

A fixed signal used in connection with one or more signals to govern the approach of a movement to such signal.

ADVANCED TRAIN DISPATCHING SYSTEM

Train control technologies that provide enhancements for protecting overlapping authorities with ability to provide signal indications into protected track.

AUTOMATIC BLOCK SIGNAL SYSTEM (ABS)

A series of consecutive blocks in which ABS rules apply.

BLOCK

A length of track of defined limits, the use of which by a movement is governed by block signals.

BLOCK SIGNAL

A fixed signal at the entrance to a block to govern a movement entering or using that block.

CAUTIONARY LIMITS

That portion of the main track or main tracks within limits defined by cautionary limit sign(s).

CENTRALIZED TRAFFIC CONTROL SYSTEM (CTC)

A system in which CTC rules apply.

CONTROLLED BLOCK

A block in CTC between consecutive controlled locations or points.

CONTROLLED SIGNAL

A CTC block signal which is capable of displaying a Stop indication until requested to display a less restrictive indication by the RTC.

CONTROLLED LOCATION

A location in CTC the limits of which are defined by opposing controlled signals.

CONTROLLED POINT

A signal location in CTC consisting of controlled signal(s) in one direction only.

CROSSOVER

A track joining adjacent main tracks, or a main track and another track.

DAILY OPERATING BULLETIN (DOB)

A document containing applicable information from each GBO, instructions and other information requiring compliance within limits indicated in special instructions.

ELECTRONIC COMMUNICATIONS METHOD (ECM)

An electronic method for transmission and cancellation of authorities, instructions or information.

ENGINE

A locomotive(s) operated from a single control or a cab control car, used in train, transfer or yard service.

ENGINE IN YARD SERVICE

An engine with or without cars utilized exclusively in switching, marshalling, humping, trimming and industrial switching.

EQUIPMENT

One or more engines and/or cars which can be handled on their own wheels in a movement.

EXCLUSIVE TOP

A TOP that provides exclusive occupancy of the track to one foreman. No more than two track units can operate within the limits of an Exclusive TOP.

EXCLUSIVE TRACK UNIT SPEED

When protected by an Exclusive TOP, it is a speed that permits a track unit to stop short of a switch not properly lined.

Track units handling equipment must not exceed the lesser of; authorized freight, passenger or temporary speed restrictions. The delivery method for temporary speed restrictions will be indicated in special instructions.

FIXED SIGNAL

A signal or sign at a fixed location indicating a condition affecting the operation of a movement.

FOLLOW-UP TOP

A TOP issued within limits of a movement(s) that has passed or will be identified by the foreman as having passed the foreman's location.

GENERAL BULLETIN ORDER(S) (GBO)

Instructions regarding track condition restrictions and other information that affect the safety and operation of a movement.

GRAVITY DROP

Releasing stationary equipment and permitting it to roll under its own momentum.

HEAVY GRADE

A portion of a track 2 miles in length or greater, with an average grade greater than 1.0%, and less than or equal to 1.8%.

HIGH RISK LOCATION

A track, or portion of a track, other than a main track, subdivision track, or siding; identified in special instructions, on which unattended equipment requires the application of Rule 112(a).

HUMPING

Pushing equipment at a regulated speed then releasing it under its own momentum, in an engineered environment where the route and speed are controlled through automated or assisted devices.

INTERLOCKING

An arrangement of interconnected signals and signal appliances for which interlocking rules and special instructions are in effect.

INTERLOCKING LIMITS

The tracks between the extreme or outer opposing interlocking signals of an interlocking.

INTERLOCKING SIGNAL

A fixed signal at the entrance to or within interlocking limits to govern the use of the routes.

KICKING

Pushing equipment then releasing it under its own momentum. Does not include humping.

MAIN TRACK

A track of a subdivision extending through and between stations governed by one or more methods of control upon which movements, track units and track work must be authorized.

MARKER

When used, will indicate the last piece of equipment in a movement. It will be one of the following :

- a red light, a red reflectorized plaque, a sense and braking unit (SBU), or
- an occupied caboose, distributed power remote locomotive consist or distributed braking car, when the last piece of equipment in the direction of travel.

METHOD OF CONTROL

Rules and/or special instructions governing the use of a track(s).

MOUNTAIN GRADE

A portion of a track 2 miles in length or greater, with an average grade greater than 1.8%.

MOVEMENT(S)

The term used in these rules to indicate that the rule is applicable to trains, transfers or engines in yard service.

MULTI-TRACK

Two or more main tracks of a subdivision at the same location.

NON-MAIN TRACK (NMT)

Any track(s) other than those listed in time table columns as having CTC, OCS, ABS or Cautionary Limits applicable and unless otherwise provided include a requirement to operate at REDUCED speed.

NON-SIGNALLED SIDING

A siding where non-main track rules apply, the use of which may be governed by special instructions.

OCCUPANCY CONTROL SYSTEM (OCS)

A system in which OCS rules apply.

OCCUPATIONAL TERMS:

Assistant Conductor

An employee working under the supervision of a conductor. May also be referred to as trainman or yardman.

Conductor

An employee in charge of the operation of a movement.

Employee

A person qualified to regulatory and company standards employed by the company. Applies to contract employees and employees of other companies and railways operating and/or performing other rules related duties on the host railway trackage.

Foreman

An employee in charge of the protection of track work and track units.

Locomotive Engineer

An employee in control of the engine.

Pilot

An employee assigned to a movement when the locomotive engineer or conductor, or both, are not fully acquainted with the physical characteristics or rules of the railway over which the movement is to be operated.

Proper Authority

The rail traffic controller or the appropriate railway supervisor.

Rail Traffic Controller (RTC)

An employee in charge of the supervision and direction of movements and for the provision of protection for track work and track units on a specified territory.

Signalman

An employee in charge of an interlocking.

Sub-foreman

A rules qualified employee that works under the protection held by a foreman.

Switchtender

An employee that handles switches for other employees.

Utility Employee

An employee who can be used as a temporary crew member or perform other assigned duties.

RUNNING SWITCH

Pulling equipment then releasing it under its own momentum.

SCHEDULE

Information pertaining to the operating times of a passenger train.

SIDING

A track adjacent and connected to the main track which is so designated in the time table, GBO or operating bulletin.

SIDING CONTROL TERRITORY (SCT)

Non-signalled sidings indicated in special instructions where SCT rules are applicable.

SIGNALLED SIDING

A siding where CTC rules apply.

SIGNAL INDICATION

The information conveyed by a fixed signal.

SINGLE TRACK

One main track on a subdivision at a location.

SWITCHES:

Auto-Normal Switch

A locally-controlled switch, which will automatically restore to normal position after a movement has cleared the switch track circuit.

Dual Control Switch

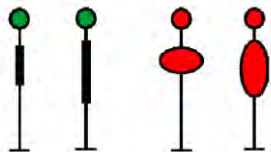
A switch equipped for powered and hand operation.

Electric Switch Lock

An electric lock connected with a hand operated switch to prevent its operation until the lock is released.

Main Track Hand Operated Switch

A switch connected to the main track used to route equipment or a track unit to or from the main track.

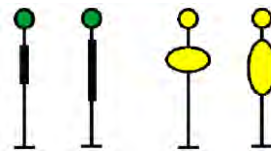


Normal Position Reverse Position

Note: Switch targets may be different shapes than illustrated but must not be diamond shape.

Non-Main Track Hand Operated Switch

A switch used to route equipment or a track unit within non-main track territory.



Normal Position Reverse Position

Note: Switch targets may be different shapes than illustrated but must not be diamond shape.

Power-Operated Switch

A switch equipped for powered operation, but not equipped for hand operation.

Semi-Automatic Switch

A non-main track switch equipped with an internal securing mechanism that permits equipment to trail through the switch points thus setting the switch for the route being used.



Set for
Normal
Route

Set for Other
Than Normal
Route

Note: Switch targets must be diamond shaped.

Spring Switch

A switch equipped with a spring mechanism arranged to restore the switch points to normal position after having been trailed through.

Switch

A device used to route equipment or a track unit from one track to another.

SPEEDS:

DIVERGING Speed

A speed not exceeding 25 miles per hour.

LIMITED Speed

A speed not exceeding 45 miles per hour.

MEDIUM Speed

A speed not exceeding 30 miles per hour.

REDUCED Speed

A speed that will permit stopping within one-half the range of vision of equipment.

RESTRICTED Speed

A speed that will permit stopping within one-half the range of vision of equipment, also prepared to stop short of a switch not properly lined and in no case exceeding SLOW speed.

When moving at RESTRICTED speed, be on the lookout for broken rails.

When a broken rail is detected, the movement must be stopped immediately and must not resume until permission is received from the RTC or signalman.

SLOW Speed

A speed not exceeding 15 miles per hour.

TURNOUT Speed

Unless otherwise provided by signal indication or special instructions, a speed not exceeding 15 MPH.

STATION

A location identified by a station name sign and designated by that name in the time table.

SUBDIVISION

Railway trackage designated by time table.

SUBDIVISION TRACK

A Non-Main Track so indicated in the time table method of control column that is an extension of the main track, and the through track at that location, defined with subdivision mile posts. REDUCED speed is applicable to a maximum speed as indicated in the time table. Transfers must not exceed 15 MPH.

TABULAR GENERAL BULLETIN ORDER (TGBO)

A document specific to a movement, containing applicable information from each GBO, instructions and other information requiring compliance within limits indicated in the TGBO.

TIME TABLE

The special instruction that contains subdivision description information and footnotes relating to the operation of movements and track units. Time table may contain information applicable on other tracks.

TRACK OCCUPANCY PERMIT (TOP)

Authority issued for the protection of track units and track work.

TRACK UNIT (TU)

A vehicle or machine capable of on-track operation utilized for track inspection, track work and other railway activities when on a track.

TRACK UNIT SPEED

A speed that;

- (a) permits a track unit to stop within one-half the range of vision of equipment or a track unit;
- (b) permits a track unit to stop short of a switch not properly lined or any obstruction or track defect that may prevent safe passage; and
- (c) does not exceed maximum authorized speed for that track unit.

Track units handling equipment must not exceed the lesser of; authorized freight, passenger or temporary speed restrictions. The delivery method for temporary speed restrictions will be indicated in special instructions.

TRACK WORK

Any work on or near the track that may render the track unsafe for movements at normal speed or where protection against movements may be required for employees and machines involved in track construction and repairs.

TRAILING END

The tail end of the last piece of equipment in a movement in the direction of travel.

TRAIN

An engine with or without cars intended to operate on the main track at speeds in excess of 15 MPH or a track unit when so designated.

TRAIN INFORMATION BRAKING SYSTEM (TIBS)

A system with rear and front communication components capable of:

- (i) monitoring and displaying brake pipe pressure on the rear car;
- (ii) calculating and displaying distance measurement;
- (iii) initiating an emergency brake application at the rear of the train from the controlling locomotive.

TRANSFER

An engine with or without cars operating on main track at speeds not exceeding 15 MPH.

UNATTENDED

When an employee is not in close enough proximity to take effective action.

YARD

A system of non-main tracks, utilized to switch equipment and for other purposes over which movements may operate subject to prescribed signals, rules and special instructions.

GENERAL RULES

- A** Every employee in any service connected with movements, handling of main track switches and protection of track work and track units shall;
- (i) be subject to and conversant with applicable CROR rules, special instructions and general operating instructions;
 - (ii) have a copy of this rule book, the general operating instructions, current time table and any supplements, and other documents specified by the company accessible while on duty;
 - (iii) provide every possible assistance to ensure every rule, special instruction and general operating instruction is complied with and shall report promptly to the proper authority any violations thereof;
 - (iv) communicate by the quickest available means to the proper authority any condition which may affect the safe operation of a movement and be alert to the company's interest and join forces to protect it;
 - (v) obtain assistance promptly when it is required to control a harmful or dangerous condition;
 - (vi) be conversant with and governed by every safety rule and instruction of the company pertaining to their occupation;
 - (vii) pass the required examination at prescribed intervals, not to exceed three years, and carry while on duty, a valid certificate of rules qualification;
 - (viii) seek clarification from the proper authority if in doubt as to the meaning of any rule or instruction;
 - (ix) conduct themselves in a courteous and orderly manner;
 - (x) when reporting for duty, be fit, rested and familiar with their duties and the territory over which they operate;
 - (xi) while on duty, not engage in non-railway activities which may in any way distract their attention from the full performance of their duties. Except as provided for in company policies, sleeping or assuming the position of sleeping is prohibited. The use of personal entertainment devices is prohibited. Printed material not connected with the operation of movements or required in the performance of duty, must not be openly displayed or left in the operating cab of a locomotive or track unit or at any work place location utilized in train, transfer or engine control; and
 - (xii) restrict the use of communication devices to matters pertaining to railway operations. Cellular telephones must not be used when normal railway radio communications are available. When cellular telephones are used in lieu of radio all applicable radio rules must be complied with.
- B** Special Instructions will be found in time tables, general operating instructions, operating bulletins or GBO. They may be appended to or included within copies of the *Canadian Rail Operating Rules* but do not diminish the intent of the rule unless official exemption has been granted.

- C** Employees must:
- (i) be vigilant to avoid the risk of injury to themselves or others;
 - (ii) expect a movement, track unit or equipment to move at any time, on any track, in either direction;
 - (iii) not stand in front of approaching equipment for the purpose of entraining;
 - (iv) not ride the side or above the roof of moving equipment when passing side and/or overhead restrictions;
 - (v) not be on the roof of moving equipment, or on the lading of a moving open top car;
 - (vi) not be on the end of a car while in motion except for the purpose of operating a hand brake; and
 - (vii) not ride on any car known or suspected to contain a shifted load or damaged such that its structure or components may not be secure, or any car trailing such car.
 - (viii) not entrain or detrain moving equipment at a speed exceeding 4 MPH except in the case of an emergency. The intent to entrain or detrain moving equipment must be communicated to the locomotive engineer, who must confirm when the speed is less than 4 MPH.
- D** Each employee must be acquainted with, and be on the lookout for, restricted side and overhead clearances. Where standard restricted clearance signs are used, no other advice of restricted clearance will elsewhere or otherwise be given. If such signs are not provided in a yard or terminal, the location of the restricted clearance will be shown in special instructions.
- E** Overhead and side clearance may be restricted on a track at a main shop, diesel shop or car shop. Where restricted clearance exists on such track, it will not be marked by a standard restricted clearance sign nor will its location be elsewhere or otherwise given.
- F** Employees must not ride on top or side of equipment when on any main shop, diesel shop or car shop track, whether or not the overhead and side clearance is restricted.
- G**
- (i) The use of intoxicants or narcotics by employees subject to duty, or their possession or use while on duty, is prohibited.
 - (ii) The use of mood altering agents by employees subject to duty, or their possession or use while on duty, is prohibited except as prescribed by a doctor.
 - (iii) The use of drugs, medication or mood altering agents, including those prescribed by a doctor, which, in any way, will adversely affect their ability to work safely, by employees subject to duty, or on duty, is prohibited.
 - (iv) Employees must know and understand the possible effects of drugs, medication or mood altering agents, including those prescribed by a doctor, which, in any way, will adversely affect their ability to work safely.
- H** Unless otherwise specified, these rules are applicable without respect to the number of main tracks.
- I** Rules pertaining to the main track also apply to tracks specified as signalled sidings and other signalled tracks.
- J** When an Electronic Communications Method (ECM) is used, each transmission received must be examined to ensure legibility. If the transmission is not legible this must immediately be reported to, and retransmitted by, the RTC. Illegible transmissions must not be used and in the case of paper based authorities, must be destroyed.

- K** When the term “in writing” is used in these rules, special instructions and general operating instructions, if the written permission, authority or instruction referred to is not received personally by the receiving employee, it must be copied by the receiving employee and repeated back to the sender to ensure it was correctly received.
- L** Wherever the following occupational names or titles appear in these rules, special instructions, or general operating instructions, they apply to the employee, who is qualified and is responsible for performing the duties of:
 conductor,
 assistant conductor,
 flagman,
 foreman,
 locomotive engineer,
 pilot,
 rail traffic controller,
 signalman,
 snow plow foreman,
 sub-foreman,
 switchtender.
- M** Wherever the following: engine, train, transfer or movement appear in these rules, special instructions or general operating instructions, the necessary action will be carried out by a crew member or crew members of the movement. In addition:
- (i) where only one crew member is employed, operating rules and instructions requiring joint compliance may be carried out by either the locomotive engineer or conductor, and
 - (ii) in the absence of a locomotive engineer on a crew consisting of at least two members, the conductor will designate another qualified employee to perform the rules required duties of the locomotive engineer.
 - (iii) the minimum operating crew requirement for a freight train or transfer carrying one or more loaded tank cars of dangerous goods is two (2) crew members.
 - (iv) the minimum operating crew requirement for a transfer using remote control locomotives (excluding distributed power) is two crew members.
- N** The following abbreviations and acronyms as well as those authorized by special instructions may be used:
- | | |
|--------------|------------------------------------|
| ABS | Automatic Block Signal System |
| ack | Acknowledgement |
| ANS | Auto Normal Switch |
| AWD | Automatic Warning Devices |
| B/E CTC Sign | Begin/End CTC Sign |
| B/E MT Sign | Begin/End Main Track Sign |
| CL Sign | Cautionary Limit Sign |
| cnr | Conductor |
| com | Complete |
| CTC | Centralized Traffic Control System |

DOB	Daily Operating Bulletin
E	East
ECM	Electronic Communications Method
eng	Engine
enr	Locomotive engineer
exp	Express
FIT	Field Information Terminal
frmn	Foreman
frt	Freight
GBO	General Bulletin Order(s)
HBD	Hot Box and Dragging Equipment Detector
jct	Junction
LCS	Local Control Switch
MPH	Miles per hour
MP	Mile Post
N	North
NA	Not Applicable
NMT	Non-main Track
no	Number
OCS	Occupancy Control System
psgr	Passenger
rpt	Repeat
RTC	Rail Traffic Controller
SCS	Special Control System
SCT	Siding Control Territory
SNS	Station Name Sign
S	South
sdg	Siding
SI	Special Instruction
STK	Subdivision Track
sub	Subdivision
swt	Switch
TGBO	Tabular General Bulletin Order
TIBS	Train Information Braking System

TOP	Track Occupancy Permit
trk	Track
trnm	Trainman
TU	Track Unit
W	West
wk	Work
xover	Crossover
xing	Crossing

RTC may use approved office abbreviations for station and subdivision names and for controlled points when entering addresses on computer generated forms. The normal abbreviations for days of the week and calendar months may be used.

- In these rules when the distance prescribed for the placement of signals, signs or flags is not possible due to track configuration, the maximum distance available applies. If the maximum distance available will place an advance flag at the same location as the flag it governs the approach to, such advance flag need not be placed but such must be indicated in the GBO.

TIME AND TIME TABLES

1. TIME

The 24 hour system will be used and will be expressed in four digits. The digits 2359 or 0001 will be used to express the time at midnight.

2. WATCHES

Every conductor, assistant conductor, locomotive engineer, pilot, foreman, snow plow foreman and such other employees as the company may direct, shall, when on duty, use a reliable watch that indicates hours, minutes and seconds and shall;

- (i) be responsible to ensure that it is kept in proper working condition so that it does not reflect a variation of more than 30 seconds in a 24 hour period;
- (ii) set it to reflect the correct time if it reflects a variation of more than 30 seconds;
- (iii) before commencing work, compare the time on their watch with a railway approved time source. Where a railway approved time source is not accessible, obtain the correct time from the RTC or by comparing with another employee who has obtained the correct time. Every crew member assigned to train, transfer or yard service shall compare the time with one another as soon as possible after commencing work.

3. TIME IN EFFECT

Special instructions will indicate whether Standard Time, Daylight Saving Time or other designated time is in effect.

4. NOTICE OF TIME CHANGE

Notice of time change will be given by operating bulletin and posted at least 72 hours prior to the time change taking effect. Notice will also be given by GBO at least 24 hours prior to the change and for not less than 6 days after it takes effect.

5. EMPLOYEES ON DUTY WHEN TIME CHANGES

Each employee on duty when time changes, who is required to use a watch, must change time as follows:

- (i) From Standard Time to Daylight Saving Time: At 0200 Standard Time, set the time ahead one hour to indicate 0300 Daylight Saving Time;
- (ii) From Daylight Saving Time to Standard Time: At 0200 Daylight Saving Time, set the time back one hour to indicate 0100 Standard Time;
and immediately verify correct time according to Rule 2 clause (iii).

6. TIME TABLES

Each time table, from the moment it takes effect, supersedes the preceding time table.

7. NOTICE OF NEW TIME TABLE OR SUPPLEMENT

Notice will be given by operating bulletin and posted at least 72 hours prior to a new time table or supplement taking effect. Notice will also be given by GBO at least 24 hours prior to the new time table or supplement taking effect and for not less than 6 days after it takes effect.

Notice must also be communicated to all other affected employees.

8. SYMBOLS AND DIAGRAMS

(a) The following symbols when used in the time table indicate:

- B Operating bulletins
- C Cautionary limits
- D Trains or Transfers report departure to RTC
- S Special Derail
- X Crossover between main tracks
- Y Wye
- * See footnote
- + Interlocking - see footnotes.

(b) Method of control and the limits of single track or multi-track will be indicated in the time table.

(c) The location of each interlocking, non-interlocked drawbridge and non-interlocked railway crossing at grade will be indicated in subdivision footnotes or special instructions.

(d) Siding capacity and the extent of Cautionary Limits, TGBO and DOB limits will be indicated in time table columns, to the side of the station column or in subdivision footnotes.

SIGNALS – GENERAL

11. FUSEES

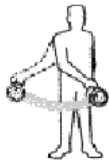
- (a) A movement approaching a red fusee burning on or near its track, or beyond the nearest rail of an adjacent track, must proceed at REDUCED speed to a point two miles beyond the location of the fusee. If moving at other than REDUCED speed, the movement must immediately reduce to that speed.
- (b) A fusee should not be placed on a public crossing at grade or where it may cause fire.
- (c) **OPTIONAL**
When the fusee is located on the track occupied by an approaching movement operating at REDUCED or RESTRICTED speed as required by other than Rule 11, a stop must be made before passing the location of the fusee.

12. HAND SIGNALS

- (a) Employees whose duties may require them to give hand signals must have the proper appliances, keep them in good order and ready for immediate use. Night signals must be used from sunset to sunrise and when day signals cannot be plainly seen.
Note: The hand or a flag displayed in the same manner as the lantern, which is illustrated in the following diagrams, gives the same indication.

METHOD OF DISPLAY AND INDICATION

- (i) Swung from side to side at right angle to the track.



STOP

- (ii) Swung in a circle at right angle to the track at a speed in proportion to the speed required.



MOVE BACKWARD

- (iii) Raised and lowered at a speed in proportion to the speed required.



MOVE FORWARD

(iv) Raised and swung horizontally above the head, at right angle to the track when standing.



APPLY AIR BRAKES

(v) Raised and held at arm's length above the head when standing.



RELEASE AIR BRAKES

(vi) Held horizontally at arm's length.



REDUCE SPEED

(vii) Any object waved violently by anyone on or near the track is a signal to stop.

- (b) A signal given to move forward or move backward must be given in relation to the front of the controlling locomotive.
- (c) A signal must be given in sufficient time before the required action to permit compliance. It must be given from a point where it can be plainly seen, and in such a manner that it cannot be misunderstood. If there is doubt as to the meaning of a signal, or for whom it is intended, it must be regarded as a stop signal.
- (d) Whenever practicable, when switching is being performed, required signals shall be given directly to the locomotive engineer.
- (e) When moving under the control of hand signals, the disappearance from view of either the crew member or lights by which signals controlling the movement are being given, must be regarded as a stop signal.
- (f) A crew member, whose movement is clear of the main track, must not give an approaching movement a hand signal to move forward.
- (g) Where radio is used in lieu of hand signals, employees will be governed by Rule 123.1.

13. ENGINE BELL

(a) The engine bell must be rung when:

- (i) an engine is about to move, except when switching requires frequent stopping and starting after the initial move;
- (ii) passing any movement standing on an adjacent track;
- (iii) approaching, passing or moving about station facilities or shop track areas; and
- (iv) one-quarter of a mile from every public crossing at grade (except within limits as may be prescribed in special instructions) until the crossing is fully occupied by the engine or cars. At crossings where engine whistle signal 14(l) is applicable the engine bell need not be rung.

(b) Should the engine bell fail on the lead locomotive in the consist, repairs must be made as quickly as possible. If repairs cannot be made the movement may proceed to the first point where repairs can be made. The engine bell if available on another locomotive in the consist will be rung continuously or operated by another member of the crew, when available, under the direction of the locomotive engineer.

14. ENGINE WHISTLE SIGNALS

NOTE:

- (i) Wherever the words “engine whistle” appear in these rules they also refer to “engine horn”. Signals prescribed by this rule are illustrated by “o” for short sounds; “___” for longer sounds.
- (ii) Engine whistle signals must be sounded as prescribed by this rule, and should be distinct, with intensity and duration proportionate to the distance the signal is to be conveyed. Unnecessary use of the whistle is prohibited.
- (iii) Radio must not be used in lieu of engine whistle signals for indications prefixed by the symbol (#).

(a) o
When standing - braking system is equalized; angle cock may be closed.

(b) o o
Note: Not applicable when switching.
(i) Answer to a “stop” signal (except a fixed signal).
(ii) Answer to any signal not otherwise provided for.

(e) o o o o o o
To notify track forces of fire on or near the right of way (to be repeated as often as required).

(f) Succession of short sounds
(#) Alarm for persons or animals on or near the track.

(l) ___ ___ o ___
(i) (#) At public crossings at grade:
A whistle post will be located 1/4 mile before each public crossing where required. Whistle signal must be sounded by movements:

- exceeding 44 MPH, at the whistle post
- operating at 44 MPH or less, in order to provide 20 seconds warning prior to entering the crossing.

Whistle signal must be prolonged or repeated until the crossing is fully occupied.
EXCEPTION: Not applicable when manual protection is to be provided or when shoving equipment other than a snow plow over a crossing protected by automatic warning devices.

(ii) (#) At other whistle posts indicated in special instructions.
(iii) (#) At frequent intervals when view is restricted by weather, curvature or other conditions.
(iv) Special instructions will govern when such signal is prohibited in whole or in part.

(r) In case of engine whistle failure the engine bell must be rung continuously;

- (i) approaching and moving through curves; and
 - (ii) approaching and passing station facilities, yards and public crossings at grade. In addition, the movement must not exceed 25 MPH entering each public crossing at grade which is not protected by automatic warning devices, until such crossing is fully occupied.
- (t) When a snow plow is operated ahead of an engine, the employee in charge of the snow plow must sound engine whistle signals 14(f) and 14(l). All other engine whistle signals must be sounded by the locomotive engineer as prescribed by the rule.

17. HEADLIGHT

Movements headed by equipment equipped with a headlight must display the headlight:

- (a) at full power in the direction of travel approaching all public crossings at grade until such crossings are fully occupied;
- (b) at full power in the direction of travel while moving on the main track;
- (c) on both ends of the engine while moving on non-main track but may be extinguished on the end coupled to cars.

Exceptions: When not approaching a public crossing at grade the headlight may be extinguished or dimmed:

- (i) approaching or being approached by an opposing movement;
- (ii) on a passenger carrying train, approaching a location where passengers will entrain or detrain;
- (iii) facing oncoming vehicles at night which may be affected on adjacent roadways; or
- (iv) when weather conditions cause the vision of the operating crew to be impaired.

18. HEADLIGHT FAILURE

- (a) If the headlight on a movement fails and repairs cannot be made, ditch lights will be used in lieu of the headlight and the movement may proceed.
- (b) If all headlights and ditch lights have failed, such lights as are available must be used proceeding to the first point where repairs can be made. At public and private crossings at grade not protected by automatic warning devices, movements must not exceed 10 MPH entering the crossing unless it is known to be clear of traffic and will remain clear until occupied.

19. DITCH LIGHTS

A train must have ditch lights displayed continuously in the direction of travel when the headlight is required to be displayed full power.

If ditch light(s) fail en route, the movement may proceed to the next point where repairs can be made.

26. BLUE SIGNAL PROTECTION

- (a) A blue flag by day, and in addition a blue light by night or when day signals cannot be plainly seen, displayed at one or both ends of equipment indicates that workmen are in the vicinity of such equipment. On a track which permits entry of a movement from one end only, a blue signal displayed between the equipment and the switch permitting entry indicates that workmen are in the vicinity of such equipment. When such signals are displayed the equipment must not be coupled to or moved. The removal of the signal from one or both ends of equipment indicates that no workmen are in the vicinity of the equipment and such equipment may be coupled to or moved.

EXCEPTION: When repairs must be undertaken on a manned movement, the locomotive engineer must be notified before repair work is commenced. When so notified, the movement must not be moved nor the brakes applied or released until the workmen have advised that they are in the clear.

- (b) Other equipment must not be placed on the same track which will block a clear view of the blue signal(s) without first notifying the workmen. When equipment is placed on the same track, the movement placing such equipment must remain on that track until the workmen have relocated the blue signal(s) to include the additional equipment.
- (c) Each class of workmen will display the blue signal(s) and the same class of workmen only are authorized to remove them.
- (d) Special instructions will govern the use of other approved methods of protecting workmen performing equipment repairs or inspections.
- (e) When protection is required on a track where the kicking of equipment is permitted per Rule 113.5(a):
 - (i) lock switch(es) with a special lock, in a position to prevent a movement from entering the working limits; or
 - (ii) a blue signal displayed per (a) and a derail locked in the derailing position with a special lock.

27. SIGNAL IMPERFECTLY DISPLAYED

- (a) Except as provided in paragraph (b), a fixed signal which is imperfectly displayed, or the absence of a fixed signal where one is usually displayed, must be regarded as the most restrictive indication that such signal is capable of displaying. An imperfectly displayed signal must be communicated to the proper authority as soon as possible.
- (b) Where a block or interlocking signal is observed with one or more lights extinguished, and at least one light remains displaying either green or yellow, movements may proceed reducing to SLOW speed through turnouts, when practicable, preparing to stop at the next signal.
EXCEPTION: Where a signal displays a solid yellow on the bottom position and one or all of the remaining positions are extinguished, a movement approaching such signal operating:
 - at restricted speed;
 - prepared to stop; or
 - prepared to comply with restricted or reduced speed;
 must consider the signal as displaying RESTRICTING.
- (c) When a signal is known or suspected of being damaged, it must be regarded as displaying the most restrictive indication that can be given by that signal.
- (d) When a block or interlocking signal displays an indication that is in other than the normal progression in relationship to the indication of the advance signal to that signal, the movement must stop immediately consistent with safe train handling practices and contact the RTC or signalman for further instructions.
- (e) Repairs to damaged signals must not be made by other than qualified employees. Signals that have been knocked over must not be re-erected by other than an authorized employee. If it is known or suspected that a signal bungalow has been damaged, such fact must be reported to the RTC immediately.

33. SPEED COMPLIANCE

If speed requirements for their movement are exceeded, crew members must remind one another of such requirements. If no action is then taken, or if the locomotive engineer is observed to be non-responsive or incapacitated, other crew members must take immediate action to ensure the safety of the movement, including stopping it in emergency if required.

34. FIXED SIGNAL RECOGNITION AND COMPLIANCE

- (a) The crew on the controlling engine of any movement and snow plow foremen must know the indication of each fixed signal (including switches where practicable) before passing it.
- (b) Crew members within physical hearing range must communicate to each other, in a clear and audible manner, the indication by name, of each fixed signal they are required to identify. Each

signal affecting their movement must be called out as soon as it is positively identified, but crew members must watch for and promptly communicate and act on any change of indication which may occur.

The following signals/operating signs must be communicated:

- (i) Block and interlocking signals;
 - (ii) Rule 42 and 43 signals;
 - (iii) One mile sign to interlocking;
 - (iv) One mile sign to hot box detector;
 - (v) Stop sign;
 - (vi) OCS begins sign;
 - (vii) Red signal between the rails;
 - (viii) Stop signal displayed by a flagman;
 - (ix) A switch not properly lined for the movement affected;
 - (x) One mile to Cautionary Limit Sign;
 - (xi) Cautionary Limit Sign;
 - (xii) Advance Permanent Slow Order (PSO) Signs; and
 - (xiii) Zone speed Signs where there is a reduction in speed from the previous zone.
- (c) If prompt action is not taken to comply with the requirements of each signal indication affecting their movement, crew members must remind one another of such requirements. If no action is then taken, or if the locomotive engineer is observed to be incapacitated, other crew members must take immediate action to ensure the safety of the movement, including stopping it in emergency if required.

35. EMERGENCY PROTECTION

This rule does not authorize main track occupancy or track work.

- (a) Any employee discovering a hazardous condition, which may affect the safe passage of a movement, must by the use of flags, lights, fusees, radio, telephone, or other means, make every possible effort to stop and/or provide necessary instructions to any movement that may be affected. Flag protection must be provided on main track unless or until otherwise relieved of the requirement.
- (b) A flagman must go the required distance from the condition, and in each direction when possible, to ensure that an approaching movement will have sufficient time and distance to be able to stop before the condition. Unless otherwise provided, a flagman must go at least two miles from the condition to a location where there will be an unobstructed view of the flagman from an approaching movement.
- When a movement is observed approaching, the flagman must display a stop signal using a red flag by day or a lighted red fusee by night or when day signals cannot be plainly seen. The flagman must continue to display a stop signal until the movement being flagged has:
- (i) acknowledged the stop signal with engine whistle signal 14 (b) (two short);
 - (ii) come to a stop; or
 - (iii) reached the location of the flagman.
- (c) A movement stopped by a flagman must not proceed until so instructed by the flagman.
- (d) A flagman must be equipped with a red flag and eight red fusees. The presence of an unbroken seal verifies that a flagging kit is properly supplied.

36. DECREASED FLAGGING DISTANCE

On a subdivision specified in special instructions where maximum speed for movements is not greater than 30 MPH, in the application of Rules 35, 42/842 or 43/843 the distance of at least two miles is decreased to at least one mile.

PROTECTION OF TRACK WORK AND TRACK CONDITIONS

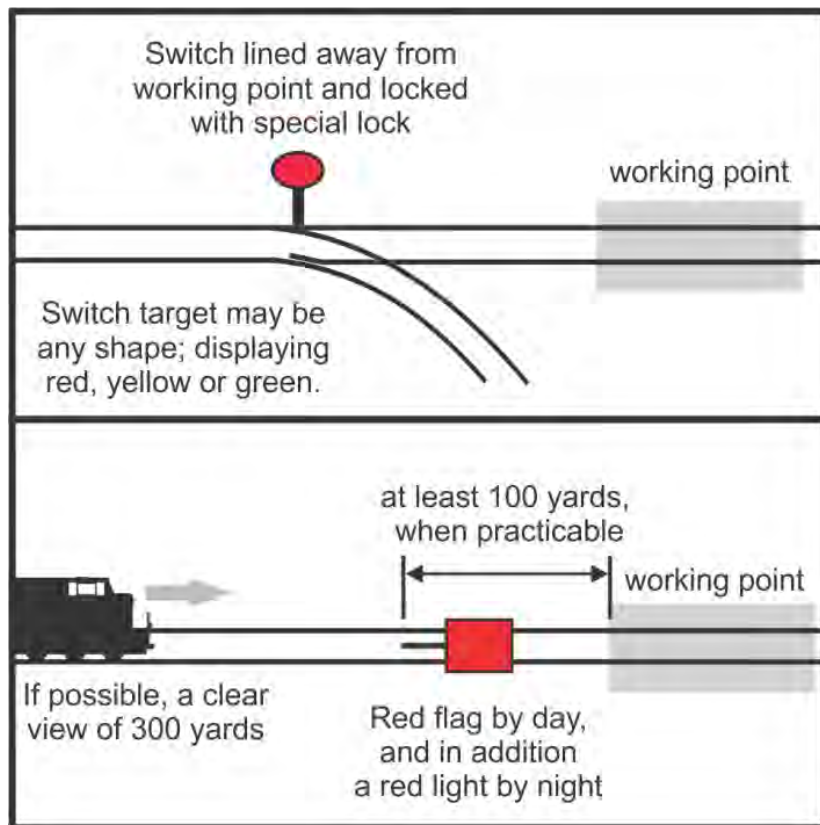
40. GENERAL

- (a) Special instructions will specify when Rules 42/842, 43/843 and 849 are applicable on non-main track.
- (b) When designated by time table footnotes or special instructions that TGBO and/or DOB are applicable on a track that is non-main track, protection of track work and track conditions may be provided as prescribed by Rules 42/842 and 43/843.

41. PROTECTION OF TRACK WORK ON NON-MAIN TRACK AND IN CAUTIONARY LIMITS

This rule is not applicable on main tracks outside of cautionary limits, signalled sidings and other signalled tracks, or on other tracks specified in special instructions.

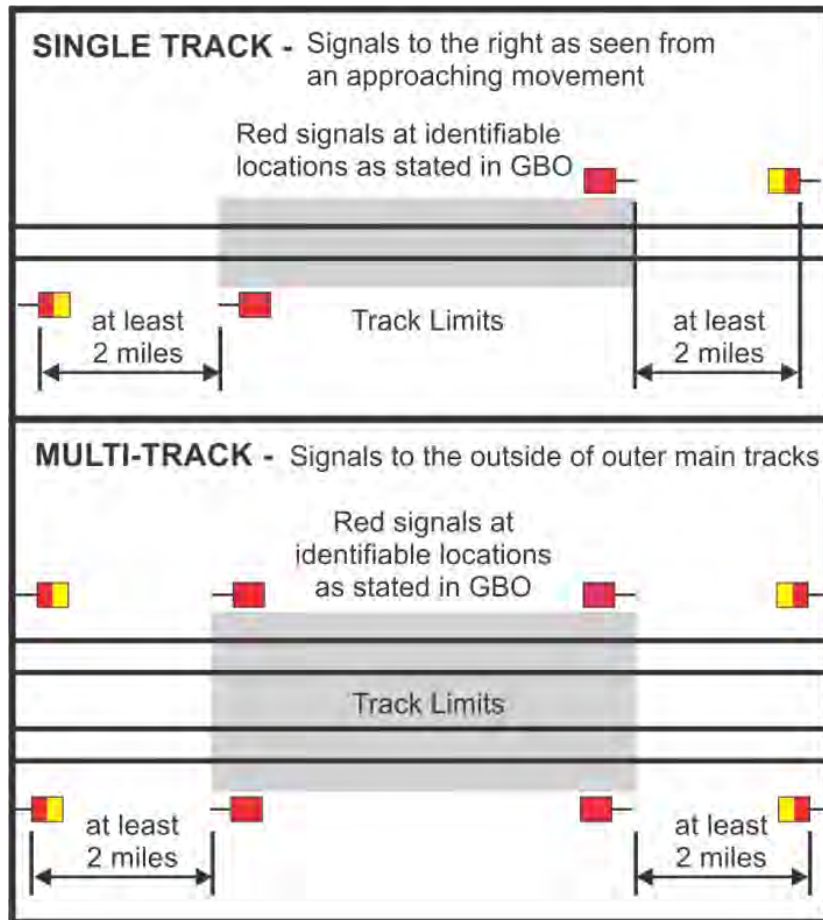
- (i) A movement required to operate on a track protected by a red signal between the rails or a switch locked with a special lock must be stopped before passing it and be governed by any instructions from the foreman.
- (ii) Only the foreman or an employee authorized by the foreman may remove the red signal and/or special lock.
- (iii) Equipment must not be left on the same track that will block a clear view of any red signal.



NOTE: Foreman must refer to Rule 841

42. PLANNED PROTECTION

- (a) Rule 42 signals must not be in place more than 30 minutes prior to or after the times stated in the GBO unless provided for in the GBO.



Note: Foreman must refer to Rule 842

- (b) A movement in possession of the Form Y must not proceed beyond the red signal located at the identifiable location stated in the GBO, enter the track limits stated in the GBO, or make a reverse movement within such track limits until instructions have been received from the foreman named in the GBO.
When a specific track is to be used, instructions from the foreman must specify the track upon which the instructions apply.
- (c) The instructions must be repeated to, and acknowledged by, the foreman named in the GBO before being acted upon.
- (d) When a signalled turnout is within two miles of Rule 42 protection which does not apply on all tracks, every movement must approach such location prepared to comply with the requirements of Rule 42 until it is known which route is to be used.

43. SLOW TRACK PROTECTION

Form V GBO slow track protection will be marked in the field by a:

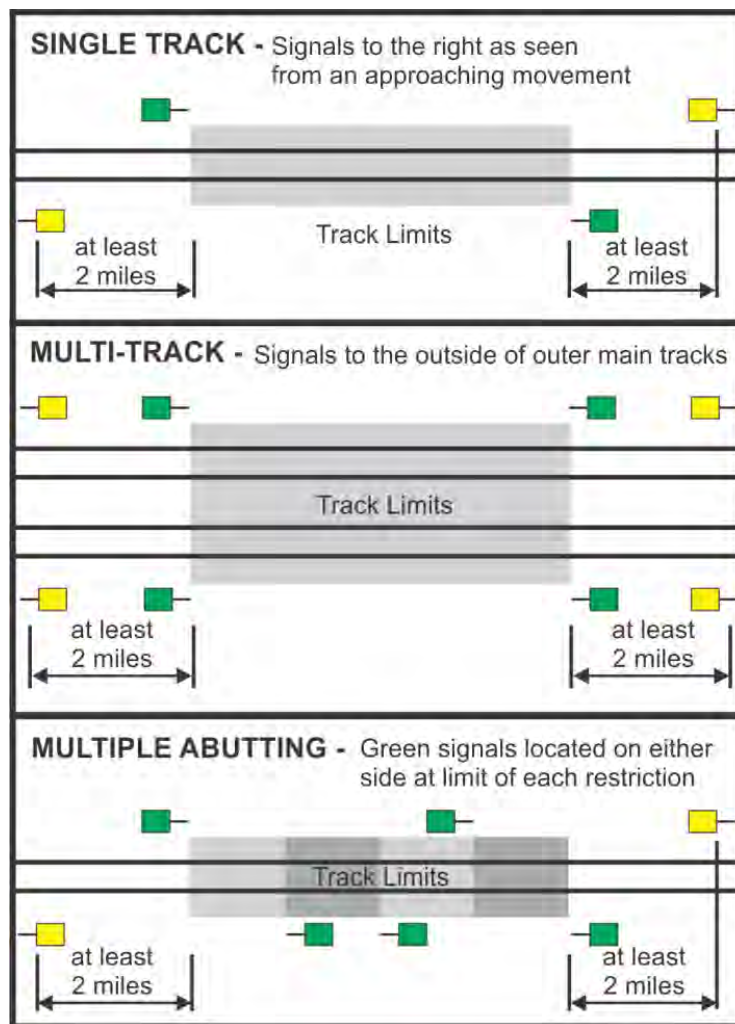
- (i) yellow signal to the right of the track as seen from an approaching movement at least two miles in each direction from the outermost limits indicated in the GBO, and
- (ii) green signal to the right of the track as seen from an approaching movement in each direction, immediately beyond the defect.

Exception: When there are abutting limits contained within a single GBO, a single green signal will be displayed to either side of the track to identify each restriction within the limits.

When a Rule 43 restriction is located at a single mile point, one green signal will be displayed to identify the restriction and may be displayed to either side of the track.

When the placement of signals as prescribed by Rule 43 is delayed, the following will be added to the Form V: "Signals may not be in place."

- (a) A movement must not exceed the speed requirement of the GBO while at/or between opposing green signals.



Note: Foreman must refer to Rule 843.

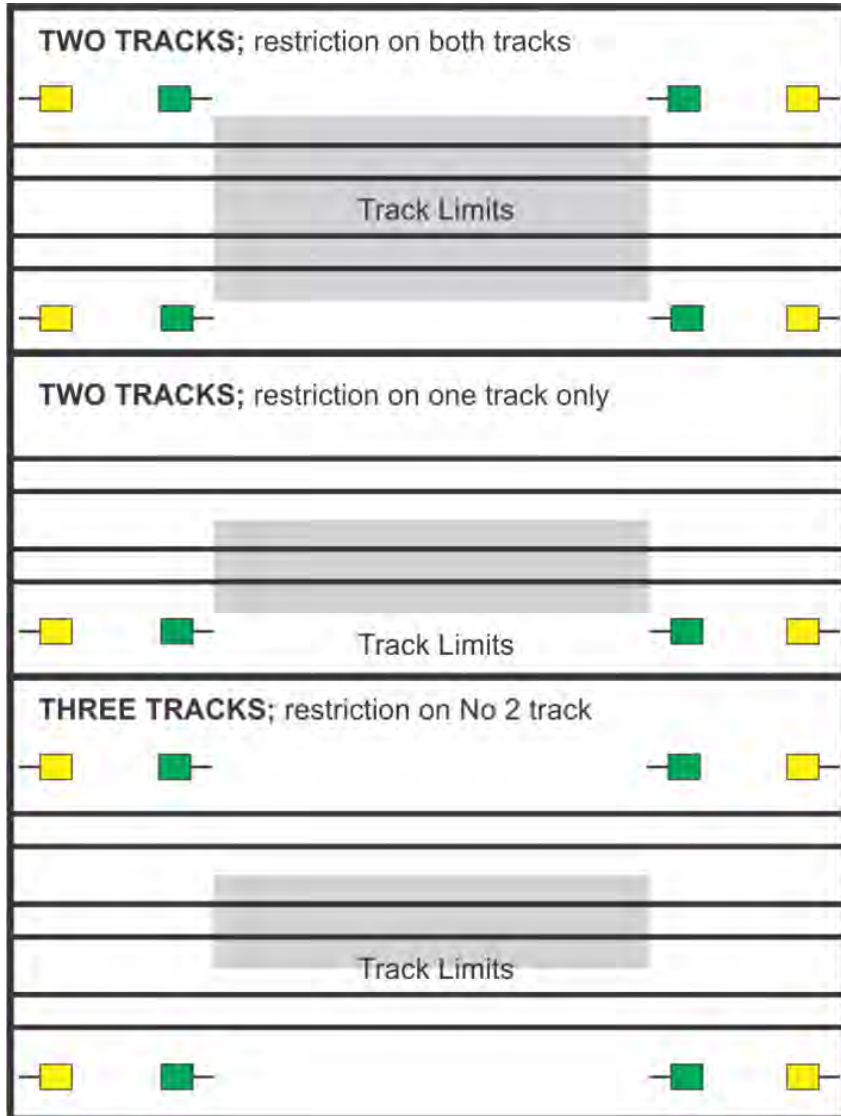
- (b) When a signalled turnout is within two miles of a speed restriction which does not apply on all tracks, every movement must approach such location prepared to comply with the speed restriction until it is known which route is to be used.

44. UNUSUAL TRACK SIGNAL CONDITIONS

- (a) In the absence of any of the signals prescribed by Rule 42, between the times stated in a Form Y, a movement must be governed as though the signals are properly placed. Such condition must be communicated to the RTC as quickly as possible.
- (b)
 - (i) A movement that encounters a yellow over red signal within the 30 minutes provided for in Rule 42(a), may proceed on the instructions received from the foreman named in the GBO. If the foreman cannot be contacted, the movement must be prepared to stop at a red signal and, if no red signal is encountered at the location stated in the GBO, the RTC must be advised.
 - (ii) A movement that encounters a red signal within the 30 minutes provided for in Rule 42(a), must stop, unless authorized to proceed on the instructions received from the foreman named in the GBO. If the foreman cannot be contacted, a crew member must communicate with the RTC as quickly as possible and be governed by instructions received.
 - (iii) A movement that encounters a yellow over red signal or red signal, outside the 30 minutes provided for in Rule 42(a) or without being in possession of a Form Y requiring the placement of such signal, must stop.
A crew member must communicate with the RTC as quickly as possible and be governed by instructions received.
 - (iv) If the TGBO/DOB system and the engineering supervisor for the territory indicate that Rule 42 is not or will not be in effect within the limits of the signal, the RTC may authorize the movement to resume normal speed. The engineering supervisor will arrange for removal of the signals that may include having the crew on a movement pick up the signals.
- (c) A movement within the track limits of a Form Y, at the time such protection takes effect, must be stopped unless a crew member is otherwise instructed by the foreman named in the GBO.
- (d) In the absence of one or more of the signals prescribed by Rule 43, the movement will be governed by the requirement of the Form V. Such condition must be communicated to the RTC as quickly as possible.
- (e) A movement that encounters a yellow or green signal without a GBO requiring the placement of such signal, must reduce speed to 10 MPH and immediately communicate with the RTC. The movement will be governed by instructions received from the RTC. If the TGBO/DOB system and the engineering supervisor for the territory indicate that Rule 43 is not or will not be imminently in effect within the limits of the signal, the RTC may authorize the movement to resume normal speed. The engineering supervisor will arrange for removal of the signals that may include having the crew on a movement pick up the signals.
- (f) When a rail break has been detected by an engineering employee and it is safe to operate over the break at a speed less than posted speed, the RTC will provide GBO protection to affected movements stating the authorized speed over the break and how such location is marked in the field, by either a Rail Break Sign or foreman, at the break. Signals required by Rule 43 will not be in place.

45. SIGNAL PLACEMENT MULTI-TRACK

Except on a subdivision designated in special instructions, signals required by Rules 42/842 and 43/843, must be placed to the outside of the outermost track(s) and not between the main tracks.



OPERATION OF MOVEMENTS

62. UNATTENDED ENGINES

When an engine is left unattended outside of an attended yard or terminal:

- (a) the cab of the engine must be secured to prevent unauthorized entry; and
- (b) subject to (c), the reverser must be removed from the engine;
- (c) during subzero temperatures, an engine that does not have a high idle feature is exempt from (b).

63. FREIGHT TRAIN REQUIREMENTS

Freight trains with cars must operate with TIBS or a manned caboose.

Exception: A freight train that must be separated in order to double, set off or lift cars, cut a crossing or for other similar situations may operate without a TIBS or manned caboose to the extent necessary to perform these tasks, at a speed not exceeding 25 MPH while handling cars.

64. TRANSFER REQUIREMENTS

- (i) Transfers must have air applied throughout the entire equipment consist. The last three cars, if applicable, must be verified to have operative brakes.
- (ii) The locomotive engineer must verify that there are sufficient operative brakes to control the transfer, confirmed by a running test as soon as possible.
- (iii) Remote control locomotives in transfer service must be operated with two operative operator controlled units (OCU).

65. ENGINE IN YARD SERVICE REQUIREMENTS

An engine in yard service that is required to enter main track to double over, take head room or cross over a main track will not be considered a train or transfer except in application of Rules 301-315 and 560-578.

66. SECURING EQUIPMENT AFTER AN EMERGENCY BRAKE APPLICATION ON GRADE

(a) When a train experiences an emergency brake application on a heavy or mountain grade, the operating crew must immediately provide details of the situation to the proper authority, and be governed by any additional instructions received from the proper authority.

(b) When a train experiences an emergency brake application and any portion of the train is located on a mountain grade, the entire train must be considered to be on mountain grade.

(c) In the event of a derailment or a train separation on heavy grade or mountain grade, the portion of the train at greatest risk of unintended movement must be secured first.

(d) When a train experiences an emergency brake application on a mountain grade, the hand brakes must be immediately applied as per (f) before attempting to recover the air brake system.

(e) When a train experiences an emergency brake application on a heavy grade

- i. the train must be secured immediately per (f) if any of the following conditions exist:
 - ambient temperature is -20 degrees Celsius or colder;
 - ambient temperature is between -15 and -19 degrees Celsius, and snow is three inches or greater above the top of rail;
 - the crew has experienced unusual braking conditions or difficulty controlling speed;

- doubt exists as to the ability to safely recover and control the movement;
 - more than one emergency brake application has occurred on the grade; or
 - operating conditions do not permit a recovery attempt
- ii. If none of the conditions in (e) (i) apply, attempt to recover from the emergency brake application. If air does not recover, the train must be immediately inspected for cause. If cause cannot be determined or immediately corrected, so that air can recover, the train must be secured per (f).

(f) When securing the train using the hand brake requirement table, the following apply

- i. If less equipment is present in the movement than required by the following table, hand brakes must be applied on all equipment.
- ii. The retarding force of locomotive(s) is not included in the following hand brake requirements, and must not be used to diminish these requirements.

Total Tons:	Minimum Required Number of Handbrakes							
	Heavy Grade (%)				Mountain Grade (%)			
	1.01-1.2	1.21-1.4	1.41-1.6	1.61-1.8	1.81-2.0	2.01-2.2	2.21-2.4	> 2.4
0 - 2000	4	5	6	7	8	9	11	11
2001 - 4000	8	11	13	15	16	18	20	23
4001 - 6000	14	16	19	23	25	28	31	34
6001 - 8000	19	23	26	30	34	37	41	45
8001 - 10000	25	28	33	38	41	47	52	57
10001 - 12000	28	35	40	46	50	57	62	68
12001 - 14000	34	40	47	53	59	66	73	79
14001 - 16000	39	47	53	61	68	75	83	91
16001 - 18000	45	52	60	69	77	85	94	102
18001 - 20000	50	59	68	77	85	95	105	113
20001 - 22000	53	64	74	84	93	104	115	125
22001 - 24000	59	71	82	92	102	114	126	136
24001 - 26000	64	77	89	100	111	124	136	147
26001 - 28000	70	83	95	107	119	134	147	159
28001 - 30000	75	89	102	116	128	143	157	170

70. REMOTE CONTROL OPERATION

- (a) Where a remote control operation is comprised of two or more employees, two operative OCU must be used.

- (b) Should one OCU become inoperative:
 - (i) Repairs must be made as soon as possible.
 - (ii) The tour of duty may continue with one operative OCU.
 - (iii) The movement may operate on main track in order to proceed to the first point where repairs can be made, provided an employee other than the one with the operative OCU is positioned to operate the emergency brake valve.
- (c) Any crew member other than the employee with the controlling OCU must not foul the equipment without first obtaining verbal confirmation of positive protection.
- (d) OCU must not be operated while moving on other than the movement the employee is controlling.
- (e) When an engine begins to move, a crew member must visually verify the direction the movement is travelling in.
- (f) Movements must not exceed 15 MPH.
- (g) When coupling to equipment, the employee protecting the leading end of the movement must have the controlling OCU.
- (h) Prior to stopping or coupling to equipment, the OCU must be set to its lowest speed.

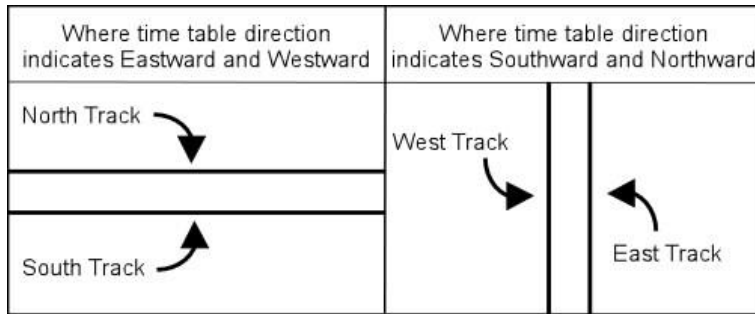
80. MAIN TRACK AUTHORIZATION

- (a) A movement must not foul or enter a main track without authority. Authority is conveyed in:

CTC	By signal indication, RTC permission or written authority.
OCS	Clearance
Cautionary Limits	Rule 94
SCS	Special Instructions
- (b) If a movement occupies or fouls a main track or siding controlled territory without authority, or passes a block or interlocking signal indicating stop without authority to pass such signal; it must be stopped and protection as required by Rules 35 and 125 initiated. The RTC or signalman must be advised as soon as practicable.
 - (i) The RTC or signalman will issue instructions as necessary.
 - (ii) If the instructions include the authority to proceed or reverse direction, unless relieved of the requirement by the RTC or signalman:
 - any dual control or power-operated switches occupied by the movement must be examined to ensure that the switch points are properly lined for the route to be used and no part of the switch is damaged or broken.
 - Rule 104.2(b) must be complied with at dual control switch(es). In application of Rule 104.2(b), the movement may be moved before the dual control switch is operated by hand, but only sufficient distance to clear the wheels from the actual switch points.

81. DESIGNATION OF MULTI-TRACK

- (a) Where two main tracks are in service, unless otherwise directed in special instructions, they must be designated as;



- (b) Where more than two main tracks are in service they must be numbered. Unless otherwise specified in the time table, where time table directions are eastward and westward, tracks will be numbered from the north as, “No 1 track”, “No 2 track” and so on; where time table directions are northward and southward, tracks will be numbered from the east as, “No 1 track”, “No 2 track”, and so on.

82. LIMITS OF AUTHORITY

Specific limits contained in written authorities must be defined by identifiable locations. These may include station names, station name signs, switches, signals, mile posts and other signs or infrastructure that are identified with a specific mileage.

- When a switch or signal is used to define the limits, the authority extends only to the fouling point of the switch or to the signal location.
- When mile posts or specific mileages are used to define the limits, the authority extends only to the specific mileage indicated.
- When station names are used to define the limits, the authority does not include the use of the main track between the siding switches at either station named. Where there is no siding, authority extends to the station name sign.

83. OPERATING BULLETINS

- Operating bulletins will be issued by the proper authority and in the prescribed format. Employees responsible for posting or displaying operating bulletins must record on each bulletin the time and date it is posted or displayed. Operating bulletins will only contain information or instructions pertaining to the operation of movements. Duplicate bulletin numbers must not be in effect at the same time.
- Before commencing work at their home location where operating bulletins are posted or displayed, every employee responsible for the operation or supervision of movements must read and understand the operating bulletins that are applicable to the territory that they will operate on.
- A Summary bulletin, containing the number, date and contents of, or reference to, each operating bulletin remaining in effect, will be issued at intervals indicated in special instructions. Operating bulletins of a previous date, which are not included or referred to in the Summary bulletin, become void. Summary bulletins may also contain full content of operating bulletins that take effect on or after the effective date of the Summary bulletin and will not be posted or displayed. All employees responsible for the operation or supervision of movements must have a copy of the current Summary bulletin accessible while on duty.

84. REPORTING DELAYS

The conductor must ensure that the RTC is promptly advised of any known condition which may delay their train or transfer.

85. TRACK RELEASE REPORTS

- (a) The conductor will ensure the RTC is promptly advised of the time their movement has arrived, left or cleared a location or at a time specified by the RTC or after clearing the limits of the last proceed clearance for that subdivision.
- (b) Prior to making such report, the conductor must confirm with other crew members the accuracy of the information to be provided.
- (c) When a track release report is transmitted to the RTC, the RTC must, as it is transmitted, verify the movement identification and record the location into the computer assisted system. If correct the locomotive engineer must confirm correctness of the report to the RTC.

85.1 LOCATION REPORTS (OPTIONAL TO EXISTING)

- (a) An employee must ensure the RTC is promptly advised when their movement has arrived, left or cleared a location or at a time specified by the RTC or after clearing the limits of the last proceed clearance for that subdivision.
- (b) Prior to making such report, the employee providing the report must confirm with other crew members the accuracy of the information to be provided.
- (c) When a location report is transmitted to the RTC, it must be entered in the computer system by the RTC as it is received; repeated from the computer screen by the RTC to the movement. If correct, the employee who provided the report must confirm correctness of the report to the RTC.

94. CAUTIONARY LIMITS

This rule is not applicable in CTC and does not authorize track work.

- (a) A movement or track unit is authorized to use the main track within cautionary limits.
- (b) Movements must comply with the provisions of Rule 105(c), and in addition must also be prepared to stop short of the red signal prescribed by Rule 41 or a switch not properly lined.
- (c) Each cautionary limit sign and advance sign will be reflectorized. An advance sign will be placed at least one mile in advance of each cautionary limit sign. At locations where the placement of an advance sign or signs is not practicable at the required distance, it will be so indicated in special instructions.

101. PROTECTION AGAINST EXTRAORDINARY CONDITIONS

- (a) A movement must be fully protected against any known or suspected condition that may interfere with its safe passage.
- (b) A movement must stop at once and be fully inspected when it is known or suspected to have struck any object that may interfere with its safe operation. The RTC must be notified as quickly as possible.
- (c) When a portion of a movement is left on the main track, precautions must be taken by the crew to protect the remaining portion against the return move.

101.1 DIMENSIONAL TRAFFIC

When the dimensions of traffic require that special arrangements be made to permit moving past other movements, the wide traffic will be protected by the RTC against other main track movements. Advice of such protection will be provided to the crew in writing or verbally. The RTC will not provide protection against equipment on non-main tracks. The crew handling the wide traffic must protect it from such equipment.

101.2 EQUIPMENT LEFT ON MAIN TRACK

Equipment may be left on the main track when protected by:

- (i) clearance;
- (ii) Form T GBO; or
- (iii) cautionary limits.

Communication to the RTC must include the location of the equipment and the outer limits of the Form T protection must be expressed in whole miles or by other identifiable locations. In CTC and controlled interlockings, once the RTC has been advised, Form T protection need not be provided. The RTC must inform each movement, required to enter the occupied track, of the location of the unattended equipment.

102. EMERGENCY STOP PROTECTION

- (a) The crew of a movement stopping as a result of an emergency brake application, or other abnormal condition, which may cause an adjacent main track to be obstructed, must:
 - (i) immediately transmit a radio broadcast on the standby channel in the following manner: “EMERGENCY, EMERGENCY, EMERGENCY, (movement) on (designated track), stopped (stopping) in emergency between mile _____ and mile _____ (subdivision)”;
 - (ii) as soon as possible, advise the RTC of the movement’s emergency stop location, indicating whether adjacent tracks and tracks of other railways are liable to be obstructed;
 - (iii) repeat the emergency broadcast outlined in (i) at intervals not exceeding 90 seconds until advised by the RTC that all affected movements on other tracks have been secured, stopped or advised of the emergency stop, or it is known that adjacent tracks or tracks of other railways are safe and clear for movements;
 - (iv) if unable to comply with (i), (ii), (iii), the adjacent track must be protected as per Rule 35(b) EMERGENCY PROTECTION.
 - (v) When tracks of other railways may be obstructed the emergency radio broadcast must be transmitted on their standby channel if practicable.
- (b) Other movements must:
 - (i) stop at once if closely approaching the location stated in the emergency broadcast; or
 - (ii) stop prior to reaching the location stated in the emergency broadcast; and
 - (iii) after stop has been made, proceed prepared to stop short of an obstruction until it is known that the track is safe and clear.
- (c) The RTC must:
 - (i) immediately secure and advise affected movements on other tracks of the location of the movement in an emergency stop;
 - (ii) by use of a dedicated emergency communication system, alert the RTC controlling adjacent tracks of other railways liable to be obstructed, providing the location of the emergency stop; and
 - (iii) advise the crew of the movement involved in the emergency stop when all other affected movements have been advised of the condition.
- (d) Rule 102 is applicable to a movement operating on a track that is adjacent to a siding where siding control territory rules (SCT) are applicable.

103. PUBLIC CROSSINGS AT GRADE

- (a) Where a railway track and a public road share the same roadbed and there is no fence or other barrier between them, moving rail cars not headed by an engine or when headed by a remotely controlled engine must be protected by a crew member on the leading car or on the ground, in a position to warn persons standing on, or crossing, or about to cross the track.
- (b) When required by special instruction or when cars not headed by an engine, snow plow or other equipment equipped with a whistle and headlight, are moving over a public crossing at grade, a crew member must provide manual protection of the crossing until the crossing is fully occupied.

EXCEPTION: Manual protection of the crossing is not required provided the crossing is equipped with automatic warning devices and a crew member is on the leading car to warn persons standing on, or crossing, or about to cross the track. This exception does not modify the application of Rule 103.1 (a).

- (c) Crew members must not give vehicular traffic a hand signal to proceed over a crossing.
- (e) Equipment must not be left standing within 100 feet of the travelled portion of a public or private crossing at grade, except where it is necessary to leave such equipment for loading or unloading.
- (f) Before switching or operating a remote control locomotive over an unprotected public crossing at grade where the view of the crossing by the locomotive engineer is obscured, arrangements must be made for a crew member or other employee to be in position to observe the crossing and give signals and instructions to the locomotive engineer as necessary.
- (g) When providing manual protection of a crossing, a crew member or other qualified employee must be on the ground ahead of the movement, in a position to stop vehicular and pedestrian traffic before entering the crossing. A hand signal by day and a light or a lighted fusee by night will be used to give a signal to stop vehicular and pedestrian traffic over such crossing. The movement must not enter the crossing until a signal to enter the crossing has been received from the employee providing the manual protection.
When the crossing is known to be clear of traffic, and will remain clear until occupied, manual protection need not be provided.

103.1 PUBLIC CROSSINGS AT GRADE WITH WARNING DEVICES

- (a) When a movement passes over any public crossing at grade equipped with automatic warning devices, it will be necessary, before reversing over the crossing, for a crew member to provide manual protection of the crossing.
- (b) Unless otherwise directed by special instructions, a main track movement over a public crossing at grade, equipped with automatic warning devices, which;
 - (i) has stopped or is switching, on the main track in the vicinity of the crossing; or
 - (ii) is entering the main track in the vicinity of the crossing; or
 - (iii) has been authorized to pass a block or interlocking signal indicating Stop which is located within 300 feet of the crossing;must not exceed 10 MPH from a distance of 300 feet from the crossing until the crossing is fully occupied by the movement. In addition, unless manually protected, the crossing must not be occupied until the warning devices are known to have been operating for at least 20 seconds.
Applicable to item (iii): At all other crossings within the block, movements must not exceed 15 MPH entering the crossing unless the warning devices are known to have been operating for at least 20 seconds prior to occupancy.
- (c) Unless otherwise directed by special instructions, a movement on non-main track over a public crossing at grade, equipped with automatic warning devices, must not exceed 10 miles per hour from a distance of 300 feet until the crossing is fully occupied.
- (d) At a public crossing at grade where special instructions require that warning devices be operated by pushbutton, or other appliances, or that movements stop at stop signs, movements affected must not occupy the crossing until the warning devices have been operating for at least 20 seconds. Pushbutton boxes must be closed and locked when not in use.
- (f) When advised by special instructions that rusty rail or other conditions may exist, occupancy of crossings with automatic warning devices must be manually protected unless it is known that warning devices have been operating for at least 20 seconds.
- (g) At crossings equipped with automatic warning devices indicated in special instructions, movements must not accelerate by more than 5 MPH unless automatic warning devices are known to have been operating for at least 20 seconds.

- (h) Employees observing the improper operation of any automatic warning device must notify the RTC or person responsible for the territory by the quickest available means. The person notified must immediately notify those charged with repair and/or responsibility.
- (i) On track which the RTC can prevent movements from accessing the crossing must be protected by the RTC using blocking or other methods of securement until all affected movements are advised in writing to apply Rule 103(g).
EXCEPTION: A movement may be provided instructions verbally when:
- within two controlled blocks of the crossing; or
 - there is no controlled block prior, within 25 miles.
- (ii) On track which the RTC cannot prevent access, the person responsible for the territory must instruct all affected movements to apply Rule 103(g).
- (i) A movement following another movement within 1500 feet may not properly activate crossing warning devices and therefore, must not obstruct any public crossing at grade equipped with automatic warning devices until:
- the warning devices are known to have been operating for at least 20 seconds;
 - gates, if any, are in horizontal position; or
 - a crew member applies Rule 103(g) at the crossing.

SWITCHES

104. HAND OPERATED SWITCHES

General

- (a) **Operation of Switches** - semi-automatic, spring, dual control or auto-normal switches operated by hand are considered hand operated switches, and all rules governing hand operated switches apply.
- (b) Except while being turned, each switch must be secured with an approved device. When a switch has been turned, the points must be examined and the target, reflector or light, if any, observed to ensure that the switch is properly lined for the route to be used.
- (c) A switch must not be turned while any part of a car or engine is between the switch points and the fouling point of the track to be used, except when making a running switch or in the application of the exception to Rule 114.
- (d) Handling of main track hand operated switches by other than a crew member.
When arrangements are made for an employee to take charge of a switch(es), the movement must receive verbal confirmation that the switch has been restored to normal position. Verbal advice of switch position may be provided to a movement by an employee. The approaching movement must not act on such information unless advised that the employee is at the switch and will remain in charge of the switch.
- (e) If it is known or suspected that either of the points or any part of a switch is damaged or broken, the switch must be protected until it can be made safe for use. A report must be made to the RTC or employee responsible for the territory by the quickest available means.
- (f) When a switch point lock is provided, it must be locked when the switch is left in normal position. Employees must familiarize themselves with the location of switch point locks.

Main Track Hand Operated Switches

Notes:

- (i) A main track hand operated switch must display a reflectorized target, or light and target except in CTC or on a subdivision specified in special instructions.
 - (ii) At an electrically locked hand operated switch, instructions posted at the switch or in special instructions, will govern the operation of the switch and entry to the main track or interlocking route.
- (h) Unless otherwise specified by special instructions, the normal position for a main track switch is for the main track route. Except as provided in paragraph (i), main track switches must be left lined and locked in normal position.
- (i) **Left in Reverse Position**
A main track switch may be left in the reverse position when;
1. directed by GBO, clearance or special instructions, and protection has been provided against all affected movements,
 2. attended by an employee, who must be in position to restore the switch to normal before it is occupied by an approaching movement on the main track,
 3. occupied by equipment,
 4. required in the application of Rule 41/841,
 5. in OCS or Cautionary Limits;
 - (i) equipment is left on the main track,
 - (ii) the equipment is left as close as practical to the switch, and
 - (iii) operation over the same switch is required when returning to such equipment,
 6. in CTC, equipment is left within the same controlled block. When this cannot be done, RTC permission must be obtained.

Notes:

- (i) Except when switching, main track switches when left in the reverse position, must be left locked.
- (ii) Unless authorized to leave a main track switch in reverse position or so instructed by the RTC, an employee encountering a main track switch in reverse position must restore the switch to normal position and comply with the requirements of (iii).
- (iii) An employee encountering a main track switch in normal position after having a warning that the switch is in reverse position must;
 - communicate to other crew members or employee that the switch is restored to normal, and
 - report to the RTC from the location of the switch i.e. physically situated at or having the switch in sight, or the switch at the time is occupied by a portion of the movement. If the RTC cannot be contacted, the employee may leave that location, leaving the switch lined and locked in the normal position.
- (iv) The RTC must not act on any report of switch position that was not received from the switch location. Additionally, the RTC must not remove protection for the reverse switch until it can be confirmed that there are no other movements authorized to leave the switch in the reverse position.
- (j) Except when switching, when a movement is closely approaching or passing over a main track switch, other than a dual control switch, employees must keep at least 20 feet from the switch stand, and must, when practicable, on single track, stand on the opposite side of the track.
- (k) On single track, a crew member of a movement stopped on the main track to meet or to be passed by another movement, will, when practicable, reverse the switch for the approaching movement and protect it unless relieved by a crew member of the other movement.
- (l) Unless otherwise directed by special instructions, the normal position for a main track junction switch is when set for through movement on one subdivision.
- (m) When a movement diverges from a main track, the switch used must not be restored to normal position until the fouling point has been cleared.
- (n) The switches at both ends of a crossover are normal when set for a through movement on the other tracks. When a crossover is to be used, the switch in the track on which the movement is standing must be reversed first. Both switches must be reversed before crossing over. Before either switch is restored to normal position the movement must be clear of the crossover.

Hand Operated Non-Main Track Switches

- (o) Unless otherwise specified by special instructions, non-main track switches, when equipped with a lock, must be lined in normal position and locked after having been used.

Main Track Switches in OCS Territory

- (p) Unless or until the switch is seen to be in normal position, movements approaching a main track hand operated switch in a facing point direction in OCS territory, unless otherwise governed by signal indication, must not exceed the following speeds from one-quarter of a mile of the switch;

PASSENGER	50 MPH
FREIGHT	45 MPH
FREIGHT handling	
Special Dangerous	
Commodities	40 MPH
- (q) The employee handling a main track hand operated switch in non-signalled territory must, from the location of the switch, communicate with another employee to confirm the position in which the switch has been left, lined and locked. The employee receiving this report must repeat it back to the employee who handled the switch. Communication may be achieved by personal contact, radio or telephone. A lone employee unable to communicate with any employee other than the RTC, must communicate with the RTC.

This rule also applies where ABS signals do not govern movements in both directions.

104.1 SPRING SWITCHES

- (a) A spring switch will be identified by a spring switch sign bearing the letters "SS".
- (b) Employees must keep clear of the switch handle while it is being lifted or released.
- (c) When trailing through a spring switch, a movement that stops must not be reversed, nor slack taken, until the switch has been properly set by hand.
- (d) When ice or snow conditions warrant, all movements must stop before trailing through a spring switch and examine the switch points, cleaning them if necessary.
- (e) When a movement is required to operate over a spring switch in the facing point direction at RESTRICTED speed, a stop must be made before the leading wheels are on the switch points, and the switch points must be examined from a position on the ground.
 - (i) If the points are found to be properly closed the movement will be governed by the indication of the signal, if any.
 - (ii) If the switch points are not properly closed and cannot be closed by use of the switch handle, the points must be spiked in the proper position and the movement will be governed by the indication of the signal, if any.

After operating over a spiked spring switch, the spike must be removed and the RTC or employee in charge notified as quickly as possible.

104.2 DUAL CONTROL SWITCHES

- (a) Except as required by rule, a dual control switch must not be placed in hand position without permission from the RTC or signalman.
- (b) When a movement is required to operate over a dual control switch under a Stop indication, unless relieved of the responsibility by the RTC or signalman, the movement must not proceed until;
 - (i) the selector lever is placed in "hand" position;
 - (ii) the hand throw lever is operated until the switch points move in both directions with the action of the hand throw lever; and
 - (iii) the switch is lined by hand for the route to be used. The selector lever must be restored to "power" position and locked, but not before the movement has occupied the switch points.
- (c) The RTC or signalman must not relieve a crew of the requirements of paragraph (b) until it has been determined, from the office control devices and indications, that dual control switches in the route to be used are properly lined. When so relieved, a crew member must observe that the switch points are lined for the authorized route.
- (c) **OPTIONAL (to above with approved system)**

The RTC or signalman may relieve a crew of the requirements of paragraph (b) when automated office control devices confirm that dual control switches are properly lined for the route generated on the authority that will be issued to the movement.
- (d) When switching is to be performed over a dual control switch, in conjunction with Rule 566.1 or 577.1, the switch may be operated by hand after authority has been obtained as prescribed by Rule 566, 567 or 577. The selector lever must be placed in "hand" position. The hand throw lever must be operated until the switch points move in both directions with the action of the hand throw lever. The selector lever must be left in "hand" position until switching is completed. The RTC must be advised when the selector lever has been restored to the "power" position and locked.

104.3 POWER-OPERATED SWITCHES AT A STOP SIGNAL

When the crew of a movement is authorized to pass a stop signal to move over a power-operated switch, a crew member must observe that the switch points are lined for the authorized route.

104.4 SEMI-AUTOMATIC SWITCHES

- (a) A semi-automatic switch will be equipped with reflectorized targets.
- (b) When ice or snow may affect the ability of the switch points on a semi-automatic switch to close properly when operated by wheel flange, a member of the crew must manually line the switch and ensure the points are properly lined before a trailing move is commenced over the switch. Movements operating in a facing point direction must observe the position of the points in addition to the target indication before proceeding over a semi-automatic switch.
- (c) After coupling to equipment at a semi-automatic switch, or when reversing direction through such switch, a facing point move must not be made, unless one unit of equipment has trailed entirely through the switch, or it is known that the points are properly lined for the movement.

104.5 DERAILS

- (a) The location of each derail will be marked by a sign, unless otherwise directed by special instructions. Employees must be familiar with the location of each derail.
- (b) A movement or track unit must stop short of a derail set in the derailing position.
- (c) Each derail, other than a Special Derail or a Blue Flag Derail, must be left in the derailing position.
- (d) The location of SPECIAL DERAILS will be indicated in the time table or special instructions, will be switch stand operated and identified in the field with a reflective red letter "D" on a reflective yellow target, or a sign indicating "Special Derail" which will be visible when in the derailing position.

The following requirements govern their use:

- they will only be in the derailing position when unattended equipment is present;
 - equipment to be left must be coupled together except when required to clear a crossing or on account of a mechanical defect; and
 - movements required to move at RESTRICTED speed on a track where a SPECIAL DERAIL is located must, in addition to the requirements of RESTRICTED speed, approach such derail prepared to find it in the derailing position.
- (e) All derails must be left secured with a locking device.
 - (f) Derails used in conjunction with blue flags will be in the derailing position only when protection for personnel is required. When protection is no longer required, they will be locked in a non-derailing position.
 - (g) Where hand operated switch point derails are in use, the points must be examined and the target observed to ensure that the derail is in the proper position.

105. OPERATION ON NON-MAIN TRACK

Special instructions will indicate when this rule is not applicable on a specific track.

Unless otherwise provided by signal indication, a movement using non-main track must operate at REDUCED speed and be prepared to stop short of the end of track or the red signal prescribed by Rule 41.

- (a) In CTC, movements may only enter a siding by signal indication or with permission from the RTC.
- (b) Unless otherwise provided by signal indication or special instructions, movements operating on non-main tracks must not exceed fifteen (15) MPH.
- (c) In addition to moving at REDUCED speed, a movement using a non-signalled siding or using other non-main tracks so designated in special instructions, must operate at a speed that will allow it to stop within one-half the range of vision of a track unit.

105.1 EQUIPMENT LEFT ON SIDING

- (a) Unless otherwise provided, the RTC must be advised prior to leaving equipment on a siding. The RTC will notify other movements affected as soon as practicable.
- (b) When occupied service equipment is placed on a siding, a GBO will be issued specifying the location of such equipment. If the switches of the siding are locked with special locks, the GBO will so state.

106. CREW RESPONSIBILITIES

All crew members are responsible for the safe operation of movements and equipment in their charge and for the observance of the rules. Under conditions not provided for by the rules, they must take every precaution for protection.

A utility employee becomes a crew member when working with any movement.

107. RESTRICTIONS AT PASSENGER TRAIN STOPS

Unless otherwise directed by special instructions, a movement must operate with extreme care when passing along side a train carrying passengers that is discharging or receiving traffic. It must not pass between such train and the station or platform, unless the movement is properly protected.

Passengers shall be allowed to entrain and detrain only after positive protection has been provided against movements approaching on any main track they must cross when moving between the station and the train.

108. PRECAUTIONS WHILE SWITCHING (OPTIONAL)

When switching is performed, precautions must be taken by crew members to prevent unintended rollbacks and/or fouling of other tracks and equipment.

109. LOCOMOTIVE ENGINEER PRECAUTIONS

When duties require the locomotive engineer to temporarily exit the controlling locomotive cab on a standing movement, the locomotive engineer must:

- (a) fully apply the independent brake;
- (b) apply the automatic brake, if required;
- (c) remove the reverser, unless the locomotive is not equipped with a high idle feature;
- (d) immediately after stepping away from the control stand, visually verify that:
 - (i) the gauges do not indicate a possible release of the air brakes; and
 - (ii) the independent and automatic brake valve handles remain in the selected positions; and
- (e) verbally confirm with another employee the measures taken above.

110. INSPECTING PASSING TRAINS AND TRANSFERS

- (a) When duties and terrain permit, at least two crew members of a standing train or transfer and other employees at wayside must position themselves on the ground on both sides of the track to inspect the condition of equipment in passing trains and transfers. When performing a train or transfer inspection, the locomotive engineer will inspect the near side. When a group of wayside employees is present, at least two employees must perform the inspection.
EXCEPTION: Crew members of passenger trains are exempted from the above requirements except when standing at meeting points in single track territory. However, every effort must be made to stop a train or transfer when a dangerous condition is noted.
- (b) Employees inspecting the condition of equipment in a passing freight train or transfer must, when possible, broadcast the results of the inspection.
- (c) Every effort must be made to stop a passing train or transfer if a dangerous condition is detected. Each crew member of a train or transfer must be alert at all times for a stop signal or

communication given by an employee. The report to the train or transfer being inspected must state only the location of the dangerous condition and what was observed and not speculate as to the cause.

- (d) When a crew member is located at the rear of a train or transfer, a front crew member must, when practicable, notify the rear crew member of the location of employees in position to inspect their train or transfer.

111. TRAIN AND TRANSFER INSPECTION

- (a) The crew must know that equipment in their train or transfer is in good order before starting and inspect it whenever they have an opportunity to do so. Equipment added to a train or transfer en route must be inspected with extra care to ensure it is in good order.
- (b) When crew members are on the rear of a moving train or transfer they must inspect, at every opportunity, the track to the rear for evidence of dragging or derailed equipment.
- (c) All crew members on a moving train or transfer must make frequent inspections of both sides to ensure that it is in order.
- (d) On completion of crew-planned inspections and at locations where inspection is required by special instructions, crew members will, when possible, voice communicate to each other the results of such inspections.
- (e) **OPTIONAL:** The conductor first arriving at a meeting point will arrange for a walking inspection of their freight train or transfer, inspecting as much as time and conditions permit.

112. SECURING UNATTENDED EQUIPMENT

When equipment is left unattended, it must be secured to prevent it from moving unintentionally.

In the application of this rule:

- (i) For the purpose of paragraphs (b) to (g), equipment is considered unattended when an employee is not in close enough proximity to take effective action to stop the equipment should it move unintentionally.
- (ii) Parking brakes are considered to be hand brakes.
- (iii) Application of hand brakes must not be made while equipment is being pulled or shoved.
- (iv) Before leaving equipment, the employee securing such equipment must confirm with another employee the manner in which it has been secured.
- (v) When one or more locomotives are coupled to one or more cars, hand brakes must be applied on all locomotives in the lead consist of the unattended movement. In the application of (g), the number of hand brakes applied on each locomotive in the lead consist must not be included in determining the number of hand brakes required on the cars.

(vi) Testing Hand Brake Effectiveness

When testing the effectiveness of hand brakes, ensure all air brakes are released and:

- (a) allow the slack to adjust. It must be apparent when slack runs in or out, that the hand brakes are sufficient to prevent the equipment from moving; or
- (b) apply sufficient tractive effort to determine that the hand brakes prevent the equipment from moving when tractive effort is terminated.

If the effectiveness of hand brakes is not sufficient to prevent the equipment from moving, apply one or more additional hand brakes and re-test.

(a) Main Track, Subdivision Track, Siding or High Risk Locations

Equipment shall be considered unattended and must be secured unless:

- The equipment is coupled to a controlling locomotive; **and**
- The brake pipe of the controlling locomotive is coupled to the equipment and the brake pipe is open; **and**
- A qualified employee is on the controlling locomotive and able to operate the air brake system. Alternatively, a locomotive engineer can be located on the ground in accordance with CROR 109 and within arm's reach of the locomotive to complete passing train/transfer inspections.

(i) When equipment not connected to an air source is left unattended, at least the minimum number of hand brakes as indicated in (g) must be applied, tested for effectiveness, and at least one of the following additional securement methods must be used:

- derail(s);
- track where rail physically ends;
- bowled terrain as identified in special instructions; or
- air brakes up to 2 hours.

When air brakes are used as an additional method of securement:

- the air brake system must be sufficiently charged to ensure proper brake application;
- the brake pipe must be fully vented at a service rate or has an emergency brake application; and
- on freight equipment, the angle cock is left fully open.

If required to be left longer, an employee must observe that the equipment has not moved, the air brake pistons remain extended, and the hand brakes are still applied. Such results must be communicated to another employee. This observation must be carried out at consecutive intervals of 2 hours or less. If any change in the condition of the above three items is observed, additional hand brakes must be applied as indicated in (g), using the next grade column which requires an increased number of hand brakes.

(ii) When equipment connected to an air source is left unattended, where air pressure is maintained by continuous operation or auto start:

- at least the minimum number of hand brakes as indicated in (g) must be applied and tested for effectiveness;
- the air brake system must be sufficiently charged to ensure proper brake application;
- the equipment must be left with air brakes applied; and
- the independent brake on the controlling locomotive must be fully applied.

In addition, at least one of the following securement methods must be used:

- derails;
- track where rail physically ends;
- a Mechanical Emergency Device;
- bowled terrain as identified in special instructions; or
- a locomotive equipped with roll-away protection.

When rollaway protection is used as an additional means of securement, the proper authority must be notified. One of the following means of verification must be used to ensure the rollaway protection remains operational:

- When automatic notification is used, it must notify the proper authority when rollaway protection has been activated, who must arrange for prompt inspection.
- In the absence of the above, an employee must verify that air pressure is maintained, and a penalty brake application has not occurred. This verification must be carried out at consecutive intervals of 18 hours or less.

If air pressure cannot be maintained, notify the proper authority, and secure the equipment per (a)(i).

(b) Non-Main Tracks (Excluding Subdivision Track, Sidings, Yards and High Risk Locations)

When equipment is left unattended, a sufficient number of hand brakes must be applied and tested for effectiveness. Unless otherwise indicated in special instructions, apply a minimum number of hand brakes as indicated in (g).

(c) Yard Tracks

When equipment is left unattended in a yard track, to prevent equipment from moving unintentionally, it must be secured by using at least one of the following:

- hand brakes; unless otherwise indicated in special instructions, a minimum number applied as indicated in (g) and tested for effectiveness;
- bowled terrain;
- retarders;
- wheel chocks or skates;
- air brakes, not connected to an air source, for up to 2 hours when:
 - (i) there are 10 or more cars;
 - (ii) the air brake system is sufficiently charged to ensure proper brake application;
 - (iii) the brake pipe is fully vented at a service rate or has an emergency brake application;and
 - (iv) on freight equipment, the angle cock is left fully open.

If required to be left longer, an employee must observe that the equipment has not moved, the air brake pistons remain extended, and the hand brakes (when used) are still applied. Such results must be communicated to another employee. This observation must be carried out at consecutive intervals of 2 hours or less. If any change in the condition of the above items is observed, hand brakes must be applied as indicated in (g); or

- air brakes, connected to an air source, where air pressure is maintained by continuous operation or auto start, and a Mechanical Emergency Device is used.

(d) Exceptional weather situations, such as high winds or other unusual conditions, must be factored when determining securement requirements. In addition, previously secured equipment may require additional means of securement. Special instructions may contain location specific requirements where extreme weather events are prevalent.

(e) When advised that trespasser(s) or emergency responder(s) have been in contact with unattended equipment, the person responsible for the territory must make arrangements to have an employee verify the equipment remains secured without delay.

(f) When sudden or unforeseen circumstances do not permit the full application of the requirements of paragraphs (a) or (b), the proper authority must be promptly advised of what

action was taken to secure the equipment, and to determine if additional action can be taken prior to leaving equipment unattended.

(i) These circumstances are limited to when:

- a mechanical defect is encountered enroute;
- equipment is derailed or coupled to derailed equipment; or
- separation is required for clearing a crossing for emergency vehicles.

(ii) Additional actions:

- When equipment with a mechanical defect is required to be left, and does not permit the full application of the requirements of paragraph (a) or (b), add one operative hand brake to the minimum number required, for each defective piece of equipment.
- When a mechanical defect requires equipment to be left, and does not permit the full application of the requirements of paragraph (a) or (b); or cannot be conducted safely, the equipment must be secured by applying hand brakes as indicated in (g), using the next grade column which requires an increased number of hand brakes. Additional hand brakes must be applied if those applied do not prevent the equipment from moving.

The railway company must notify Transport Canada of the time, date, and reason for any application of (f) within 48 hours.

(g) Minimum Number Requirements for Hand Brakes

A single piece of equipment must always be left with the hand brake applied and tested for effectiveness. For two or more pieces of equipment, the following table applies:

Total Trailing Tons:	Average Grade is Equal To or Less Than												
	0.2%	0.4%	0.6%	0.8%	1.0%	1.2%	1.4%	1.6%	1.8%	2.0%	2.2%	2.4%	> 2.4%
0 - 2000	2	2	2	4	6	6	8	10	10	12	12	14	
> 2000 - 4000	2	2	4	6	8	12	14	16	18	20	22	26	
> 4000 - 6000	2	6	6	10	14	16	20	24	28	30	34	38	
> 6000 - 8000	4	6	8	12	18	22	26	32	36	42	46	52	
> 8000 - 10000	4	6	10	16	22	28	34	40	46	52	58	66	
> 10000 - 12000	4	8	12	20	26	34	40	48	56	64	72	80	
> 12000 - 14000	6	8	14	22	30	40	48	58	66	76	84	96	
> 14000 - 16000	6	10	16	26	36	46	56	66	76	88	98	110	
> 16000 - 18000	6	10	18	28	40	50	62	74	86	100	112	126	
> 18000 - 20000	8	12	20	32	44	58	70	84	98	112	128	146	
> 20000 - 22000	8	12	22	36	50	64	78	94	110				
> 22000 - 24000	8	12	24	38	54	70	86	104	122				
> 24000 - 26000	10	14	26	42	58	76	94	112	134				
> 26000 - 28000	10	14	28	46	64	82	104	124	148				
> 28000 - 30000	12	16	30	50	68	90	110	136	162				
> 30000	12	16	34	52	74	96	120	148	172				

100%
Hand
Brakes

113.0 COUPLING TO EQUIPMENT

- (a) Before coupling to equipment, precautions must be taken to prevent the equipment from moving unintentionally.
- (b) When riding the side of equipment, other than a locomotive, detrain prior to making the coupling.
- (c) Before coupling to equipment, ensure at least one knuckle is open.
- (d) Unless otherwise specified in special instructions, before coupling to or moving equipment being loaded or unloaded, all persons in or about such equipment must be notified. Vehicles and loading or unloading devices must be clear.
- (e) Before coupling to or moving service equipment, employees occupying such equipment must be notified and any attachments secured.
- (f) When coupling to passenger equipment, a stop must be made not less than 6 nor greater than 12 feet from the coupling and a speed of 2 MPH must not be exceeded.
- (g) To prevent by-pass couplers when coupling to equipment on other than tangent track, a stop must be made not less than 6 nor greater than 12 feet from the coupling. Extreme caution must then be used, ensuring couplers are properly aligned prior to the coupling being made.
- (h) Coupling must be performed at the lowest speed necessary to make the coupling, not exceeding 6 MPH.
- (i) Prior to leaving, a coupling made with equipment not released under its own momentum must be stretched using sufficient tractive effort to ensure a proper coupling.

113.1 UNCOUPLING FROM EQUIPMENT

- (a) Equipment is considered to be uncoupled once the uncoupling lever has been lifted.
- (b) In a yard, before uncoupling from standing equipment, a sufficient number of hand brakes must be applied, unless one of the methods prescribed by Rule 112 (c) is used.
- (c) Once uncoupled, unless released under its own momentum, the equipment must be observed to ensure it remains where intended.

113.2 MOVING EQUIPMENT AFTER COUPLING

- (a) Equipment must be stretched.
- (b) After stretching, and prior to moving, the equipment must be checked:
 - (i) to ensure it is coupled; and
 - (ii) for applied hand brakes as may normally be expected to be present.
- (c) Unless unintentional movement of the equipment can be prevented with the locomotive brakes, hand brakes must not be released until the air brake system is sufficiently charged and an effective Automatic Brake application made to prevent movement while the hand brakes are being released.

113.3 SWITCHING WITH AIR BRAKES

- (a) Operative air brakes, in addition to the locomotive(s), must be used when switching:
 - (i) on a grade greater than 0.4%; and
 - (ii) with more than 2000 tons.
- (b) Special instructions must indicate:
 - (i) locations where (a)(i) is applicable; and
 - (ii) the minimum number of pieces of equipment, in addition to the locomotive(s), with operative air brakes.

113.4 RESTRICTIONS

Kicking, running switch, and gravity drop are prohibited:

- (a) on a main track;
- (b) on a subdivision track;
- (c) on a siding;
- (d) at a high risk location;
- (e) on any main shop, diesel shop, or car shop track; and
- (f) onto, or with, passenger equipment.

113.5 KICKING EQUIPMENT

- (a) On tracks not listed in Rule 113.4, unless otherwise indicated in special instructions, the kicking of equipment is prohibited. At locations where kicking is permitted:
 - (i) The walking surface of the area where equipment is uncoupled must be clear of obstacles.
 - (ii) The track(s) to be used beyond the area where equipment is uncoupled must be flat, and/or descend in grade, to prevent equipment from rolling back and fouling a track previously cleared.
 - (iii) Equipment must be prevented from exiting the intended track at either end.
 - (iv) Routing must prevent equipment kicked from fouling a main track, siding, subdivision track, or a high risk location. This may include the use of switches, derails, switching leads, or other controlled means.
 - (v) Special instructions will indicate the maximum tonnage that may be kicked at one time, as determined by a Company approved process.
- (b) When hand brakes will be used to control the speed of equipment kicked, such hand brakes must first be verified operational.

- (c) Equipment kicked must not be left foul of the intended route.
- (d) Once equipment is kicked, no additional equipment may be kicked until it has been confirmed that:
 - (i) the route to be used is properly lined, and
 - (ii) equipment previously kicked is clear of the fouling point of the intended route.
- (e) Precautions must be taken to ensure that equipment kicked remains clear.
- (f) When kicking is completed, equipment must be secured per Rule 112(b) or (c).

113.6 RUNNING SWITCH

- (a) It must be verified that the switch and hand brakes are in working order before the move is commenced.
- (b) A running switch must not be made;
 - (i) with or onto occupied equipment;
 - (ii) with or onto equipment placarded to indicate it contains or contained dangerous goods;
 - (iii) where the switch to be used is a dual control, power-operated or spring switch; or
 - (iv) within interlocking limits of a drawbridge or railway crossing at grade.
- (c) At least 3 employees must be utilized when performing a running switch.

113.7 GRAVITY DROP

- (a) It must be verified that the hand brakes, when used, are in working order before the move is commenced.
- (b) A gravity drop must not be made with or onto occupied equipment.

114. FOULING OTHER TRACKS

- (a) Equipment must not be allowed to move foul of another track unless properly protected.
- (b) A movement must not foul a track until the switches connected with the move are properly lined, or in the case of semi-automatic or spring switches, the conflicting route is known to be clear.
EXCEPTION: A movement may foul a track connected by a hand operated switch provided that:
 - (i) neither the track occupied nor the track to be fouled are main tracks;
 - (ii) the conflicting route is known to be clear; and
 - (iii) the switch is properly lined before the movement passes over it.
- (c) Equipment must not be left foul of a connecting track unless the switch is left lined for the track upon which such equipment is standing.

115. SHOVING EQUIPMENT

- (a) When equipment is shoved by an engine or is headed by an unmanned remotely controlled engine, a crew member must be on the leading piece of equipment or on the ground, in a position to observe the track to be used and to give signals or instructions necessary to control the move.
EXCEPTION: A crew member need not be so positioned when the portion of the track to be used is known to be clear. However, equipment not headed by an engine must not approach to within 100 feet of any public, private or farm crossing unless such crossings are protected as described in Rule 103 paragraph (b) or (g).
- (b) Known to be clear is defined as seeing the portion of the track to be used as being clear and remaining clear of equipment and as having sufficient room to contain equipment being shoved. This determination must be made by a qualified employee who can observe the track and has radio contact with the employee controlling the movement. Where a track that has been seen to be clear and no access to that track is possible by another movement, the track may be considered as "known to be clear".

Note: When it can be determined that other movements are not on duty or will not be performing work in the track to be used, the requirement of “known to be clear” can be considered to be fulfilled continuously.

- (c) On main track, when equipment is shoved by an engine or is headed by an unmanned remotely controlled engine, unless protected by a crew member as described in paragraph (a), this move must:
 - (i) have the required authority;
 - (ii) not exceed the overall length of the equipment;
 - (iii) not exceed 15 MPH; and
 - (iv) not be made while the leading car is within cautionary limits.
- (d) Unless the route is known to be clear, when reversing with a locomotive consist and visibility is restricted, a member of the crew must be on the leading end and in position from which signals necessary can be properly given.

RADIO

117. RELIABILITY TESTS

The crew of a movement when equipped with radios must carry out an intra-crew test of such radios before leaving their initial terminal, change-off or starting point. When a movement is equipped with a single radio, it must be voice tested as soon as practicable after the crew commences duty.

118. DEVICES USED IN LIEU OF RADIO

When a communication device is used in lieu of a radio, all radio rules are applicable.

119. CONTINUOUS MONITORING

- (a) When not being used to transmit or receive a communication, receivers must be set to the appropriate standby channel and at a volume which will ensure continuous monitoring. When required to use another channel to perform other duties, at least one radio, when practicable, should be set to the designated standby channel to receive emergency communications.
- (b) The volume of a radio receiver should be kept at a level that will avoid annoyance to the public in passenger cars and station facilities.
- (c) Foremen named in Form Y GBO, TOP or clearance must set their radio to “scan mode” when not being used to communicate with another employee and must otherwise have their radio set to monitor the applicable designated standby channel.

120. RADIO TERMS

- (a) In radio communication the following terms when used will denote:
 - “STAND BY” - Monitor this channel for my next transmission.
 - “OVER” - Transmission is ended and a response is expected.
 - “OUT” - Transmission is ended and no response is expected.
- (b) **OPTIONAL:**
 - Except when radio communication relates to switching operations, when a transmission is complete and a response is expected or required, the transmitting employee must end each transmission with the spoken word “OVER”.

121. POSITIVE IDENTIFICATION

- (a) The person initiating a radio communication and the responding party must establish positive identification. The initial call must commence with the railway company initials of the person

being called.

In addition, when a non-railway company person is calling on a company's channels, they must use their company's name to identify themselves within the initial transmission.

- (b) The person initiating the radio communication must end the initial call with the spoken word "OVER."
- (c) Each party to a radio communication must end their final transmission with the spoken word "OUT."
- (d) When an authority is requested from the RTC or signalman, communication must include the information required for the issuance of the authority.
E.g. name, location, movement designation, required limits, signal number and/or track(s) to be used or entered.

122. CONTENT OF RADIO COMMUNICATIONS

Radio communications must be brief and to the point and contain only essential instructions or information.

123. VERIFICATION PROCEDURES

- (a) When necessary, a repetition, acknowledgement or other response required from a crew member may be checked and confirmed to the RTC by another crew member.
- (b) When GBO, clearances, other authorities or instructions, required to be in writing, are received by radio, they must be verified by the procedures prescribed by their specific rules.
- (c) Except when transmitted by an automated device, or as otherwise provided, when verbal instructions or information affecting the safety of a movement are received by radio, such information must be repeated to the sender.

123.1 RADIO OR HAND SIGNALS

Before changing between radio or hand signals, a definite understanding as to the method of communication must be established between crew members giving or receiving instructions. In case of an emergency, either method may be used in addition to that previously arranged.

123.2 SWITCHING BY RADIO

When radio is used to control switching, and after positive identification has been established, the following procedures are required:

- (i) direction in relation to the front of the controlling locomotive must be given in the initial instruction and from then on whenever the direction is to change;
- (ii) distance to travel must be given with each communication and increments of less than two car lengths need not be repeated;
- (iii) when the movement has travelled one-half the distance required by the last instruction and no further communication is received, the movement must stop;
- (iv) the indication of block and interlocking signals affecting their movement, must be communicated between crew members while switching;
- (v) doubt as to the meaning of an instruction or for whom it is intended must be regarded as a stop signal; and
- (vi) when car lengths are used to communicate distance, unless otherwise arranged, the distance referred to is 50 feet per car length.

125. EMERGENCY COMMUNICATION PROCEDURES

- (a) An employee will transmit the word "EMERGENCY" three times at the beginning of the transmission to indicate the report of;
 - (i) an accident involving injury to employees or others;
 - (ii) a condition which may constitute a hazard to employees or others;

- (iii) a condition which may endanger the passage of movements; or
- (iv) a derailment which has occurred on, or is fouling, a main track.
- (b) When an emergency communication, which is directed to a specific person or movement, has not been acknowledged, any other employee hearing it will, if practicable, relay the communication by any means available. Other employees must not interfere with such communication.
- (c) An emergency communication has absolute priority over other transmissions.

126. RESTRICTED USE OF RADIO

In addition to the restrictions in Rules 14 and 602, radio must not be used to;

- (i) give advance information with respect to the indication of a block or interlocking signal; or
- (ii) give information which may influence a crew to consider that speed restrictions are diminished.

127. CONDUCTING EMERGENCY RADIO TEST

- (a) In order to ensure emergency communication channels are in operation, and to ensure employees are familiar with the emergency procedures, the RTC may contact a crew member of any movement or an engineering field employee and direct them to initiate an emergency test call on their respective RTC channel.
- (b) These tests will be made randomly and employees receiving a request for an emergency test will initiate it on the applicable RTC channel, using the following example for wording:
“Emergency test, Emergency test, Emergency test. ABC 1234 East at mile 12 Canada Sub, testing the Emergency call.”
- (c) Upon completion of the test, the RTC will inform the employee if the test was successful. Employees will then return to their designated standby channel.

GENERAL PROCEDURES

131. RECORDING

- (a) The RTC must maintain indelibly in a book provided for the purpose, or a computer assisted system, a complete record of each GBO, clearance, TOP, authority, instruction and other information that is required to be in writing. The record must be made prior to or during the transmission and never from memory or memoranda, and if required to be sent again, it will be transmitted from the original record. Such records must include original date of issue and acknowledgement(s), when applicable.
- (b) When issuing by voice communication, if an error is detected in the record of a GBO, clearance, TOP, or other authority, and before it has been completed to any employee, the RTC must direct that all copies be immediately destroyed. The record must be marked void. If re-issued, those which require numbering must be given a new number.
- (c) In copying and recording, the spelling of each station name must be exactly as shown in the time table. The RTC, when recording addresses, may use standard station identity letters. Underscoring will be recorded except when verified by a computer assisted system.
- (d) Where a computer assisted system is not in use, all movements authorized by a clearance and all TOP limits must be recorded on a train sheet.

131.1 ELECTRONIC TRANSMISSION AND CANCELLATION

When a GBO, clearance, TOP, other authority, instruction or information is transmitted or cancelled using an ECM and not by voice communication, it will not be repeated to the RTC. When transmitted in this manner, the word "complete" and the initials of the RTC will be generated by the ECM. When cancelled, the initials of the RTC are not required.

132. BREVITY, CLARITY, PRONUNCIATION AND RETENTION

- (a) A GBO, clearance, TOP, authority, instruction and its record shall contain only essential information. It must be brief, but clear in its meaning, in the prescribed form when applicable, and without erasure or any condition which may render it difficult to read or understand.
- (b) In transmitting and repeating by voice communication, all words and numbers must be clearly pronounced. When the communication is required to be in writing, numbers will be pronounced in full, then repeated stating each digit separately. Numbers represented by a single digit must be pronounced, then spelled.
- (c) The employee transmitting or repeating communications required to be in writing must regulate the speed of transmission to allow compliance with this rule.
- (d) When an accident or incident occurs, all authorities, GBO or written instructions must be retained until relieved of this requirement by a supervisor.
- (e) When a clearance, TOP or other written instruction or authority is fulfilled, cancelled or superseded;
 - (i) where applicable, other employees must be advised; and
 - (ii) except when displayed electronically:
 - an "X" must be immediately drawn across it to avoid further use; or
 - when contained within a book, must be marked with a single diagonal line drawn across the page to indicate that it is no longer active and a second diagonal line forming an "X" will be drawn across the page when there are no preceding active items.

133. NUMBERING

Except where numbering is controlled by computer, each RTC desk in a multiple desk office and desks controlling adjacent territories will use a separate series from other desks for numbering a

GBO, clearance, TOP, authority, instruction or other information which requires numbering. Unless otherwise provided each series must be numbered consecutively using whole numbers. All numbers in a series may be preceded or followed by a letter(s). Duplicate numbers must not be in effect at the same time.

134. DESIGNATION OF MOVEMENTS

- (a) GBO, clearance or other authority, will be addressed to those who are to execute and observe them. Addresses will be clear and concise and leave no doubt as to whom they are addressed.
- (b) In the body of a GBO or other authority where positive identification is required, the engine number must be included in the designation.
- (c) When the locomotive number is used in the designation, it must, when practicable be the leading locomotive. The number lights of the designated locomotive only will be illuminated at all times.

135. EMPLOYEES ADDRESSED

A GBO, clearance or other authority addressed to a movement must be regarded as being addressed to the conductor and locomotive engineer and also to the pilot or snow plow foreman, if any. A crew member copying a GBO or clearance must ensure that those addressed receive a copy.

OPTIONAL A single copy may be made when all crew members are located in the same operating cab and such authority is visible and accessible to all crew members.

136. COPYING, REPEATING, COMPLETING AND CANCELLING

- (a) The employee copying a GBO, clearance, TOP or other authority from the RTC or the cancellation of same, must copy as it is transmitted and repeat from the copy received all applicable written and pre-printed portions. The spelling of each station name must be exactly as shown in the time table.
- (b) GBO, authorities or instructions must not be copied by the employee operating moving equipment or track units, if it will interfere with the safe operation of such equipment or track unit.
- (c) The RTC must verify each written word and digit each time it is repeated. If correct, the RTC will respond "complete" and the initials of the RTC, which will be recorded and acknowledged by the employee copying. The employee copying must acknowledge by repeating "complete" and the initials of the RTC to the RTC.
- (d) When transmitted by voice communication direct to the crew of a movement, it must not be completed until each crew member copying has correctly repeated it.

137. FOREMAN'S INSTRUCTIONS

Instructions from a foreman must be in writing except when the instructions permit unrestricted operation through the entire limits.

138. FOREMAN'S INSTRUCTIONS (OPTIONAL)

Instructions from a foreman must be in writing.

139. BECOMING EFFECTIVE

A GBO, clearance, TOP or other authority becomes effective at the moment the word "complete" and initials of the RTC are given by the RTC. However, the RTC must not take further action if there is a restriction contained therein until acknowledged by the employee copying.

140. CHANGES AFTER BECOMING EFFECTIVE

Changes must not be made to a GBO, clearance, TOP or other authority after becoming effective, except when;

- (i) an address is added to a GBO, the number and the applicable portion of the GBO address must be repeated to and verified by the RTC;
- (ii) a time or location to call the RTC is indicated on a clearance, TOP or other authority, such time or location may be changed as required. When so changed, the employee copying must draw a line through the previous time or location;
- (iii) a computer assisted system is used to issue GBO, the effective time and/or date may be removed from the GBO in the system after the effective time, and in the application of Rule 43 instructions in the GBO stating "signals may not be in place" may be removed after the foreman confirms that signals have been placed;
- (iv) speed is changed, the employee copying must draw a line through the current and replace with the revised. The GBO number and revised speed must be repeated to and acknowledged by the RTC; and
- (v) a computer-assisted system is used, the limit(s) of a TOP may be changed as required, the employee copying must draw a line through the current location(s) and replace with the revised. The TOP number and revised limits must be repeated to and acknowledged by the RTC.

141. MAKING ADDITIONAL COPIES

- (a) When additional copies of a GBO, clearance, TOP or other authority are required, they may be received from the RTC or made from one previously completed. Such copies must be repeated to the RTC from the new copy except when received from an ECM or reproduced by a duplicating device.
- (b) An employee producing or reproducing a copy for delivery to another employee must check each copy to ensure legibility.

142. UNDERSTANDING BETWEEN CREW MEMBERS

- (a) Every conductor, locomotive engineer, pilot and snow plow foreman must read and have a proper understanding of all GBO and clearances as soon as possible after they have been received. Each must be made available to other crew members, as soon as practicable, ensuring that each crew member has read and understands them and, when required, the arrangements for protection between crews and between foremen and crews.
- (b) Crew members within physical hearing range are required to remind one another of the restrictions contained in GBO and clearances in sufficient time to ensure compliance.

143. GBO NUMBERS ON CLEARANCE

When specified in special instructions, the number of each GBO in effect at the time the clearance is issued, which will affect the movement on each subdivision or on the entire trip, will be shown on the first clearance sent to that crew. When there are no GBO for that movement, the word "nil" will be shown.

147. TRANSFER BETWEEN CREWS

- (a) When a conductor, locomotive engineer or both are changed off, or relieved, all GBO, DOB, clearances, authorities, TGBO and other written instructions and all necessary information still in effect must be transferred personally to the relieving crew. The transfer of information must be known to be understood by the relieving employee(s).
- (b) When it is not practicable to carry out a personal transfer, crews relieved of duty on line must contact the RTC as to the disposition of all documentation and authorities held for their movement. If documentation is to be left at any point for the relieving crew, a list of the items

transferred must be prepared and signed by the crew member(s) going off duty. The relieving crew must compare all pertinent information with the RTC before proceeding.

- (c) The relieving crew of a movement that has been tied up on line must contact the RTC to ensure that there are no restrictions against moving any portion of their movement. In addition when taking control of a movement occupying a CTC controlled track, if unable to ascertain the last signal indication for their movement, RESTRICTED speed applies to the next signal.
- (d) Verbal instructions received from a foreman must not be transferred between crews. The relieving crew must contact the foreman and obtain the necessary authority and/or instructions.

148. PERSONAL TRANSFER BETWEEN RTC

- (a) Where an ECM is used or where a computer assisted system generates a list as defined in paragraph (b), the relieving RTC must sign into the system in the presence of the on-duty RTC, and receive verbal and/or written transfer of other necessary instructions and information.
- (b) Except as prescribed in paragraph (a), before being relieved, an RTC must make an indelible list in a book provided for the purpose, of GBO, TOP, clearances, and other authorities in effect:
 - (i) Each such record must have been read, understood and initialled by the relieving RTC.
 - (ii) Other necessary instructions and information must also be transferred.
 - (iii) Both RTC must sign the transfer and the relieving RTC will record the time the transfer is completed.

GENERAL BULLETIN ORDER (GBO)

151. IDENTICAL MEANING TO ALL

The body of each GBO must be given in the same words and figures to each employee and movement addressed.

152. DELIVERY OF GBO

The RTC must ensure that movements affected by a GBO are issued a copy of the GBO, or are otherwise secured.

153. CONFIRMATION TO A FOREMAN

Confirmation of protection must not be given to a foreman until all movements affected have received a copy of the GBO or are otherwise secured.

154. REMAIN IN EFFECT

GBO remain in effect for the entire tour of duty unless cancelled. GBO must be retained at away from home locations to be available, if required, for the return trip.

155. CANCELLING GBO

- (a) To cancel an item of a GBO, the RTC will use the following:
Item _____ of GBO _____ is cancelled _____ (RTC).
- (b) To cancel a GBO, the RTC will use the following:
GBO _____ is cancelled _____ (RTC).
- (c) The cancellation must be repeated to, and acknowledged by, the RTC.

156. DAILY OPERATING BULLETIN (DOB)

- (a) Except as provided for in paragraph (b), a movement must not move on any track where DOB is applicable unless it is in possession of:
 - (i) the current DOB; or
 - (ii) a TGBO which is applicable within the portion of the limits of the DOB over which the movement will operate.
- (b) The DOB will take effect at the time specified and will remain in effect until the same time the following day. A crew of a movement within DOB limits unable to clear the limits before the DOB expires, or unable to obtain a copy of the next current DOB, must contact the RTC. In such circumstances, the DOB may be extended by the RTC with any necessary changes. If unable to communicate with the RTC, the movement must be stopped.
- (c) All crew members must verify that the DOB is properly dated, and it contains the correct number of pages.
- (d) The RTC will ensure that the information or instructions contained in each GBO, pertaining to track or other conditions within such limits, is correct and placed in the appropriate DOB.

157. TABULAR GENERAL BULLETIN ORDER (TGBO)

- (a) A movement must not move on any track where TGBO is applicable, unless it is in possession of a TGBO addressed to them.
- OPTIONAL: Overlapping TGBO and DOB Limits.** Movements required to operate outside of DOB limits must operate their entire trip with a TGBO addressed to them unless authorized by the RTC or by special instructions.
- (b) All crew members must ensure that their movement is properly designated on their TGBO, it contains the correct number of pages and that the limits cover the specific routing. If an incorrectly designated TGBO is received or there is no TGBO for that movement the RTC must be contacted immediately.
- (c) When designated using the movement identification number, the train journal, list or other acceptable document may be used for verification. If the designation on the TGBO is incorrect, a change of designation must be issued by the RTC. If the designation of the train journal, list or other acceptable document is incorrect while the TGBO designation is correct, the designation on the train journal, list or other acceptable document may be changed when authorized by the RTC, a company officer or other employee who has access to the correct information. When a train journal, list or other acceptable document is not available, a member of the crew may obtain the correct designation of the movement for comparison to the TGBO from the RTC, Company Supervisor or other employee who has access to this information.
- (d) A crew of a movement within TGBO limits with a TGBO that includes an item that cancels the TGBO at a specific time, must communicate with and be governed by instructions of the RTC before the expiry time. If unable to communicate with the RTC and unable to clear TGBO limits, the movement must be stopped.

FORMS OF GBO

The following examples of GBO will be used where applicable. Times, mileages and speeds shown in MPH will be in numbers only.

FORM S - MAIN TRACK OUT OF SERVICE

- (1) **Main track out of service between siding switches at Whitney. Switches lined and secured for siding. Movements will operate through siding in accordance with Rule 105.**
- (2) **Main track out of service between main track switches at mile 11.3 and mile 12.1 Canada Sub, Baker Industrial Track. Switches lined and secured for this track. Movements will operate through Baker Industrial Track in accordance with Rule 105.**

When a foreman has received confirmation in writing that the GBO is in effect, impassable main track, between the switches of the siding or other tracks, may be protected in the manner prescribed by Rule 841. Before Form S is issued, any derail on such track must be secured in the non-derailing position or removed from the rail.

FORM T - EQUIPMENT LEFT ON MAIN TRACK

- (1) **Unattended equipment occupying main (No 4) track between mile 9 and mile 11 Maple Leaf Sub.**

Example (1) will be used to provide permission to leave and provide protection for equipment occupying the main track between the designated points. Equipment must be left between the designated points.

- (2) **Derailed equipment obstructing main (east) track (No 1 track and No 2 track) between mile 28 and mile 29 Beaver Sub.**

Example (2) will be used to protect derailed equipment on the main track or obstructing a main track.

The crew of a movement receiving examples (1) or (2) must proceed prepared to stop short of such equipment.

FORM V - SPECIFYING SPEED

- (1) **Do not exceed 10 MPH between mile 15 and mile 20 (at mile 19.4) (on east track) Canada Sub.**

This example will be used with Rule 43 protection, or for other conditions requiring a reduction in movement speed not covered by example (2) or (3). When required, the GBO must specify the track, or tracks, upon which the restriction applies.

- (2) **Do not exceed 30 MPH while handling _____.**

This example may be used when it is necessary to restrict the speed of specific equipment.

- (3) **Do not exceed 20 MPH entering public crossing at grade mile 43.5 Beaver Sub until crossing fully occupied.**

This example must be used to restrict the speed of movements entering a public crossing at grade.

FORM Y - PLANNED PROTECTION

Form Y will be used to provide protection as prescribed by Rule 42.

Be governed by Rule 42 on Nov 30th from 0800 until 1700 between mile 10 and mile 12(on east track) Canada Sub Foreman _____.

Note: This form may be modified for daily or other exceptional usage. E.g. daily from 0800 until 1700.

When required, the GBO must specify the track, or tracks, upon which the restriction applies.

OCCUPANCY CONTROL SYSTEM (OCS) RULES

301. APPLICATION AND SUPERVISION

- (a) On subdivisions, portions of subdivisions or other tracks specified in special instructions, movements will be governed by Occupancy Control System (OCS) Rules.
- (b) The RTC will supervise OCS territory by means of clearances, TOP, GBO and other instructions as may be required.

302. CLEARANCE REQUIRED

- (a) Except within cautionary limits, a train or transfer must be authorized by a clearance to foul or enter a track where OCS rules are applicable.
- (b) A clearance will be sent direct to the crew of the train or transfer addressed. Before the clearance is acted upon the conductor and locomotive engineer must, as soon as possible, ensure that each is in possession of the clearance and their train or transfer is correctly designated. Engine number must be verified visually to ensure correctness.

302.1 CLEARANCE IN EFFECT

A clearance remains in effect until fulfilled, superseded or cancelled.

Clearances that authorize a train or transfer to proceed, unless cancelled, must be fulfilled in the order in which they are issued on that subdivision.

302.2 SUPERSEDING A CLEARANCE

- (a) A clearance may be issued superseding a clearance already in possession of the crew of the train or transfer addressed.
- (b) When superseding a clearance that includes limits the train or transfer is occupying, the superseding clearance must include that section of track and must not include a requirement to wait until the arrival of an opposing train or transfer.
- (c) If a superseding clearance restricts the authority already in possession of the train or transfer addressed, the RTC must not take further action until it has been acknowledged by the conductor and locomotive engineer.

302.3 CANCELLING CLEARANCE

- (a) Before a clearance is cancelled, the train or transfer addressed must be:
 - (i) clear of the limits;
 - (ii) protected by Form T GBO; or
 - (iii) within cautionary limits.
- (b) When a clearance is cancelled, the cancellation does not take effect until it has been acknowledged by the conductor and locomotive engineer. These employees must acknowledge by repeating the clearance number, "cancelled" and initials of the RTC to the RTC.

303. PROTECTION AGAINST FOLLOWING TRAINS OR TRANSFERS

- (a) A combination of trains or transfers to a limit of two may each be authorized to proceed in the same direction, within the same limits, provided that each is instructed on its clearance to protect against the other. Before either moves within the limits stated, the conductor and locomotive engineer of each train or transfer must have a thorough understanding, in writing, as to the specific operation of each train or transfer and the protection to be provided. If communication fails between the trains or transfers affected, no moves shall be made other than those which were last arranged.

(b) **WITHIN ABS TERRITORY**

With the protection of at least two block signals to the rear, two or more trains or transfers may be authorized to proceed in the same direction within the same limits governed by block signal indications.

303.1 RADIO PROTECTION AGAINST FOLLOWING TRAINS AND TRANSFERS

(Not applicable to trains or transfers in possession of a work clearance)

Where specified in special instructions, protection against following trains and transfers will be provided as follows:

- (a) The RTC must not authorize a train or transfer to follow a preceding train or transfer until the crew of the following train or transfer has been restricted by its clearance as follows; "Protect against (preceding train or transfer) from (location)".
- (b) Except as provided in paragraph (d), a train or transfer so restricted must not leave the location named nor leave any identifiable location until the preceding train or transfer has reported that it has left an identifiable location ahead. This report must be recorded in writing by a crew member of the following train or transfer. Such information may be received from the RTC. Identifiable locations as listed in Rule 82 must be used. Under circumstances in which a report is not received from the preceding train or transfer, the following may operate at REDUCED speed to a maximum speed of 25 MPH.
- (c) A train or transfer so restricted must not pass the preceding train or transfer.
- (d) When the preceding train or transfer has stopped, arrangements may be made with the following train or transfer to "close up". These arrangements must be made in writing between the crews of both trains or transfers. When the preceding train or transfer resumes moving, the following train or transfer will be governed by paragraph (b).
When the preceding train or transfer has left the location to which the following train or transfer is authorized, Rule 303.1 no longer applies.

304. RESTRICTION BEFORE LEAVING

When a train or transfer has been restricted by clearance, such train or transfer must not leave the point named until it is positively known that the opposing train(s) or transfer(s) named on the clearance have arrived.

A train or transfer has not arrived until its designated engine and marker have arrived.

Trains or transfers operating without a marker have not arrived until confirmed by direct communication with a member of the crew of such train or transfer.

If unable to observe the arrival of a train or transfer, or unable to communicate with a member of the crew, the RTC must be contacted.

304.1 STOPPING CLEAR OF FOULING POINT

A train or transfer required to stop at a meeting, clearing or waiting point, or at the end of authority, must be stopped clear of the route to be used by another train or transfer.

305. BEFORE ISSUING CLEARANCE AUTHORITY

Before issuing clearance authority, the RTC must provide protection against all conflicting trains, transfers and TOP within the limits stated.

306. TRACK USE

In multi-track OCS, a clearance must specify the track(s) to be used.

308. WORK CLEARANCE AUTHORITY

- (a) When authorized to work by clearance a train or transfer may move in either direction within the limits named in the clearance.

(b) A work clearance remains in effect until superseded or cancelled.

308.1 CHANGING DIRECTION – PROCEED CLEARANCE

Unless otherwise provided by rules or special instructions, when authorized to proceed by clearance, a train or transfer must move only in the specified direction.

Provided the track to be operated over has not been released or a block in ABS is not re-entered, a train or transfer authorized by clearance to proceed may reverse a distance of 300 feet or less. In ABS a crew member must be in position to see the section of track to be used is clear and will remain clear of equipment or a track unit.

309. MOVING THROUGH WORKING LIMITS

(a) To enter or move within the working limits of one or more trains or transfers, a train or transfer must be restricted by its clearance as follows: “Protect against Work 5748 (and Work 9460) between Exeter and Jasper.”

(b) A train or transfer must not enter nor move within the working limits until a thorough understanding is established with the conductor and locomotive engineer of each work train or transfer. Such understanding must be in writing and include information with respect to the specific operation of each train and transfer and the protection to be provided. Such protection must be provided until the train or transfer has left the working limits.

310. MULTIPLE WORK AUTHORITIES

(a) Two or more work authorities may be issued within the same or overlapping limits. Each train or transfer must be restricted by its clearance to protect against each other.

(b) Conductors and locomotive engineers authorized to work must have a thorough understanding, in writing, as to the specific operation of each work train or transfer and the protection to be provided.

311. PROTECTING AGAINST A FOREMAN

(a) A train or transfer must not be authorized to enter or move within the limits of a TOP until it has been restricted as follows:

“Protect against foreman (name) between (location) and (location).”

(b) The train or transfer must not enter, nor move within, the TOP limits until instructions have been obtained from the foreman named on the clearance. These instructions must be repeated to, and acknowledged by, the foreman before being acted upon.

314. OPTIONAL TO 309 AND 310: PROCEEDING THROUGH OR WORKING WITHIN WORK TRAIN OR TRANSFER LIMITS

(a) A train or transfer may be authorized to proceed through or work within the limits of one or more trains or transfers authorized to work, provided such train or transfer is restricted by its clearance as follows;

“Protect against work (number) between (location) and (location)”

(b) A train or transfer must not enter nor move within the working limits until a thorough understanding is established with the conductor and locomotive engineer of each train or transfer authorized to work. Such understanding must be in writing and include information with respect to the intended operation of each train or transfer and the protection to be provided. Such protection must be provided until the train(s) or transfer(s) has left the working limits.

315. RADIO BROADCAST REQUIREMENTS

(a) A member of the crew on all trains and transfers must initiate a radio broadcast to the airwaves on the designated standby channel 1 to 3 miles from the next station or interlocking. This

- broadcast must include the next requirement to protect against another train, transfer or foreman if the restriction is between the upcoming station and the next station or interlocking.
- (b) A member of the crew located on other than the engine must confirm that the radio broadcast has been made in accordance with (a). If unable to contact the engine crew to ascertain this information, immediate action must be taken to stop the movement before it will reach the next point of restriction.

SPECIAL CONTROL SYSTEM (SCS) RULES

351. APPLICATION

On portions of the railway so specified by special instructions, the use of the main track will be governed by the Special Control System.

352. SUPERVISION

Movements and track work protection will, unless otherwise provided, be supervised by the RTC who will issue instructions as may be required.

353. SCS SPECIAL INSTRUCTIONS

Special instructions necessary to govern this method of operation will be issued. Except as affected by such instructions and Rules 351 and 352, all Operating Rules remain in force.

SIDING CONTROL TERRITORY (SCT) RULES

360. APPLICATION

Where specified by special instructions, the use of non-signalled sidings within CTC will be governed by the Siding Control Territory rules.

361. SUPERVISION

Movements, protection of track work and operation of track units will, unless otherwise provided, be supervised by the RTC who will issue instructions as may be required.

362. CLEAR OF EQUIPMENT

- (a) Sidings will be considered as clear of equipment unless otherwise informed by the RTC.
- (b) Before permitting a movement to enter a siding occupied by other equipment, the RTC must advise a member of the crew that other equipment occupies such siding.

363. HAND OPERATED SWITCHES

Hand operated switches in sidings may be considered lined for the normal position unless advised otherwise by the RTC, GBO or special instruction.

364. PROTECTION OF TRACK WORK AND OPERATION OF TRACK UNITS

A foreman must be in possession of a TOP for the protection of track work and operation of track units. Rule 41/841 is not applicable.

GENERAL DESCRIPTION AND LOCATION OF FIXED SIGNALS

401. LOCATION

Wherever practicable, fixed signals other than switches will be located above, or to the right of, the track they govern. Where circumstances require that signals be otherwise placed, such conditions will be indicated by GBO or special instructions.

EXCEPTION: A block or interlocking signal that is required to be placed to the left of the track it governs need not be indicated by GBO or special instructions, provided that such location does not place the signal to the right of another signalled track.

401.1 SIGNAL DISPLAYED

The indications displayed on block and interlocking signals govern operation to the next signal or block end sign. Except as otherwise specified in special instructions, a signal to leave the main track to enter non-main track applies to the block end sign or until the leading end of the movement has passed entirely through the controlled location and entered non-main track. Speed requirements protecting turnouts must be complied with until the entire movement has cleared the turnout.

401.2 NO ADVANCE SIGNAL

At locations where there is no advance signal to the signal governing movements into CTC or movements are re-entering CTC from a siding, all movements must approach the governing signal preparing to stop until it can be observed as displaying a more favourable indication than Stop.

402. POSITIONING

Where conditions allow, block and interlocking signal heads will be positioned with respect to the tracks on which they affect movements. Bridges, cantilevers, dummy masts and other structures will be used and must be illustrated in company instructions to ensure proper understanding or signal intent.

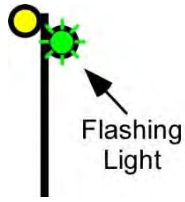
403. APPEARANCE OF COLOUR LIGHT SIGNALS

- (a) Block and interlocking signal aspects will be displayed by the colour, position, flashing of lights, or combinations thereof.
- (b) The indications of any such signal may be qualified or modified by an attached arrow and/or plate(s).
- (c) Lights may be attached to either side of the signal mast and number plates may be provided for the purpose of identifying the location.

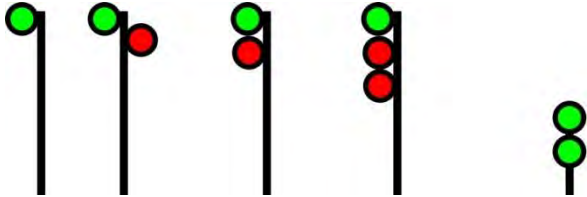
404. STANDARD INDICATIONS

The illustrations in Rules 405-440 are standard aspects and indications. Other signal aspects and indications necessary will be illustrated in special instructions.

BLOCK AND INTERLOCKING SIGNALS

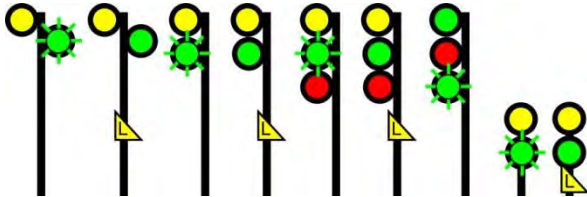


405.



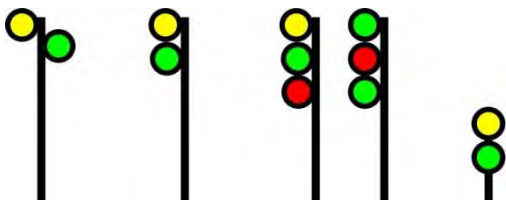
Clear - Proceed.

406.



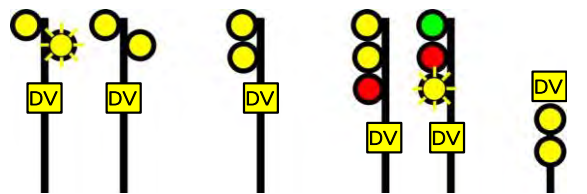
Clear to Limited - Proceed, approaching next signal at LIMITED speed.

407.



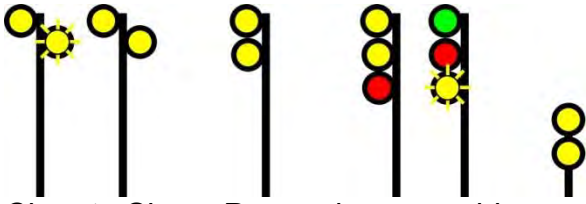
Clear to Medium - Proceed, approaching next signal at MEDIUM speed.

408.



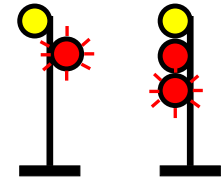
Clear to Diverging - Proceed, approaching next signal at DIVERGING speed.

409.



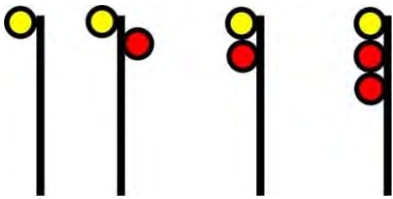
Clear to Slow - Proceed, approaching next signal at SLOW speed.

410.



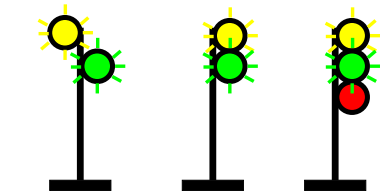
Clear to Restricting - Proceed, next signal is displaying restricting signal.

411.



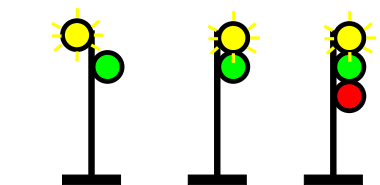
Clear to Stop - Proceed, preparing to stop at next signal.

412.



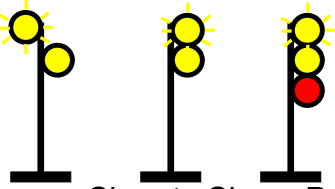
Advance Clear to Limited - Proceed, approaching second signal at LIMITED speed.

413.



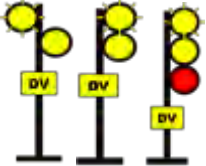
Advance Clear to Medium - Proceed, approaching second signal at MEDIUM speed.

414.



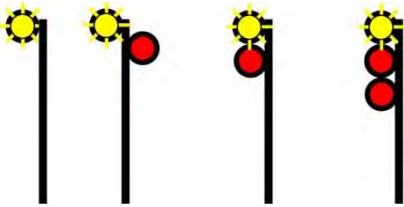
Advance Clear to Slow - Proceed, approaching second signal at SLOW speed.

414A.



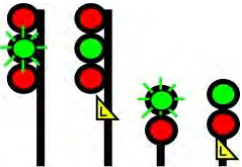
Advance Clear to Diverging - Proceed, approaching second signal at DIVERGING speed

415.



Advance Clear to Stop - Proceed, prepared to Stop at second signal.

416.



Limited to Clear - Proceed, LIMITED speed passing signal and through turnouts.

417.



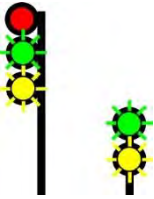
Limited to Limited - Proceed, LIMITED speed passing signal and through turnouts, approaching next signal at LIMITED speed.

418.



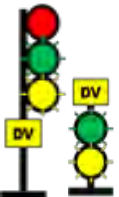
Limited to Medium - Proceed, LIMITED speed passing signal and through turnouts, approaching next signal at MEDIUM speed.

419.



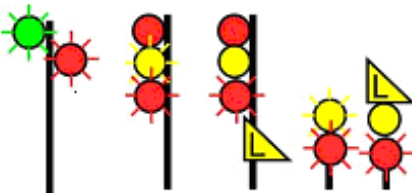
Limited to Slow - Proceed, LIMITED speed passing signal and through turnouts, approaching next signal at SLOW speed.

419A.



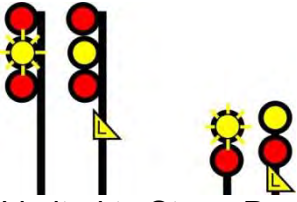
Limited To Diverging - Proceed, LIMITED speed passing signal and through turnouts, approaching next signal at DIVERGING speed.

420.



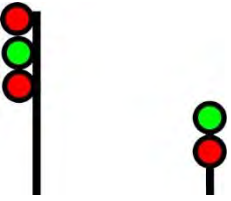
Limited to Restricting - Proceed, LIMITED speed passing signal and through turnouts, next signal is displaying restricting signal.

421.



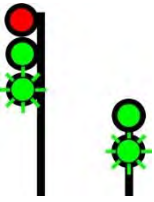
Limited to Stop - Proceed, LIMITED speed passing signal and through turnouts, preparing to stop at next signal.

422.



Medium to Clear - Proceed, MEDIUM speed passing signal and through turnouts.

423.



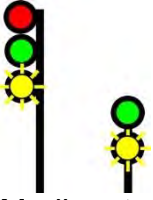
Medium to Limited - Proceed, MEDIUM speed passing signal and through turnouts, approaching next signal at LIMITED speed.

424.



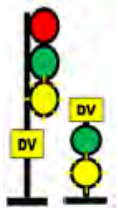
Medium to Medium - Proceed, MEDIUM speed passing signal and through turnouts, approaching next signal at MEDIUM speed.

425.



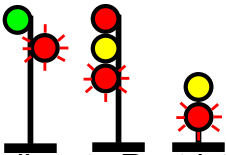
Medium to Slow - Proceed, MEDIUM speed passing signal and through turnouts, approaching next signal at SLOW speed.

425A.



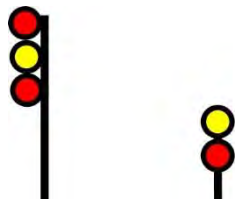
Medium to Diverging - Proceed, MEDIUM speed passing signal and through turnouts, approaching next signal at DIVERGING speed.

426.



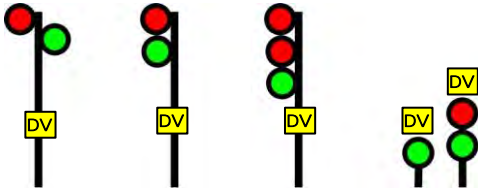
Medium to Restricting - Proceed, MEDIUM speed passing signal and through turnouts, next signal is displaying restricting signal.

427.



Medium to Stop - Proceed, MEDIUM speed passing signal and through turnouts, preparing to stop at next signal.

428.



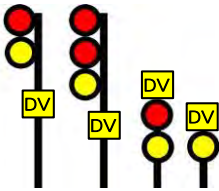
Diverging to Clear - Proceed, DIVERGING speed passing signal and through turnouts.

429.



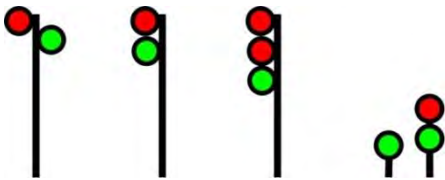
Diverging to stop - Proceed, DIVERGING speed passing signal and through turnouts preparing to stop at next signal.

430.



Diverging - Proceed at REDUCED speed, not exceeding DIVERGING speed passing signal and through turnouts.

431.



Slow to Clear - Proceed, SLOW speed passing signal and through turnouts.

432.



Slow to Limited - Proceed, SLOW speed passing signal and through turnouts, approaching next signal at LIMITED speed.

432A.



Diverging to Limited - Proceed, DIVERGING speed passing signal and through turnouts, approaching next signal at LIMITED speed.

433.



Slow to Medium - Proceed, SLOW speed passing signal and through turnouts, approaching next signal at MEDIUM speed.

433A.



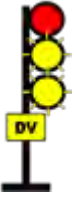
Diverging to Medium - Proceed, DIVERGING speed passing signal and through turnouts, approaching next signal at MEDIUM speed.

434.



Slow to Slow - Proceed, SLOW speed passing signal and through turnouts, approaching next signal at SLOW speed.

434A.



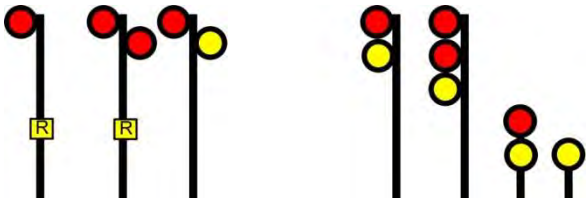
Diverging to Diverging - Proceed, DIVERGING speed passing signal and through turnouts, approaching next signal at DIVERGING speed.

435.



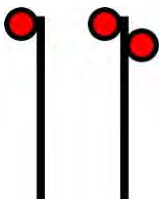
Slow to Stop - Proceed, SLOW speed passing signal and through turnouts, preparing to stop at next signal.

436.



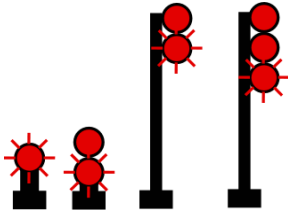
Restricting - Proceed at RESTRICTED speed.

437.



Stop and Proceed - Stop, then proceed at RESTRICTED speed.

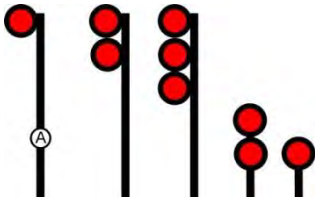
438.



Take or Leave Siding or Other Track

Indications will be specified in special instructions for each specific application of this signal.

439.



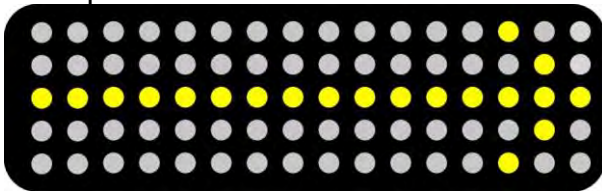
Stop - Stop.

OPTIONAL: Unless required to clear a switch, crossing, controlled location, or spotting passenger equipment on station platforms, a movement not authorized by Rule 564 must stop at least 300 feet in advance of the STOP signal.

440. DIRECTION INDICATOR

Flashing arrow indicators used in conjunction with block signals when illuminated, identify that the route at the next controlled location is displaying a permissive signal and the route is lined and secured as indicated by the direction of the arrow.

Example:



AUTOMATIC BLOCK SIGNAL SYSTEM (ABS) RULES

505. APPLICATION

Block signals govern the use of the blocks. They do not dispense with the use or observance of other signals whenever and wherever required and do not authorize main track occupancy.

507. WITHDRAWAL OF SIGNALS

When signals in ABS are withdrawn from service, movements will be governed by instructions from the RTC or special instructions.

509. INSTRUCTIONS TO PASS SIGNAL INDICATING STOP

- (a) A movement must have instructions from the RTC to pass a block signal indicating Stop. If stopped at the signal indicating Stop, and no conflicting movement is evident, a crew member must immediately communicate with the RTC.
EXCEPTION: Instructions are not required when a movement is required to re-enter a block occupied by a portion of their movement, however, the movement must proceed at REDUCED speed.
- (b) When able to, the RTC will inform the crew member in writing:
“There is no conflicting movement” After complying with Rule 513 where applicable, the movement need not stop at the signal but must positively identify the signal by number and the movement may proceed at RESTRICTED speed to the next signal or Block End sign.
- (c) When unable to obtain the information that there is no conflicting movement in the block, and no conflicting movement is evident, the movement may, after complying with Rule 513 where applicable, move forward and must stop where its leading wheels are 100 feet past the Stop signal. After waiting 10 minutes and if there is still no evidence of a conflicting movement, the movement may proceed at RESTRICTED speed to the next signal or Block End sign.

513. ENTERING MAIN TRACK

- (a) Before entering or fouling a main track and no movement is observed approaching on the main track, a crew member must reverse the switch and wait five minutes, unless a greater period is specified in special instructions before allowing the movement to move foul of the main track. The crew member must remain at the switch until the movement has entered the track. The switch must be quickly restored to its normal position should an approaching movement on the main track become evident.

When entry is to be made through a crossover, the switch in the track on which the movement is standing is the only crossover switch to be reversed for the required waiting period.

EXCEPTION: The required waiting period need not be observed within cautionary limits or when:

- an opposing movement has passed the switch and is still occupying the block;
- the crew entering the main track is in possession of a clearance to work; or
- the crew is relieved in writing by the RTC.

Before relieving a crew, the RTC must ensure that there are no movements operating in the block that will approach the switch. The switch must be opened within 5 minutes after receiving permission from the RTC.

- (b) A movement entering a block between signals, must move at RESTRICTED speed to the next signal, unless or until the track is seen to be clear to the next signal and the indication of such signal permits movement at other than RESTRICTED speed.

515. DELAYED IN THE BLOCK

When a movement, which has entered a block on signal indication permitting operation at other than RESTRICTED speed, is stopped or otherwise delayed in the block, it must move at REDUCED speed to the next signal:

- (i) unless there are no switches between such movement and the next signal; or
- (ii) until the track is seen to be clear to the next signal.

The movement must approach the next signal prepared to stop and be governed by the indication displayed.

CENTRALIZED TRAFFIC CONTROL SYSTEM (CTC) RULES

560. SUPERVISION AND APPLICATION

CTC is applicable in limits specified in the time table or special instructions and will be supervised by the RTC. Block signals will govern the operation of trains or transfers. The RTC will issue instructions as required.

561. CTC SUSPENDED

When all or part of the CTC is withdrawn from service, trains and transfers will be governed by special instructions.

563. CLEARING OPPOSING SIGNALS INTO NON-SIGNALLED SIDINGS

- (a) When two opposing train(s) or transfer(s) are to be lined into the same non-signalled siding, each locomotive engineer must be advised of the fact before the signal to permit operation of either train or transfer into the siding is requested.
- (b) At meeting points, the RTC must not line a train or transfer into a siding until the switch at the opposite end of the siding is set for main track.
Note: This rule is not applicable where automated office control devices will not permit opposing train(s) or transfer(s) to enter a non-signalled siding and at sidings where SCT is in effect.

564. AUTHORITY TO PASS STOP SIGNAL

- (a) A train or transfer must have authority to pass a block signal indicating Stop.
- (b) The RTC may authorize the train or transfer to pass the signal but before doing so must:
 - (i) ensure that there are no conflicting trains or transfers within, or authorized to enter, the controlled block affected (other than one authorized by Rule 567, 567.3 or 577); and
 - (ii) provide protection against all opposing trains or transfers.
- (c) When signal blocking devices are used, they may be removed after the authorized train or transfer has entered the controlled block affected. The RTC must not permit any opposing trains or transfers to enter the controlled block until the authorized train or transfer has cleared such block.
- (d) The train or transfer so authorized need not stop at the signal but must positively identify the signal by number; operate at RESTRICTED speed to the next signal or Block End sign, and must be governed by Rule 104.1 at spring switches, Rule 104.2 at dual control switches, Rule 104.3 at power-operated switches and Rule 611 at automatic interlockings.
- (e) When a known condition prevents clearing of controlled signals into an affected block, the RTC may authorize operation at REDUCED speed to the next signal or Block End sign. The train or transfer will be advised whether or not equipment is present in the block. REDUCED speed remains applicable unless the block is known to be clear of equipment. REDUCED speed commences when the leading piece of equipment has passed entirely through the controlled location.

The train or transfer must approach the next signal prepared to stop and there be governed by the indication displayed.

- (f) The authority granted and instructions must be in writing and, where applicable, specify the route to be used. The locomotive engineer must be made aware of the route to be used before moving.

565. STOP SIGNAL CTC TO ABS

A train or transfer leaving CTC and entering ABS, if required to move past a signal indicating Stop, will be governed by Rule 564 within CTC and Rule 509 within ABS.

566. WORK AUTHORITY

- (a) A train or transfer may be given work authority that permits moving in either direction within specified limits.
- (b) Before issuing such authority the RTC must:
 - (i) ensure that there are no other trains or transfers within, or authorized to enter, the required limits; and
 - (ii) block at Stop all devices controlling signals governing other trains or transfers into such limits.
- (c) The RTC must maintain signal blocking against all trains or transfers and must not authorize any other trains or transfers to enter the affected limits except as provided by Rule 567.3 or until the work authority has been cancelled.
- (d) If work authority is cancelled while the train or transfer is within the affected limits, the conductor or locomotive engineer must inform the RTC of their intended direction. The RTC must maintain signal blocking against opposing trains or transfers until the protected train or transfer has cleared the controlled block.
- (e) When the authority specifies: "Call RTC _____" the conductor or locomotive engineer must communicate with the RTC as instructed.
- (f) The authority granted and instructions must be in writing. The locomotive engineer must be aware of the track limits before moving.
- (g) Controlled signals within the limits other than the entry and exit signals of the authority that are indicating STOP may be considered as indicating "proceed at RESTRICTED speed".

566.1 SIGNAL INDICATION SUSPENDED WHILE SWITCHING

- (a) A crew may be authorized to manually operate specific dual control switches at a controlled location, as prescribed by Rule 104.2, paragraph (d). Such authority must be included with work authority, as prescribed by Rule 566 or 567. The indications of signals governing operation over such switches may be considered suspended while switches are in the "hand" position, but only while switching is being performed at the designated controlled location. Signal indication or Rule 564 must authorize the train or transfer into the controlled location, before being issued the Rule 566/566.1 authority.

Verbal permission may be given to manually operate specific dual control switches within the limits of Rules 566 or 567 authority that did not include Rule 566.1 authority for those switches.

- (b) When switching is to be performed over a spring switch, which is included in the limits of a work authority prescribed by Rule 566 or 567, the indication of the signal governing operation over such switch may be considered suspended, if the switch is properly lined.
- (c) When switching is to be performed at a controlled location that includes only a hand operated switch, which is included in the limits of a work authority prescribed by Rule 566 or 567, the indication of the signal governing operation through the controlled location may be considered suspended but only when switching is being performed through that switch.

567. JOINT WORK AUTHORITY

- (a) More than one train or transfer may be given joint work authority that permits operation in either direction within the specified limits. Each such train or transfer must be instructed: "Protecting against each other." The conductor and locomotive engineer of each train or transfer must have a thorough understanding in writing with respect to the intended operation of each train or transfer and the protection to be provided.
- (b) Before issuing joint authority, the RTC must;
 - (i) ensure that there are no trains or transfers in the affected limits, other than the trains or transfers which are to be authorized; and
 - (ii) block at Stop all devices controlling signals governing trains and transfers into the affected limits.
- (c) The RTC must maintain signal blocking against all trains or transfers and must not authorize any train or transfer, other than one which is thereby protected, to enter the affected limits until the work authority has been cancelled. Each train or transfer must be clear of the affected limits before the work authority is cancelled.

EXCEPTION: If the work authority remains to be cancelled to only one train or transfer, it may be cancelled while that train or transfer is within the affected limits. In such case, the conductor or locomotive engineer must inform the RTC of their intended direction. The RTC must maintain signal blocking against conflicting trains or transfers until the protected train or transfer has cleared the controlled block.
- (d) When the authority specifies: "Call RTC _____," the conductor or locomotive engineer of each train or transfer so instructed must communicate with the RTC as instructed.
- (e) The authority granted and instructions from the RTC must be in writing. The locomotive engineer of the train or transfer so authorized, must be made aware of the track limits before moving.

567.1 PROTECT AGAINST A FOREMAN

- (a) A train or transfer may be authorized to enter or move within the limits of a TOP when instructed to protect against the foreman within specified limits.

"Protect against foreman (name) between (location) and (location)."
- (b) The conductor and locomotive engineer must be made aware of the authority granted and have received instructions from the foreman before moving. The instructions must be repeated to, and acknowledged by the foreman before being acted upon.
- (c) The RTC must not authorize another train or transfer or issue another TOP to apply, within the protected limits granted under this rule until it has been fulfilled by the train or transfer having cleared the limits, or the authority has been cancelled.
- (d) In addition to the permission and instructions received from a foreman to enter and/or move within the limits, trains or transfers must also be authorized to enter the TOP limits under the provisions of Rule 105(a), Rule 564 or Rule 568, or to reverse within the TOP limits under the provisions of Rule 566.

567.2 OPTIONAL: ENTERING FOREMAN'S LIMITS

Trains or transfers may be authorized to enter or move within the limits of a TOP.

- (a) Each time a train or transfer is so authorized, the train or transfer must be restricted as follows:
"Protect against foreman (name) between (location) and (location)".
Such restriction must be provided to the train or transfer when it is within:
 - (i) two controlled blocks of the limits; or
 - (ii) 25 miles of the limits when there is no controlled block prior.The RTC must ensure that the authorized train or transfer is the only one that will encounter the signal indication to enter the limits.
- (b) No entry into TOP limits may be made until both the conductor and locomotive engineer are aware of the authority and limits granted and have received instructions from the foreman named in the authority. Such instructions must be repeated to and acknowledged by the foreman before being acted upon.

567.3 PROCEEDING THROUGH WORK LIMITS

Trains or transfers may be authorized to enter or move within work limits of other trains or transfers.

- (a) Each time a train or transfer is so authorized, the train or transfer must be restricted as follows:
"Protect against work (number) between (location) and (location)".
- (b) A train or transfer authorized as outlined in paragraph (a) must not enter or move within the working limits until a written understanding has been established with the conductor and locomotive engineer or each train or transfer. This understanding must include information with respect to the intended operation of each train or transfer and remain in place until the affected train or transfer has left the working limits.
- (c) Prior to entering the limits, the train or transfer must also be authorized by signal indication or under the provisions of rules 564 or 568.
- (d) When entry is to be provided by signal indication, the restriction may only be issued when the train or transfer is within:
 - (i) two controlled blocks of the limits; or
 - (ii) 25 miles of the limits when there is no controlled block priorThe RTC must ensure the authorized train or transfer is the only one which will encounter the signal governing entry into the limits.

568. SIGNAL OR PERMISSION TO ENTER MAIN TRACK

- (a) A train or transfer must not foul or enter a main track, nor re-enter one after having cleared it, except by signal indication or until permission has been received from the RTC.
- (b) When entry to the main track is to be made at a non-electrically locked hand operated switch, or at a switch where the seal on the electric switch lock is broken, such permission from the RTC must include the direction and route to be taken and must be in writing. The locomotive engineer must be made aware of the circumstances before moving.
Before issuing such permission the RTC must:
 - (i) ensure that there are no conflicting trains or transfers within, or authorized to enter, the controlled block affected; and
 - (ii) block at Stop all devices controlling signals governing trains or transfers into the affected controlled block.

- (c) The RTC must maintain signal blocking and not permit any opposing train or transfer to enter the controlled block until the protected train or transfer has cleared the controlled block. Signal blocking against following trains or transfers must not be removed nor may following trains or transfers be permitted to enter the controlled block until the conductor or locomotive engineer, of the train or transfer being protected, has reported that the train or transfer has entered the main track and is moving in the authorized direction.

EXCEPTION: Permission is not required to enter or re-enter the main track at a hand operated switch within the limits when authorized by Rule 566, 567 or 577.

569. CANCELLING AUTHORITIES

- (a) Authority or permission granted by Rules 564, 567.3 or 568 may be cancelled provided the train or transfer has not entered the controlled block affected.
- (b) When authority granted by Rules 564, 566, 567, 567.1, 567.2, 567.3 or 577 or the permission in writing granted by Rule 568 is cancelled, the cancellation does not take effect until it has been correctly repeated and acknowledged by the conductor and locomotive engineer of the train or transfer affected. These employees must acknowledge the cancellation by repeating the authority number, "cancelled" and initials of the RTC to the RTC.

570. ENTERING BETWEEN SIGNALS

- (a) A train or transfer that has entered a block between signals at a hand operated switch, equipped with an electric switch lock, must approach the next signal prepared to stop, unless or until the track is seen to be clear to the next signal and such signal displays a more favourable indication than Stop or Stop and Proceed.
- (b) When entry to a block is made at a switch not equipped with an electric switch lock, or one where the seal on the electric switch lock is broken, a train or transfer must operate at RESTRICTED speed to the next signal, unless or until the track is seen to be clear to the next signal, and the indication of such signal permits operation at other than RESTRICTED speed.
- (c) A train or transfer that has entered a block, where it has been necessary to activate the emergency release of an electric switch lock, must move at RESTRICTED speed to the next signal.

571. RESTORING SIGNALS TO STOP

- (a) Signals must not be restored to indicate stop when the train or transfer for which signals were first cleared is less than three blocks distant from the first of such signals, unless the locomotive engineer has acknowledged that they are stopped or able to stop their train or transfer without passing the controlled signal to be restored.
- (b) In case of emergency, a signal may be restored to stop at any time.

573. REVERSING DIRECTION

- (a) A train or transfer, having passed beyond the limits of a block, must not back into that block until the RTC has been informed, and such train or transfer is authorized by;
- (i) the indication of a block signal, other than a Restricting Signal equipped with a plate displaying the letter "R", or a Stop and Proceed Signal;
- (ii) Rule 564 or 567.3; or
- (iii) Rule 566, 567 or 577.

NOTE: (iii) does not dispense with the requirements of Rule 564 at a Stop Signal except in the application of Rule 566(g) or 577(f).

- (b) When a train or transfer has entered a controlled location on signal indication, and stops with its trailing end within such controlled location, it may only move in the opposite direction within the controlled location with permission from the RTC. Unless relieved by the RTC, the movement must comply with Rule 104.2(b). RTC permission does not authorize occupancy outside of the controlled location.
- (c) Provided it will not re-enter a block it has cleared, a train or transfer may reverse direction within a block without Rule 566, 567 or 577 protection as follows:
 - (i) to reverse a distance of 300 feet or less, a crew member must take up a position to see the section of track to be used is clear and will remain clear of equipment or a track unit; or
 - (ii) to reverse a distance greater than 300 feet, a flagman must take up a position beyond the farthest point to which the train or transfer may extend. Stop signals must be given by the flagman from a point where they can be plainly seen from an approaching train or transfer from not less than 300 yards.

576. SWITCHING AT A CONTROLLED LOCATION

- (a) **Signal Indication** - The preferred method of switching at a controlled location is with the use of the signal system by having the RTC signal the train or transfer over the controlled location with directional signals. If unable to clear the controlled location when switching is completed, the RTC will authorize departure by issuing a Rule 566 or 577 to the train or transfer. If the first move into the block was authorized by Rule 564, operation to the next signal must be made at RESTRICTED speed.
Rule 566 or 577 would not be required when the RTC verbally authorizes the train or transfer to pull ahead to the next signal where there are no dual control switches to be encountered.
- (b) **Switching Signals** - A member of the crew will request the switching signal so that multiple moves may be made through the controlled location on a specific route. When switching is completed, the RTC must be advised to ensure the signal will be cancelled. Before doing so, the member of the crew requesting the cancellation must advise all other crew members and receive their assurance that they are and will remain clear of the switching signal limits. If unable to clear the controlled location, the RTC will verbally authorize departure. The RTC will then cancel the switching signal. The train or transfer may then proceed to the next signal at RESTRICTED speed.
To avoid having to proceed at RESTRICTED speed, trains or transfers should attempt to back clear of the switching signal on the final move and leave on a more permissive signal indication.
- (c) **Rule 566.1 and 577.1 Signals Suspended** - The train or transfer must be authorized to enter the block before Rule 566/566.1 or 577/577.1 authority is issued by the RTC. If the train or transfer is unable to be clear of the limits when switching is completed, they must advise the RTC before leaving the location. If Rule 564 authorized the first move into the block, the train or transfer must operate to the next signal at RESTRICTED speed.
- (d) **Taking Head-Room** - Provided that the trailing end remains within non-main track territory, a train or transfer may accept a signal to enter a controlled location, where the intent of the move is to subsequently reverse direction so as to be completely in the clear in the non-main track territory. The RTC must be informed of the intended head-room move when the signal is requested. The crew may request one or more head-room moves but each time the signal provides a permissive indication, it is for one head-room move only.

577. OPTIONAL to 566/567 with system: WORK AUTHORITY

- (a) A train or transfer may be given work authority in writing which permits moving in either direction within specified limits. Before issuing such authority, the RTC must:
 - (i) ensure that there are no other trains or transfers within, or authorized to enter, the required limits, and;
 - (ii) block at Stop all devices controlling signals governing other trains or transfers into such limits.
- (b) Other trains or transfers may be authorized to work within the limits of one or more trains or transfers authorized to work provided such trains or transfers are restricted on their authority as follows: "Protect against work (number) between (location) and (location)".
- (c) When entry is to be provided by signal indication, the signal may only be requested when the train or transfer is within:
 - (i) two controlled blocks of the limits; or
 - (ii) 25 miles of the limits when there is no controlled block priorThe RTC must ensure the authorized train or transfer is the only one which will encounter the signal governing entry into the limits.
- (d) Trains or transfers so authorized as outlined in paragraph (b) must not enter or move within the working limits until a written understanding has been established with the conductor and locomotive engineer of each train or transfer. This understanding must include information with respect to the intended operation of each train or transfer and remain in place until the affected train(s) or transfer(s) has left the working limits.
- (e) The RTC must maintain signal blocking against trains or transfers and must not authorize any train or transfer, other than one authorized by Rule 567.3 or as outlined in paragraph (b), to enter the affected limits until the work authority has been cancelled. Each train or transfer must be clear of the affected limits before its work authority is cancelled.

EXCEPTION: If the work authority remains to be cancelled to only one train or transfer, it may be cancelled while that train or transfer is within the affected limits. In such case, the conductor or locomotive engineer must inform the RTC of the intended direction of operation. The RTC must maintain signal protection against opposing trains or transfers until the protected train or transfer has cleared the controlled block.

The locomotive engineer of a train or transfer so authorized must be made aware of the track limits before moving.
- (f) Controlled signals within the limits other than the entry and exit signals of the authority that are indicating STOP may be considered as indicating "proceed at RESTRICTED speed". Not applicable at automatic interlockings or interlockings controlled by a foreign railway. Rule 104.2(b) is not applicable when advised by the RTC that dual control switch(es) are lined for the route to be used.

577.1 (OPTIONAL to 566.1 with system) SIGNAL INDICATION SUSPENDED WHILE SWITCHING

- (a) A train or transfer may be authorized to manually operate specific dual control switches at a controlled location as prescribed by Rule 104.2, paragraph (d). Such authority must be included with work authority, as prescribed by Rule 577. The indications of signals governing operation over such switches may be considered suspended while switches are in the "hand" position, but only while switching is being performed at the designated controlled locations. Note: Verbal permission may be given to manually operate specific dual control switches within the limits of Rule 577 authority that did not include Rule 577.1 authority for those switches.
- (b) When switching is to be performed over a spring switch, which is included in the limits of a work authority prescribed by Rule 577, the indication of the signal governing operation over such switch may be considered suspended if the switch is properly lined.

578. RADIO BROADCAST REQUIREMENTS

- (a) Within single track, a member of the crew on all trains or transfers must initiate a radio broadcast to the airwaves on the designated standby channel stating the name of the signal displayed on the advance signal to the next controlled location, controlled point or interlocking.
- (b) A member of the crew located on other than the engine must confirm that the radio broadcast has been made in accordance with (a). If unable to contact the engine crew to ascertain this information, immediate action must be taken to stop the train or transfer before it will reach the next controlled location, controlled point or interlocking.

INTERLOCKING RULES

601. APPLICATION

A movement will be governed by interlocking rules within interlocking limits. Interlocking signal indications govern the use of the routes within interlocking limits. Instructions may be issued by a signalman when necessary.

602. PROPER SIGNAL INDICATIONS REQUIRED

- (a) Except in case of emergency, radio or hand signals must not be used when the proper indication can be displayed by the interlocking signals.
- (b) A movement stopped by the signalman, other than by means of signal indication, while approaching, or within an interlocking, must not move in either direction until the proper signal or instructions have been received from the signalman.
- (c) When a movement stops with its trailing end within interlocking limits, it must not reverse direction without the proper interlocking signal indication, or permission from the signalman.

604. ESTABLISHING AND CHANGING ROUTES

- (a) Signals for an approaching movement must not be restored to indicate stop unless the locomotive engineer has acknowledged that they are stopped or able to stop their movement without passing the interlocking signal to be restored.
- (b) In case of emergency, a signal may be restored to Stop at any time.
- (c) No part of a route may be changed, nor signals cleared for a movement on a conflicting route, unless the locomotive engineer of the movement for which the route was cleared has acknowledged that they are able to comply with the new routing.

605. DELAYED IN TIMING CIRCUIT

A movement approaching an automatic interlocking, equipped with a timing circuit, must approach the interlocking signal prepared to stop if occupying the timing circuit in excess of the time specified in special instructions.

At automatic interlockings not equipped with a timing circuit, a movement occupying the track between the advance signal and the interlocking signal in excess of 5 minutes must approach the interlocking signal prepared to stop.

606. APPROACHING INTERLOCKING LIMITS

At a location not protected by an advance signal, a movement must approach interlocking limits prepared to comply with a signal indicating Stop.

607. RULE APPLICABLE AT A STOP SIGNAL

When an interlocking signal indicates Stop and no conflicting movement is evident, the following will apply:

TYPE OF INTERLOCKING (as indicated in special instructions)	APPLICABLE RULE
Manual	608
Locally-Controlled	609
Remotely-Controlled	610
Automatic	611

608. MANUAL INTERLOCKING

Movements operating through the limits of a manual interlocking will be governed by special instructions.

609. LOCALLY-CONTROLLED INTERLOCKING SIGNAL INDICATING STOP

- (a) A movement must have authority to pass a locally-controlled interlocking signal indicating Stop. When no conflicting movement is evident:
- (i) the signalman may authorize such movement to pass the signal, but before doing so, the signalman must provide protection against all conflicting movements; and
 - (ii) the movement so authorized need not stop at the signal but must positively identify the signal by number. It must move at RESTRICTED speed to the next signal or Block End sign and will be governed by Rule 104.1 at spring switches, Rule 104.2 at dual control switches and Rule 104.3 at power-operated switches.
- (b) Before moving, the locomotive engineer must be informed of the situation.
- (c) When the signalman is off duty at a locally-controlled interlocking, a movement stopped by an interlocking signal indicating Stop will be governed by special instructions.

610. REMOTELY-CONTROLLED INTERLOCKING SIGNAL INDICATING STOP

- (a) A movement must have authority to pass a remotely-controlled interlocking signal indicating Stop. The signalman may authorize the movement to pass the signal but before doing so must ensure that there is no conflicting movement in the route to be used, and that all devices controlling signals governing conflicting movements are blocked at Stop. The authorization must specify the route to be used, and must be in writing.
- (b) The movement so authorized need not stop at the signal but must positively identify the signal by number. It must move at RESTRICTED speed to the next signal or Block End sign and will be governed by Rule 104.1 at spring switches, Rule 104.2 at dual control switches and Rule 104.3 at power-operated switches. If there is a railway crossing at grade equipped with a box marked "switches" within the interlocking, the provisions of Rule 611 apply.
- (c) The locomotive engineer must be made aware of the route to be used before moving.

611. AUTOMATIC INTERLOCKING SIGNAL INDICATING STOP

When a movement is stopped by an automatic interlocking signal indicating Stop:

- paragraphs (a), (b) and (c) apply when no other movement or track work is evident; or
 - paragraph (d) applies when track work is evident.
- (a) When no other movement or track work is evident;
- (i) a crew member, after opening the box marked "switches", will observe panel lights, where provided. If those of the conflicting route(s) are lighted and no conflicting movement is evident, the crew member will open the knife switch and may then allow the movement to proceed;

- (ii) (MULTI-TRACK) in the box marked “switches” where lights are provided to indicate the approach of a movement, if those of the conflicting route and those of the same railway on the adjacent track are lighted and no other movement is seen approaching, the crew member will open the knife switch and may then allow the movement to proceed;
 - (iii) where lights are not provided, or where those of the conflicting route(s) are not lighted, the crew member, after opening the knife switch, must wait five minutes, unless a greater period is specified in special instructions and posted in the box marked “switches”, before permitting the movement to proceed;
(MULTI-TRACK) - When the lights of the same railway on the adjacent track are not lighted and no other movement is seen approaching, the crew member will contact the RTC before opening the knife switch, to ascertain whether or not a movement is closely approaching on that adjacent track to prevent displaying STOP indications to such movement.
 - (iv) after complying with (i), (ii) or (iii) the movement must then operate at RESTRICTED speed to the next signal or Block End sign; and
 - (v) after the movement has occupied the crossing, the switch must be closed and the box marked “switches” locked.
- (b) Where a pushbutton is provided, to enable a reverse move to be made over the crossing, the crew member will open the box, depress the pushbutton and be governed by signal indication. If the signal fails to clear, the instructions contained in paragraph (a) must be complied with.
 - (c) A movement required to switch within or into automatic interlocking limits must, after complying with (a)(iii) leave the knife switch open until switching is completed. When the knife switch is in the open position, signals governing the switching may be considered suspended but only while switching.
 - (d) When track work is evident; i.e. when encountering a “840.3 Protection” visible indicator or a special lock on the box marked “switches”; after stopping at the signal, the movement must not proceed beyond the signal until instructions have been received from the foreman. When so authorized by the foreman to proceed, the movement must move at RESTRICTED speed to the next signal or Block End sign.

612. STOPPED FOUL OF SIGNAL

When a movement, which has accepted an indication of an interlocking signal permitting it to proceed, stops before the leading locomotive or car has completely passed such signal, it may then proceed only after receiving permission from the signalman or under the provisions of Rule 611.

614. LEAVING INTERLOCKING IN ABS OR CTC

When an interlocking is located in ABS or CTC, the indication of the last interlocking signal, in the direction of travel, also governs the movement to the next signal or Block End sign. If necessary to pass such signal in accordance with Rule 609, 610 or 611, unless otherwise specified in special instructions, Rule 509 or 564 also applies beyond the interlocking limits.

615. SINGLE UNIT OF EQUIPMENT RESTRICTED

A single unit of equipment must not be left standing on the movable portion of an interlocked drawbridge or within the interlocking limits of a railway crossing at grade.

616. DAMAGE TO INTERLOCKING

When it is known or suspected that:

- (i) a derailment has occurred; or
- (ii) track, appliances or signals are damaged or malfunctioning;

the signalman must block all controls for signals governing movements over the affected routes at Stop. No move may then be permitted until the signalman has established that they may pass safely.

617. DISCONNECTING TRACK PARTS OR LOCKING DEVICES

Before any movement is permitted to pass over any movable track part or locking device which has been disconnected, all movable track parts affected must be spiked or secured in the required position and their controls blocked to prevent them from being operated.

618. PROTECTING AGAINST A FOREMAN

- (a) A movement may be authorized to enter or move within the limits of a TOP when instructed to protect against the foreman within specified limits.
“Protect against foreman (name) between (location) and (location).”
- (b) The conductor and locomotive engineer must be made aware of the authority granted and have received instructions from the foreman before moving. The instructions must be repeated to, and acknowledged by, the foreman before being acted upon.
- (c) The signalman must maintain signal blocking against all other movements and must not authorize any other movement, or issue another TOP to apply, within the protected limits until the authority granted under this rule has been cancelled. Other members of the crew must immediately be advised of the cancellation and all copies of the cancelled authority must be destroyed.

618.1 OPTIONAL: TO 618 WITH SYSTEM. PROTECTING AGAINST A FOREMAN

Movements may be authorized to enter or move within the limits of a TOP.

- (a) Each time a movement is so authorized, the movement must be restricted as follows:
“Protect against foreman (name) between (location) and (location)”.
Such restriction must be provided when the movement is within:
 - (i) two controlled blocks of the limits; or
 - (ii) 25 miles of the limits when there is no controlled block prior.

The RTC must ensure that the authorized movement is the only one that will encounter the signal indication to enter the limits.

- (b) No entry into TOP limits may be made until both the conductor and locomotive engineer are aware of the authority and limits granted and have received instructions from the foreman named in the authority. Such instructions must be repeated to, and acknowledged by, the foreman before being acted upon.
- (c) In addition to the permission and instructions received from a foreman to enter and/or move within the limits, trains or transfers must also be authorized to enter the TOP limits by signal indication or the provisions of Rules 609, 610 or to reverse within the TOP limits under the permission of the signalman.

619. TRANSFER BY SIGNALMEN

- (a) Where an ECM is used or where a computer assisted system generates a list as outlined in (b), the relieving signalman must sign into the system in the presence of the on-duty signalman, and receive verbal and/or written transfer of other necessary instructions and information.
- (b) Except as prescribed in paragraph (a), before being relieved, the signalman must make a transfer in a book or on a form provided for that purpose, of TOP and other authorities in effect. The transfer must include the time and other necessary information and must be signed by both the relieved and the relieving signalman.

620. NON-INTERLOCKED DRAWBRIDGES AND RAILWAY CROSSINGS AT GRADE

A movement must stop before any part of it passes the governing stop sign at a non-interlocked drawbridge or at a non-interlocked railway crossing at grade. If no conflicting movement is evident and the route is properly lined, the movement may resume. Special instructions will govern when there is an attendant in charge.

PROTECTION OF TRACK UNITS AND TRACK WORK

NOTICE

Wherever the term RTC appears herein, it also applies to signalman.

801. OCS CLEARANCE IN LIEU OF TOP

A clearance may be issued in lieu of TOP and the provisions of Rules 80(b), 82, 85, 302, 308.1, 311, 803(c) and 849 apply.

802. SPEED

Unless otherwise authorized, track units must always be operated at track unit speed.

803. TRACK UNIT AND TRACK WORK AUTHORIZATION

Refer to Rules 805 to 813 for rules applicable within interlocking limits and non-interlocked railway crossings at grade and non-interlocked drawbridges.

(a) Track occupancy by a track unit is permitted as follows:

Territory	Rule or Authority
OCS	Rule 842, TOP or Clearance
CTC	Rule 842 or TOP
Signalled Track	Rule 842 or TOP
Cautionary Limits	Rule 94
NMT	Rule 841
	Rule 105(c) or where it is not applicable, it must be known that there is no conflicting movement(s)
	TOP when SCT is applicable or specified by special instructions
	Other forms of protection when specified by special instructions
	On tracks where kicking is permitted per Rule 113.5(a), track must be protected by Rule 841(c)(i) or (iii).

(b) Track work is permitted as follows:

Territory	Rule or Authority
OCS	Rules 842, TOP or Clearance
CTC	Rules 842 or TOP
Signalled Track	Rules 842 or TOP
Cautionary Limits	Rules 841, Rule 842 or TOP
NMT	Rule 841
	TOP when SCT is applicable or specified by special instructions
	Other forms of protection when specified by special instructions
	On tracks where kicking is permitted per Rule 113.5(a), track must be protected by Rule 841(c)(i) or (iii).

(c) When no longer required, the foreman must promptly cancel or remove the protection and advise any person responsible for the track.

- (d) Prior to the removal, cancellation or expiration of protection, or providing instructions to a movement; the foreman must ensure, unless otherwise protected:
 - (i) the track is safe for movements at normal speed; and
 - (ii) employees or track units for which the foreman is responsible are clear of the track.

TRACK WORK AND TRACK UNITS AT RAILWAY CROSSINGS AT GRADE, DRAWBRIDGES, INTERLOCKINGS AND NON-INTERLOCKINGS

805. MANUAL AND OTHER INTERLOCKINGS NOT SPECIFIED IN THESE RULES – PROTECTION OF TRACK UNITS AND TRACK WORK

See special instructions.

806. AUTOMATIC INTERLOCKINGS – RAILWAY CROSSINGS AT GRADE

(a) Track Work:

Rule 840.3 applicable.

(b) Track Units:

If no conflicting movement is evident, the track unit may proceed but must stop clear of the conflicting route, where the foreman must then unlock the box marked “switches”, and open the switch at the interlocking. The switch must not be closed until the track unit has cleared the conflicting route(s).

EXCEPTION: A track unit that affects the signal system must stop before passing the interlocking signal.

Before permitting the track unit to proceed the foreman must wait five minutes or such greater time as may be posted in the box or indicated in special instructions. The required waiting period need not be observed when occupancy indication lights on the conflicting route(s) are illuminated.

MULTI-TRACK - When the lights of the same railway on the adjacent track are not lighted and no movement is seen approaching, the foreman will contact the RTC before opening the switch, to ascertain whether or not a movement is closely approaching on that adjacent track to prevent displaying STOP indications to such movement.

807. LOCALLY-CONTROLLED INTERLOCKING – RAILWAY CROSSING AT GRADE

(a) Track Work:

Separate TOP for the interlocking or other written instructions issued by the signalman.

(b) Track Units:

Operation beyond the interlocking signal must not be made until verbal authority, hand signal or separate TOP for the interlocking has been received from the signalman.

If the control office is closed or all attempts to communicate with the signalman fail, the foreman must;

- (i) if no conflicting movement is evident, unlock the box marked “switches” located at the interlocking and, after opening the switch must wait five minutes or such greater time as may be specified in the box before permitting the track unit to proceed;
- (ii) not close the switch until the track unit clears the interlocking limits; and
- (iii) where switches are not provided, follow the instructions posted in the box or contained in special instructions.

808. LOCALLY-CONTROLLED INTERLOCKING – DRAWBRIDGES

(a) Track Work:

Separate TOP for the interlocking or other written instructions issued by the signalman.

(b) Track Units:

Operation beyond the interlocking signal must not be made until verbal authority, hand signal or separate TOP for the interlocking has been received from the signalman.

If there is no signalman on duty, the track unit may proceed after the foreman has ascertained that the route is properly lined.

809. REMOTELY-CONTROLLED INTERLOCKING – RAILWAY CROSSING AT GRADE

(a) Track Work:

Separate TOP for interlocking unless in possession of other protection encompassing all routes which provide access to the working limits.

(b) Track Units:

Operation beyond the interlocking signal must not be made until a separate TOP for the interlocking has been received from the signalman.

Unless otherwise specified in special instructions, the signalman may provide verbal authority for the foreman to occupy the interlocking limits.

810. REMOTELY-CONTROLLED INTERLOCKING – DRAWBRIDGES

(a) Track Work:

Separate TOP for interlocking.

(b) Track Units:

Operation beyond the interlocking signal must not be made until a separate TOP for the interlocking has been received from the signalman.

811. SIGNALMAN REQUIREMENTS – CONTROLLED INTERLOCKINGS

Before giving verbal authority or a hand signal to proceed, a signalman must;

- (a) ensure there are no conflicting movements within or authorized to enter the authorized route;
- (b) block at STOP all devices controlling signals governing movements into the authorized route;
- and
- (c) maintain the blocking until the foreman has reported clear of the authorized route.

812. NON-INTERLOCKED RAILWAY CROSSINGS AT GRADE

(a) Track Work:

Rule 841 applicable.

(b) Track Units:

Operation beyond the governing stop sign must not be made until it is ascertained that no conflicting movement is evident.

Special instructions will govern, when there is an attendant in charge.

813. NON-INTERLOCKED DRAWBRIDGES

(a) Track Work:

Rule 841 applicable.

(b) Track Units:

Operation beyond the governing stop sign must not be made until it has been ascertained that the route is properly lined.

Special instructions will govern, when there is an attendant in charge.

TRACK UNITS OPERATING OVER POWER-OPERATED AND DUAL CONTROL SWITCHES

814. POWER-OPERATED SWITCHES

When a track unit(s) is required to move over a power-operated switch;

- (a) the switch must be lined by the RTC, except where the RTC gives permission to the foreman to have it operated by a qualified employee; and
- (b) when a power-operated switch is operated by a qualified employee, and after the track unit has cleared the switch points, the foreman must immediately advise the RTC.

815. DUAL CONTROL SWITCHES

When a track unit(s) is required to move over a dual control switch;

- (a) the switch must be lined by the RTC, except where the RTC gives permission to the foreman to operate such switch in the “hand” position; and
- (b) when a dual control switch is operated by the foreman in the “hand” position, and after the track unit has cleared the switch points, the foreman must ensure that the selector lever has been restored to the “power” position and locked and immediately advise the RTC.

816. FOREMAN REQUIREMENTS - IDENTIFYING ARRIVAL AND/OR DEPARTURE OF MOVEMENTS

When a foreman has been authorized to perform track work behind or has authorized a movement(s) to pass through working limits, the foreman or sub-foreman must not enter the track at a location within the limits until it has been positively ascertained that the movement(s) have arrived and/or left that location. Such information must be received from the RTC or a crew member or by the foreman or a sub-foreman identifying that a movement has arrived by visually identifying the designated engine and marker. Movements operating without a marker must be identified by the foreman or a sub-foreman by direct communication with a member of the crew of such or by the foreman through the RTC.

OPTIONAL – ONLY REQUIRED FOR THOSE USING RULES 862 and 863

This requirement is also applicable to an employee providing arrival and departure information to the RTC from a field location.

840.3 PROTECTION OF TRACK WORK AT AUTOMATIC INTERLOCKINGS RAILWAY CROSSINGS AT GRADE

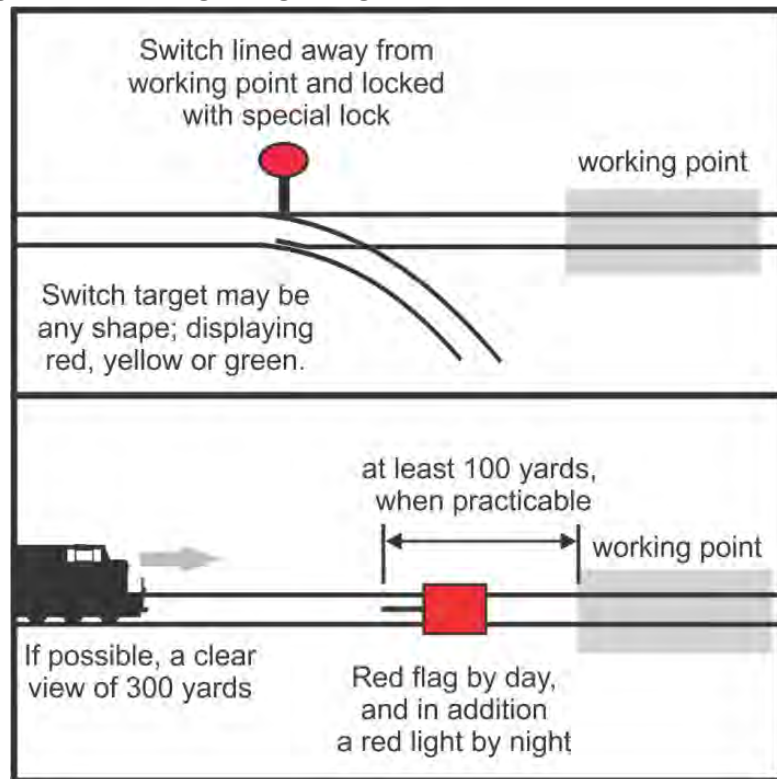
Foreman must also refer to Rule 611(d).

When the foreman is in possession of other protection encompassing all routes within the interlocking limits, protection as per Rule 840.3 is not required.

Track work may be performed within the limits of an automatic interlocked railway crossing at grade after protection has been provided as follows:

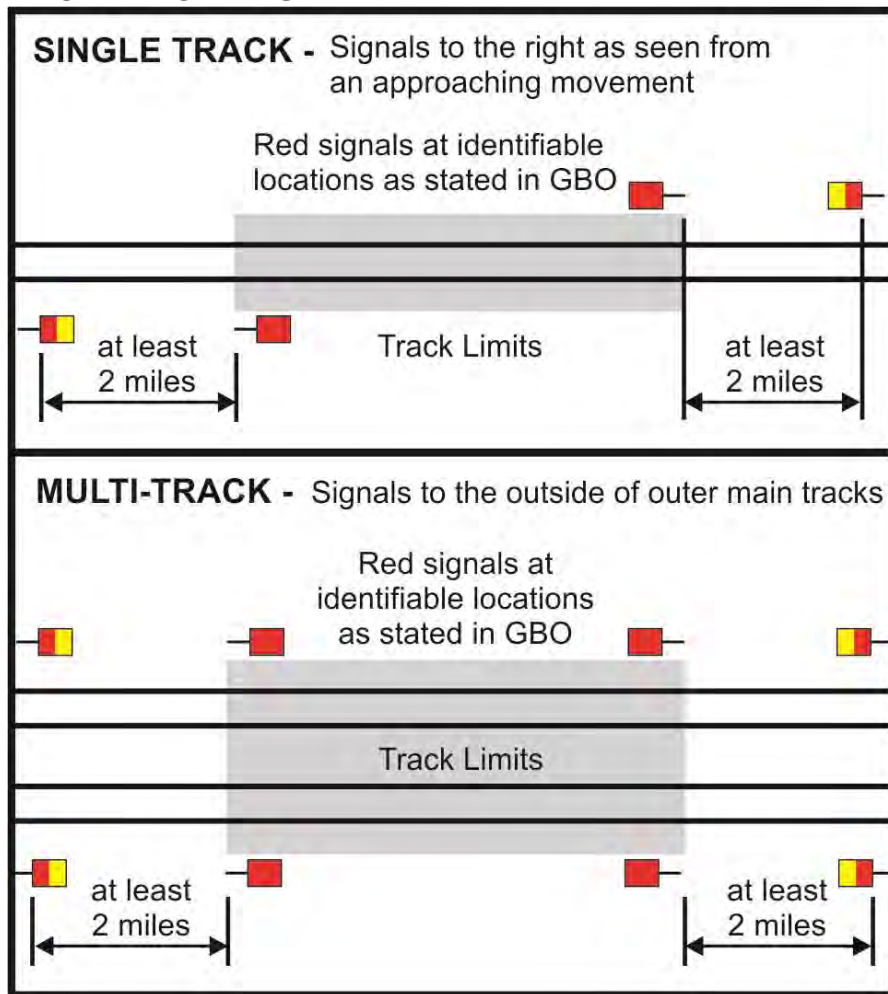
- (a) Permission must be obtained from the RTC of both railways (where applicable).
- (b) After permission has been obtained and before any track work is started, the foreman must open the box marked “switches”, open the knife switch and must wait five minutes or such greater time as may be posted in the box. The switch must be left open until track work is completed.
- (c) In addition, a visible indicator marked “840.3 Protection” or special lock must be secured to the box marked “switches” to indicate that track work is ongoing.
- (d) After track work is completed the RTC of both railways (where applicable) must be notified.

841. PROTECTION OF TRACK WORK ON NON-MAIN TRACK AND IN CAUTIONARY LIMITS



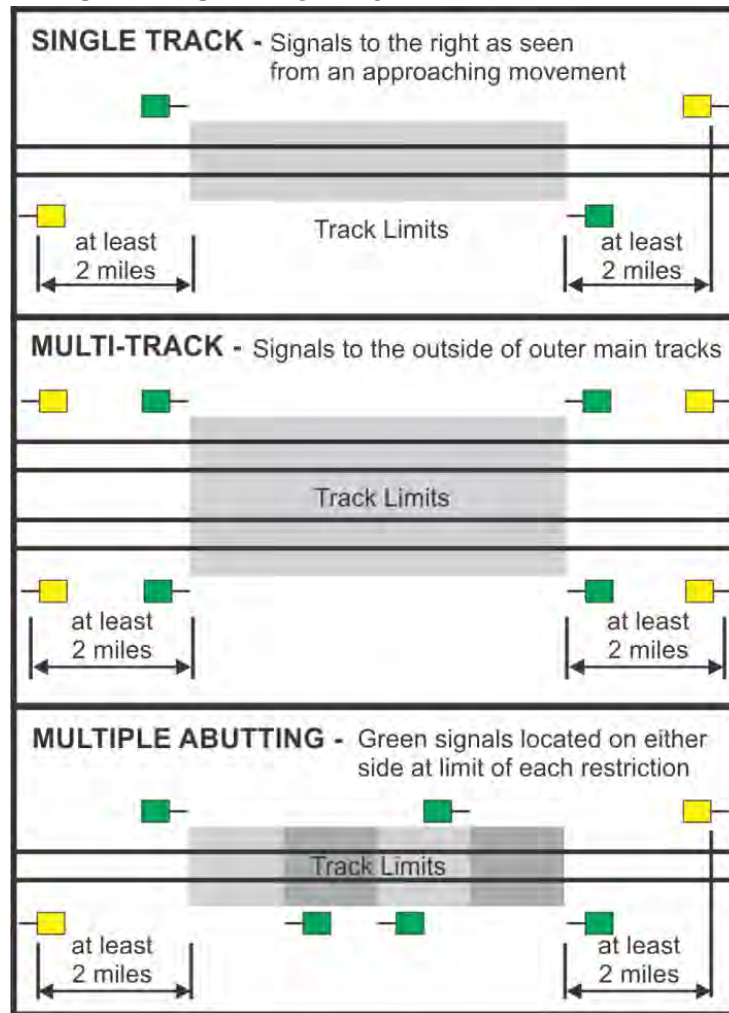
- (a) Before applying protection the employee responsible, if any, for the track must be advised.
- (b) When working limits are on a track where the kicking of equipment is permitted per Rule 113.5(a), protection must be provided by (c)(i) or (iii).
- (c) The foreman must provide protection to prevent access to the working limits using one or more of the following methods:
 - (i) lock switch(es) with a special lock, in a position to prevent a movement from entering the working limits;
 - (ii) place a red flag by day, and in addition, a red light by night, or when day signals cannot be plainly seen, between the rails to prevent a movement from entering the working limits. Such signal(s) must be placed at least 100 yards from the working point where practicable, where there will be a clear view of the signal(s) from an approaching movement of at least 300 yards. If there is equipment on the track which will prevent a clear view of 300 yards, the red signals must be placed to include such equipment; or
 - (iii) a red signal displayed per (ii) and a derail locked in the derailing position with a special lock.

842. PLANNED PROTECTION – RULE 42



- (a) When protection is required, the request must be in writing and on the prescribed form. When protection has been provided, the track and time limits must be confirmed in writing prior to the foreman named in the GBO arranging for the display of the prescribed flags as follows;
- (i) place a red flag at each identifiable location stated in the GBO to the right of the track as seen from an approaching movement; and
 - (ii) place a yellow over red flag at least two miles outside the track limits defined by the red flags, to the right of the track as seen from an approaching movement.
 - (iii) Track work must not be undertaken until the prescribed signals are in place in all directions.
 - (iv) flags must not be in place more than 30 minutes prior to or after the times stated in the GBO unless provided for in the GBO.
 - (v) Track limits must not be overlapped.
- (b) When a specific track is to be used, instructions from the foreman must specify the track upon which the instructions apply.
 In CTC, when protection is in effect on more than one track or when signalled turnouts are within the limits there must be a clear understanding in writing between the foreman and the RTC as to what route(s) movements are to use. The foreman's instructions to the movement must be identical to the routing arrangement with the RTC. Should the foreman require operation on a specific track when the arrangement with the RTC was for more than one route, the foreman must make a new arrangement with the RTC before authorizing the movement.
- (c) Track limits shall be kept as short as practicable and be expressed in whole miles or by other identifiable locations.
- (d) The GBO must indicate the location of flags that cannot be placed at the distance prescribed.

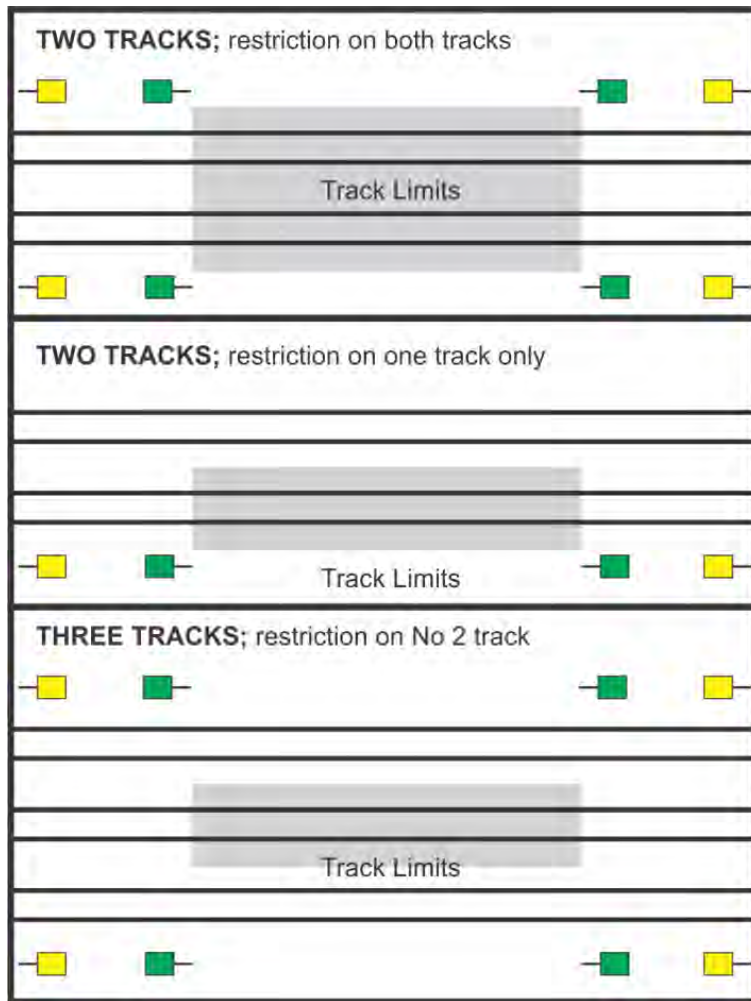
843. SLOW TRACK PROTECTION – RULE 43



- (a) When slow track protection is required the request must be in writing and when practicable on the prescribed form, and after GBO protection has been provided, the speed restriction(s) and limits must be confirmed to the foreman in writing who will arrange to place a:
- (i) yellow flag to the right of the track as seen from an approaching movement at least two miles in each direction from the outermost limits indicated in the GBO, and
 - (ii) green flag to the right of the track as seen from an approaching movement in each direction, immediately beyond the defect.
- Exception: When there are abutting limits contained within a single GBO, a single green flag will be displayed to either side of the track to identify each restriction within the limits.
- (b) The GBO must indicate the location of flags that cannot be placed at the distance prescribed.
- (c) When the placement of flags as prescribed is delayed, the RTC must be advised and the following must be added to the Form V: "Signals may not be in place." The flags must be placed as soon as possible and the GBO changed accordingly.
- (d) When a restriction is located at a single mile point, one green signal will be displayed to identify the restriction and may be displayed to either side of the track.
- (e) When a rail break has been detected by an engineering employee and it is safe to operate over the break at a speed less than posted speed, the RTC will provide GBO protection to affected movements stating the authorized speed over the break and how such location is marked in the field, by either a Rail Break Sign or foreman, at the break. Flags required will not be in place.
- (f) The regular placement of flags must be utilized after 24 hours if the defect is continuing.

845. SIGNAL PLACEMENT MULTI-TRACK

Except on a subdivision designated in special instructions, signals required by Rules 842 and 843, must be placed to the outside of the outermost track(s) and not between the main tracks.



846. MOUNTING OF SIGNALS

- (a) Signals displayed for protection of track work and track conditions must provide an unobstructed view of them as seen by the crew of an approaching movement. They will be of the prescribed colour, size and shape.
- (b) When a day signal cannot be plainly seen, each flag must be reflectorized or equipped with a reflectorized lens, target or disc, or a reflectorized sign may be used instead. In the application of Rule 841, the required light must be displayed.
- (c) Red, yellow, and yellow over red flags may display those colours only in the direction of an affected approaching movement. Green flags must display that colour in both directions.

TRACK OCCUPANCY PERMITS

849. BEFORE ISSUING TOP AUTHORITY

Before issuing TOP authority, the RTC must;

- (a) ensure there is no conflicting movement within, or authorized to enter, the TOP limits to be granted unless such movement has been restricted in accordance with Rule 311, 567.1, 567.2, 618 or 618.1; and
- (b) in CTC and controlled interlockings, block at Stop all devices controlling signals governing the entry of movements into the limits to be granted. Signal blocking applied to protect a TOP must be maintained until the TOP is cancelled to the foreman.

850. SAME OR OVERLAPPING TOP LIMITS

The RTC must not authorize a movement to enter overlapping TOP limits.

851. TOP AUTHORITY WITHIN CAUTIONARY LIMITS

- (a) A TOP must not be issued to apply within cautionary limits where there are movements operated that cannot be controlled by the RTC.
- (b) The RTC must not authorize a movement to the cautionary limit sign while a TOP is in effect within such limits.

852. TOP ENCOMPASSING CONTROLLED LOCATIONS

When authorized by a TOP to occupy a track within a controlled location, the authority includes any track within the controlled location that connects to that track but only to a point on the connecting track where occupancy would require separate TOP authority.

853. REMAINS IN EFFECT

A TOP once in effect continues so until superseded or cancelled.

854. ONE TRACK UNIT – FOREMAN REQUIREMENTS

Before acting under the authority of a TOP, a foreman in charge of a single track unit must;

- (a) read the TOP aloud to the employees accompanying the track unit; and
- (b) require those employees who hold a valid certificate of rules qualification to read and initial the TOP.

855. MULTIPLE TRACK UNITS AND/OR TRACK WORK – FOREMAN REQUIREMENTS

Before acting under the authority of a TOP, a foreman in charge of the protection of track work or in charge of more than one track unit must;

- (a) read the TOP aloud to at least one other employee involved in the work who holds a valid certificate of rules; and
- (b) when conditions permit, require those to whom the TOP is read aloud, to read and initial the TOP.

Special instructions will indicate additional procedures for protection of sub-foreman.

856. COMMUNICATION BETWEEN EMPLOYEES AND FOREMEN

An employee who has been made aware of the contents of the TOP must remind the foreman of the contents in sufficient time to ensure compliance.

857. MULTIPLE TOP

Where required, special instructions will indicate additional procedures.

EXCLUSIVE TOP

858. EXCLUSIVE DESIGNATION

When an Exclusive TOP is issued, it must be indicated in the appropriate section of the TOP.

859. EXCLUSIVITY

Before an Exclusive TOP is issued, the RTC must verify that no other TOP, Form Y or Form T is in effect within the limits to be covered by the TOP.

An Exclusive TOP must not be issued as a Follow-Up TOP.

860. AFTER ISSUING AN EXCLUSIVE TOP

Within the limits of an Exclusive TOP, the RTC must;

- (a) not issue another TOP;
- (b) not issue a Form T or Form Y;
- (c) not issue a Rule 311, 567.1, 567.2, 618 or 618.1 authority to a movement.

861. EXCLUSIVE TOP – TWO TRACK UNITS

When a second track unit is occupying the limits, both track unit operators must have a thorough understanding in writing as to the operation of each other.

FOLLOW-UP TOP

862. RTC REQUIREMENTS

When one or more movements remain within the limits to be covered by a TOP, the RTC may issue a Follow-Up TOP to a foreman, provided such movements are authorized to proceed in the same direction and have left the location where the foreman will enter the limits of the TOP.

The RTC;

- (a) may only issue the TOP to the foreman when the foreman is at the location where the foreman will enter the limits of the TOP;
- (b) must not issue the TOP if any of the movements are authorized to reverse within the limits; or
- (c) authorize any of the movements to reverse within the limits; and
- (d) before issuing the TOP, verify that each movement has left the location where the foreman will enter the limits; and
- (e) in the TOP, include the designation and location that the last movement has left.

862.1 OPTIONAL RTC REQUIREMENTS

When one or more movements remain within, are, or will be authorized into the limits to be covered by a TOP, the RTC may issue a Follow-Up TOP to a foreman, provided such movements are authorized to proceed in the same direction.

The RTC must;

- (a) specify the designation of each movement on the TOP; and
- (b) not authorize any of the movements to reverse within the limits.

863. FOREMAN REQUIREMENTS

When a Follow-Up TOP has been issued to a foreman and one or more movements remain within the limits of the TOP, the foreman, or any employees for whom the foreman is responsible, must;

- (a) not enter the limits of the TOP except at or behind a location which the designated movement has left;
- (b) not pass the designated movement within the limits of the TOP.

863.1 OPTIONAL FOREMAN REQUIREMENTS

When a Follow-Up TOP has been issued to a foreman, the foreman or any employee under the foreman's protection must not;

- (a) enter the limits of the TOP except at or behind a location which all designated movements have left; or
- (b) pass the designated movements within the limits of the TOP.

TOP CANCELLATION

864. TOP CANCELLATION

- (a) The foreman must advise the RTC of the TOP number to be cancelled;
- (b) the RTC must state the TOP number and limits of the TOP to be cancelled which must be acknowledged as correct by the foreman;
- (c) the RTC will state the TOP number, "cancelled" and the initials of the RTC which must be repeated by the foreman; and
- (d) the cancellation does not take effect until it has been correctly repeated and acknowledged by the foreman.

DATE FORMALIZED April 6, 2023 REVISED	Electrical Safety Policy
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POLICY STATEMENT

In keeping with our values of Safety Full Stop, Go Beyond, Lead the Way and Never Stop Caring Ontario Northland Transportation Commission (ONTC) commits to ensuring that all employees who may be exposed to electrical hazards associated with their work have the knowledge, skill, tools, and equipment needed to ensure their safety.

In our efforts to Go Beyond our minimal requirements, ONTC commits to continuously improving our safe work practice by striving to incorporate the Workplace Electrical Safety standard, CSA Z462.

All authorized employees will ensure the power supply to electrical installations, equipment, or conductors is disconnected, locked out of service, connected to ground, and tagged before any work is done. **It is a requirement that, where possible, all hazardous energy sources are reduced to and maintained at a ZERO ENERGY state before starting any electrical work.** Should it become necessary that maintenance, cleaning, or adjustments need to be performed on any piece of equipment while it is in operation, safe work procedures for this type of work shall be made available and easily accessible. Only authorized employees shall be allowed to perform such work.

PURPOSE

To ensure employee safety by allowing only **Authorized Employees, Qualified Persons, Certified Electricians** or **Electricians in Training (EIT's)** who are under direct supervision of a **Certified Electrician** to do electrical work such as connect, maintain, or modify electrical equipment or installations at ONTC work locations.

To ensure that all ONTC employees or contractors working for ONTC comply with the Canada Labour Code, Occupational Health and Safety Act, associated regulations and ONTC procedures.

APPLICATION AND SCOPE

This procedure applies to all ONTC workers and contractors at all workplace locations. The procedure applies whenever exposure to a hazardous energy may occur while servicing, installing or maintaining, machinery or equipment.

DEFINITIONS

Affected employee – persons who are not directly involved in the work requiring the hazardous energy control, but who are (or may be) located in the work area.

Authorized employee – a qualified person who, in their duties or occupation, is obliged to approach or handle electrical equipment; or a person who, having been warned of the hazards involved, has been instructed or authorized by a qualified Supervisor or management member.

Certified Electrician – Electricians who have obtained a 442A Industrial or a 309A Construction certificate of qualification.

Control Device – means a device that will safety disconnect electrical equipment from its source of energy.

Electrical Equipment – means equipment for the generation, distribution, or use of electricity.

Electrician in Training (EIT's) – Aspiring electrician's registered with Skilled Trades Ontario who must complete specific criteria, a set number of hours, and a final test to be eligible to become a **Certified Electrician**.

Isolated – means separated or disconnected from every source of electrical, hydraulic, pneumatic, or other kind of energy that is capable of making electrical equipment dangerous.

Qualified Person – One who has demonstrated skills and knowledge related to the construction and operation of electrical equipment and installations and has received safety training to identify hazards and reduce the associated risk.

RESPONSIBILITIES

Employer is responsible to:

1. Provide training and instruction on the Electrical Safety Policy and LOTO program.
2. Properly implement and periodically audit the Electrical Safety Policy and LOTO program.
3. Provide single key locks and tags as well as other LOTO equipment and maintain records of issuance of lock.
4. Provide all relevant PPE to ensure staff are performing their tasks in a safe manner.
5. Prequalify and approve contractors who work at any ONTC location.
6. Discipline, ensuring authorized and affected personnel perform their duties within the requirements of the LOTO Procedure.

Managers/Supervisors are responsible to:

1. Communicate any actual and potential hazards of which they are aware;
2. Apply and enforce the LOTO Program for all personnel in the workplace.
3. Identify those personnel who are authorized and affected and trained in accordance with this policy.
4. Periodically inspect the work area to ensure compliance with this policy;
5. Ensure that only authorized workers perform LOTO, and that work is performed in compliance to the procedure.
6. Provide written instructions as required; and
7. Provide to workers, company supplied LOTO equipment and PPE as required.

Workers and contractors of ONTC are responsible to:

1. Comply with the Electrical Safety Policy and LOTO Procedure.
2. Notify their supervisor or contact person of any questions or concerns with respect to LOTO.
3. Participate in electrical safety training as required.
4. Provide input on the effectiveness of the LOTO Procedure and participate in annual reviews of the electrical safety policy and LOTO Procedure as required.

5. Achieve a zero-energy state where hazardous energy may harm a person and ensure proper LOTO is achieved.
6. Ensure all power sources remain locked out before resuming work after a temporary absence.
7. Ensure only single keyed locks are used. The key must remain in the direct possession of the authorized person engaged in lockout.
8. remove only the locks that have been assigned by ONTC; and
9. avoid using a Point of Operation switch or controller for the sole Lockout of a device or piece of equipment unless it has been designed to accommodate an energy isolating device.

ELECTRICAL SAFETY RULES

1. A sign warning of the danger, and forbidding entry by unauthorized persons will be posted at the entrance to a room or similar enclosure containing exposed live electrical parts.
2. Any piece of equipment or tool found to be damaged or have defective electrical components or found to pose a safety or health hazard to any employee will be disconnected and removed from service without delay and must be tagged appropriately.
3. Any tool or piece of equipment that is capable of conducting electricity and/or endangering the safety of any worker will not be used around or close to any live electrical installation or equipment that might cause electrical contact with the live conductor.
4. Flammable materials/liquids shall not be stored anywhere near electrical equipment.
5. Eye protection must be worn when carrying out a work assignment.
6. Consider all electrical equipment to be live until you have properly tested it to confirm it's dead.
7. Do not work on "live" equipment unless it is absolutely necessary. If it is necessary, a safe work procedure must be in place.
8. If it is necessary to work on "live" equipment wear rubber gloves and work from a dry location.

9. Do not close any switch without knowledge of the circuit and the reason the switch was left open.
10. Notify the persons affected before the power on any circuit is shut off.
11. All electrical equipment of 110 volts or over must be grounded. Circuits sometimes retain a charge.
12. Portable electrical equipment used outdoors or in damp locations must be equipped with a ground fault circuit interrupter installed at the receptacle or on the circuit at the panel.
13. Specially authorized persons and electricians are the only ones permitted to change fuses.
14. Rubber gloves, tools and equipment must be maintained in good condition.
15. Do not handle “live” wires while standing in water or on moist or steel surfaces.
16. Electrically driven machinery and controls should normally be locked out before servicing. However check with your Supervisor to be sure.
17. Only persons authorized to do so may enter any electrical room and/or enclosure containing live parts. The entrance to any electrical and/or enclosure containing live parts will be marked by conspicuous warning signs stating that entry by unauthorized persons is prohibited.

TRAINING

Employees exposed to an electrical hazard when the risk associated with that hazard is not adequately reduced by the applicable electrical installation requirements shall be trained to understand the specific hazards associated with electrical energy.

- Safety-related work practices and procedural requirements necessary to provide protection from the electrical hazards associated with their job or task assignments; and
- They shall be trained to identify and understand the relationship between electrical hazards and possible injury.

Qualified persons shall be trained in and knowledgeable about the construction and operation of equipment or a specific work method and trained to identify and avoid the electrical hazards that might be present with respect to that equipment or work method. The training required shall meet the requirements of the CSAZ462.21 and may include classroom, on-the-job, electronic, or web-based training methodologies with interactive components.

Employees involved in or affected by the lockout procedure must be trained in the lockout procedure and their responsibility in the execution of the procedures.

Retraining in the lockout procedure shall be performed:

- When the procedures are revised;
- At intervals not to exceed 3 years; and
- When supervision or annual inspections indicate that the worker is not complying with the lockout procedure.

Employee training must be documented to confirm that each employee has received the training and retained for the duration of the employee's employment. The documentation must include

- when the employee demonstrates proficiency in the work practices involved
- contain the content of the training, each employee's name, and date of the training.

REFERENCES

Part II Canada Labour Code R.S.C, 1985, c. L-2
Published by the Minister of Justice at the following address:
<http://laws-lois.justice.gc.ca>

Implementing an Occupational Health and Safety (OH&S) program November 2017 DSS
Catalogue Number CC273-2/17-1E Canadian Centre for Occupational Health and Safety
(CCOHS): www.ccohs.ca

Occupational Health and Safety Act (R.S.O. 1990, c. 0.1) Consolidated Edition, Carswell

Workplace electrical safety, CSAZ462:21 CSA Group., July 20214

DATE FORMALIZED June 21, 2018 REVISED April 13, 2022	HOT WORK PROGRAM
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POLICY STATEMENT

In keeping with our values of safety, accountability, and continuous improvement Ontario Northland Transportation Commission (ONTC) is committed to the safety and health of all its employees by ensuring that all hazards associated with hot work is properly recognized, assessed and controlled.

PURPOSE

To establish the minimum requirements for the safe performance of hot work when conducting hot work at any ONTC location, and to ensure that all measures are taken to eliminate any risk that is generated by welding, cutting, grinding, soldering, or blazing.

APPLICATION AND SCOPE

This policy applies to any ONTC division, department, and employee who is required to perform hot work at any time during their work.

POLICY

All hot work jobs or projects are to be authorized by a manager, supervisor, designate or identified in daily work schedules and/or job descriptions.

All hot work must be performed by a competent worker who has the knowledge and training in the work being performed as per the identified risks associated with the work.

A competent person will be designated to monitor all hot work activities ensuring all procedures are being followed, and to conduct a fire watch for dangerous sparks.

When hot work is required on a rail car that contains a commodity or residue that is either a flammable gas, flammable liquid, or a liquid with a flash point below the ambient temperature or the temperature in the rail car, the work is to be conducted outside (provide location) and is only permitted when all safety precautions outlined in this procedure have been met and adhered to by personnel who have been trained to assess and control the hazards associated with hot work.

DEFINITIONS

Flammable Commodity:

A commodity that is a flammable gas, a flammable liquid or a liquid that has a flash point below the ambient temperature or temperature inside the rail car.

Flammable Gas:

A gas that has an LEL of less than 13 percent by volume in air or flammable range of more than 12 percent.

Flammable Liquid:

A liquid having a flash point below 37.8°C (100°F), also known as an NFPA Class I liquid.

Flash Point:

The temperature at which a liquid produces enough vapour to ignite in the presence of a suitable source of ignition.

Gas Tester:

Person assigned to perform required testing on/in a confined space, restricted space, railcar, etc. to ensure the area is safe to work on and/or identify control measures required to eliminate risk.

Hot Work:

For the purposes of this procedure, refers to any operation, process, or the use of anything that creates a source of ignition. Hot work includes, but is not limited to: welding, cutting torches, gouging, and the use of tools and equipment that are not intrinsically safe.

Lower Explosive Limit (LEL):

The minimum concentration of a flammable gas mixed with air, where an explosion or deflagration may occur in the presence of a suitable ignition. This concentration is expressed in percent by volume, where 1 percent represents 10,000 parts per million.

Tester:

A competent person who is responsible for making determinations of the conditions in or around the area of work, and has completed appropriate training on the measurement instruments and procedures used to perform the evaluation.

Vapour:

A gas given off by a substance that is normally a liquid at room temperature.

MATERIAL REQUIRED

Hot Work Hazard Assessment and Full task Observation Sheet
Norfalco Acid Tank Car Hazard Safety Inspection Sheet
Personal Protective Equipment
Fire Extinguisher
Testing Equipment – PH Test Paper, Gas Monitoring Equipment
Communication Devices

HAZARDS

This procedure describes some of the potential health hazards associated with welding fumes and gases. It also discusses the control and management of these hazards.

Welding produces metal fumes and gases that can make you sick. The risk depends on:

- The welding method (such as MIG, TIG, or stick)
- What the welding rod (electrode) is made of
- Filler metals and base metals (such as mild steel and stainless steel)
- Paints and other coatings on the metals being welded
- Ventilation

In confined spaces, welding can be much more dangerous. With less fresh air, toxic fumes and gases can be much stronger. Shielding gases, like argon, can displace the oxygen and kill you.

The two most common types of welding used are:

- The electric arc welding of metal using a flux-coated electrode (manual metal arc welding, MMAW, SMAW); and
- The electric arc welding of metal using a gas-shielded wire electrode (gas metal arc welding, GMAW).

Welding Fumes

Cadmium – may be present as a coating in certain materials being welded. Cadmium oxide fume on inhalation may cause acute irritation of the respiratory passages, bronchitis, chemical pneumonia or excessive fluid in the lung tissues (pulmonary oedema). There may be a latent period of several hours between exposure and onset of symptoms. The effects of overexposure to cadmium fumes may resemble metal fume fever initially. A single exposure to a very high concentration of cadmium oxide fume may be fatal. Chronic cadmium poisoning results in injury to lungs and kidneys.

Manganese – potential exposure to manganese occurs whenever this metal is used in electrode cores and coatings or in electrode wire. Acute poisoning from oxides of manganese is very rare in welders, although respiratory tract irritation from the fume may occur. Exposure to fume from welding on manganese steel may give rise to acute

inflammation of lungs. Metal fume fever is also a possibility after exposure to manganese fume. Chronic manganese poisoning, characterized by severe disorder of the nervous system, has been reported in welders working in confined spaces on high manganese steels.

Zinc – may be present as a surface coating on steel products, that is, galvanized steel. Exposure to freshly formed zinc oxide fume may produce a brief acute self-limiting illness known as metal fume fever, zinc chills or brass founder's ague. The symptoms, which resemble those of an acute attack of influenza, usually occur several hours after exposure to fume and usually with complete recovery within about 24 to 48 hours. Freshly formed oxide fume from several other metals has also been reported to cause metal fume fever. Leucocytosis, a transient increase in white blood cell counts, is reported to be a common finding in metal fume fever, but is not known to be common among welders.

Iron – most welding involves ferrous materials. The most abundant constituent of ferrous alloy welding fume is iron oxide. Long, continued exposure to such welding fume may lead to deposition of iron oxide particles in the lungs. When present in sufficient quantities, the deposition is demonstrable on chest x-ray films as numerous fine discrete opacities (nodulation and stripping) resembling silicosis. The technical name for this is siderosis and it is a benign form of pneumoconiosis. Siderosis tends to clear up when the exposure to metallic particles stops.

Molybdenum – Molybdenum is found in some steel alloys. Molybdenum fumes may produce bronchial irritation and moderate fatty changes in the liver and kidneys.

Fluorides – Welders may be exposed to fluoride dust, fume and vapours from certain MMAW and GMAW operations. Fluoride fumes may produce irritation of the eyes, throat, respiratory tract and skin. Chronic fluorosis is a syndrome characterized by an increased density of bones and ligaments due to fluoride deposition. However, no corroborating data are available which identify a relationship between exposure to fluoride-containing welding fumes and disorders of bones or ligaments.

Other Metals – Welding may produce fume from other metals, including aluminium, copper, magnesium, tin, titanium and tungsten. Within the confines of the current information available, no serious health disorders in welders are known to occur from exposure to fume from these metals but, under certain conditions, copper, aluminium and magnesium may give rise to metal fume fever and others to irritation of the respiratory tract.

Beryllium is a volatile and toxic component that may be present in many copper alloys being welded, that is, in the work piece itself. Beryllium oxide fume is very toxic to the respiratory tract, lungs and skin, and is quick acting. Beryllium is suspect human carcinogen. Note that beryllium may also be present in some aluminium or magnesium brazing alloys.

Gases

Oxides of nitrogen – The oxides of nitrogen, nitric oxide and nitrogen dioxide, are frequently formed by the direct combination of oxygen and nitrogen in the air surrounding

the arc or flame, as a result of heat from the electric arc or gas torch (oxidizing flames). In outdoor or open shop welding, hazardous abnormal concentrations are unlikely, except perhaps for short periods. In confined spaces, hazardous concentrations of nitrogen oxides may rapidly build up in welding operations. High concentrations of nitrogen oxides have also been found during gas tungsten-arc cutting of stainless steel.

Exposure to oxides of nitrogen may not always produce immediate effects but may result in fatal excessive fluid in the lung tissues (pulmonary oedema) some hours after the exposure stops.

Ozone – is formed only in small amounts in MMAW and in gas welding. It is however, produced in significant amounts in GMAW when welding with argon, especially when high amperages are used. High ozone concentrations are especially a problem when welding on reflective surfaces, such as aluminum and its alloys and stainless steel, and with high-energy processes such as plasma arc welding.

Phosphine – Phosphine is generated when steel coated with a rust proofing compound is welded. High concentrations of phosphine gas are irritating to the eyes, nose and skin. There may also be serious effects on the lungs and other organs.

Insufficient – oxygen in GMAW, the presence of inert gases (argon, helium) in confined work environments may reduce the oxygen content of the atmosphere to dangerous levels, with the threat of asphyxiation. See also the section on carbon dioxide in this procedure.

Pyrolytic products of resins used in primers / paints – the main products of thermal decomposition of resins used in primers and paints are carbon monoxide and carbon dioxide. Specific toxic or irritant chemicals given off from the resins used in priming materials include such hazardous substances as phenol, formaldehyde, acrolein, isocyanates and hydrogen cyanide. Usually, a very complex mixture of organic gases is formed.

HEALTH EFFECTS

SHORT TERM

Metal fume fever – Metal fume fever occurs in welders who inhale zinc oxide fumes, although other components, for example, copper, aluminum and magnesium, may also produce this condition. Symptoms of metal fume fever, which resemble influenza, usually occur several hours after exposure and include a metallic or sweet taste, chills, thirst, fever, muscle aches, chest soreness, fatigue, gastro-intestinal pain, headache, nausea and vomiting. The symptoms usually subside within one to three days of exposure with no residual effect.

Exposure to ozone – Exposure to ozone generated in GMAW and plasma arc welding may produce excessive mucus secretion, headache, lethargy, eye irritation and irritation and inflammation of the respiratory tract. In extreme cases, excess fluid and even hemorrhage may occur in the lungs. The irritant effects of the gas on the upper respiratory tract and the lungs may be delayed.

Exposure to nitrogen oxides – Nitrogen oxides produce somewhat similar respiratory tract effects to ozone. Inhalation of nitrogen oxides does not always produce immediate irritant effects but may result in excessive fluid in the lung tissues (pulmonary oedema) some hours after exposure ceases.

Control Measures

Where there is a likelihood of worker exposure to welding fumes and gases, steps should be taken to minimize that exposure. A thorough examination of work practices is essential. Procedures should be adopted to ensure that workers are not exposed to the hazard. Control measures include, but are not limited to the following, which are ranked in priority of their effectiveness:

Elimination/Substitution

- Remove the hazard from the workplace, or substitute (replace) hazardous materials or machines with less hazardous ones

Engineering Controls

- includes designs or modifications to equipment, ventilation systems, and processes that reduce the hazard at the source of exposure

Administrative Controls

- altering the way the work is done we can reduce the exposure along the path i.e. policies, and **work practices** such as standards and operating procedures (including training, housekeeping, equipment maintenance, and personal hygiene practices) Conduct pre-assessment of work to identify all hazards

Personal Protective Equipment

- Equipment worn by individuals to reduce exposure such as contact with chemicals or exposure to noise

The control measures in this procedure are intended to assist anyone conducting hot work with identifying and controlling all hazards associated with the nature of the work. All hazards identified in the hazard assessment not identified in the procedure shall be controlled using this hierarchy first always looking to eliminate.

PROCEDURE

Welding, cutting, grinding, soldering and brazing in construction, maintenance, and fabricating activities present a significant opportunity for fire and injury.

Hot work presents an increased risk of fire and explosion hazard when it is performed in a confined and enclosed space. If performing Hot Work in a confined space, please refer to the confined space policy and procedure.

The following procedures are the minimum standard that ONTC anticipates its workers and contractors to achieve for all hot work performed.

1. Inspect the work area and consider the following:
 - Ensure that all equipment is in good operating order before work starts.
 - Ensure that all appropriate personal protective devices are available at the site.
 - Look for combustible materials.
 - Move all flammable and combustible materials away from the work area.
 - Sweep clean any combustible materials on floors around the work zone.
 - Remove spilled grease, oil, or other combustible liquid.

If combustible materials can't be moved:

2. If combustibles cannot be moved, cover them with fire resistant blankets or shields. Protect gas lines and equipment from falling sparks, hot materials, and objects.
3. Secure, isolate, and vent pressurized vessels, piping and equipment as needed before beginning hot work.
4. Post a trained fire watch within the work area, including lower levels if sparks or slag fall during welding, including during breaks, and for at least 30 minutes after work has stopped. Depending on the work done, the area may need to be monitored for longer (up to 3 or more hours) after the end of the hot work until fire hazards no longer exist.
5. Inspect the area following work to ensure that wall surfaces, studs, wires, or dirt have not heated up.
6. When work is completed ensure all compressed gas valves are closed and the cylinders are properly stored and secured safely.

Hot Work on Residue/Loaded Rail Cars

Before performing any work on a rail car ensure the following:

Before performing any work on a car containing acid caution must be given to the following risks:

- 1) The tank is still under pressure – highest risk
- 2) The tank will release acid gases/mists when opened and previously checked for pressure

The first time the tank is opened workers should wear a full face shield and protective clothing (e.g. polycoated Tyvek and gloves), and a ½ mask respirator equipped with a stacked P100/acid gas cartridges (or a full face respirator in lieu of the face shield).

Subsequent access if necessary may be limited to respiratory protection for acid gases/mists and gloves, but should not occur unless necessary.

1. The Manager of Quality Assurance shall determine the last contents and, where possible, the paint system used on the car to be worked on. This shall include, as applicable, the review of shipping documents and/or any other documentation or information as appropriate to verify the last contents or the paint system used.

Identification by the commodity stencilled on the car is not sufficient for content determination.

2. Where the car is found to contain an acid commodity a **Hazard/Safety Inspection Assessment Nor Falco Acid Tank Car** form must be completed by the Quality Assurance inspector to indicate if the car has passed or failed.
3. Prior to engaging in any hot work the person conducting the testing shall:
 - a. Identify and record the contents of the tank on the **Hot Work Hazard Assessment and Task Observation** sheet.
 - b. Test for oxygen and then LEL at and around the manways, valves, or other potential sources of flammable gases that are within the distances outline in Section 3.
 - c. Stop any leaks as practicable prior to continuing and record this on the Hot Work Hazard Assessment and Task Observation form.
 - d. Record the final results of the testing on the Hot Work Hazard Assessment and Task Observation sheet.
 - e. Where a car's last commodity contains an acid perform PH testing on the car to ensure there is no acid residue remaining on or in the car
4. When a car contains a flammable commodity, no welding, gouging, flame cutting or similar operation is permitted within 15.4 meters (50 feet) and any other type of hot work is not permitted within 4.6 meters (15 feet) until the identified hazards on the **Hot Work Hazard Assessment and Task Observation** sheet have been controlled.
5. Once safe work condition is met, hot work may proceed only after the assigned worker(s):
 - a. Examines the Hot Work Hazard Assessment and Task Observation sheet and identifies the following items before commencing work:

- Car Number: verify that the number on the car is the same as that identified on the Hot Work Hazard Assessment and Task Observation sheet
 - Test results: verify that the air test meets the Hot Work Hazard Assessment and Task Observation sheet condition, also verify that the test results were conducted on the same shift and date the hot work is to be performed.
- b. Ensure that no other processes or operations are being performed in the area that could contaminate the work area with a significant amount of flammable gas, or that continuous monitoring occurs.
 - c. Ensure that if a combustible insulation is present, a suitable means to extinguish a fire is immediately available.
 - d. Ensure that all equipment to be used is inspected, in good condition and properly used and this is documented on the **Hot Work Hazard Assessment and Task Observation** sheet.
 - e. Ensure that required personal protective equipment is inspected, in good condition, used properly and is documented on the **Hot Work Hazard Assessment and Task Observation** sheet.
 - f. Ensure you print your name and initials on the **Hot Work Hazard Assessment and Task Observation** sheet.
 - g. Ensure that continuous monitoring is in place.
6. Hot work may normally only proceed when the LEL is zero, except where the source of flammable gas is clearly known and continuous monitoring is performed to ensure that the levels do not exceed 10 percent of the LEL.
 7. The tests conducted are valid for no more than the present shift, including overtime hours where applicable.
 8. Welding on the tank car shell of an uncleaned car containing a flammable commodity or residue is strictly prohibited. Welding on reinforcing pads of rail cars which are directly attached to the shell is permitted providing:
 - The welder is qualified and certified
 - No part of the weld is deposited on the tank shell
 - Continuous monitoring in the location of the hot work
 9. The ground connection for welding is to be attached directly to the part to be welded whenever practicable or as near as possible to the weld area
 10. A fully charged 20lb ABC fire extinguisher shall be readily available to the hot work area. In remote locations where work will be performed on a car containing a flammable commodity or residue, it is mandatory to have two (2) fully charged 20lb ABC fire extinguishers. One (1) in close proximity to the hot work site and the other one in an easily accessible location close by.

11. Where individuals are performing hot work on an uncleaned railcar radios must be available to ensure an effective means of communicating during an emergency. This process must be included in the site emergency response plan.
12. If a combustible insulation is present, a suitable means to extinguish a fire must be immediately available when welding, gouging, flame cutting or a similar operation is being performed.
13. When welding, gouging, flame cutting or a similar operation is to be performed, significant quantities of highly combustible materials (paper, wood chips, textile fibres, grass, etc.) must not be within 10 meters (35 feet) of the welding operation. If you are unable to relocate the highly combustible materials, they must be covered with a flame resistant tarp.
14. When welding, cutting, gouging or a similar operation is to be performed on the surface that has a paint system applied to it, using the hierarchy of controls appropriate precautions shall be taken to ensure that the person is not exposed to airborne concentrations above the applicable exposure limits established by the ACGIH or Provincial Legislation, whichever is most restrictive. This may include, but is not limited to:
 - Blasting the area clean prior to the performance of the work
 - Using stripping products to remove coatings, making sure to remove any residue before welding
 - Use wet slurry vacuum removal techniques for removing very toxic coatings
 - Do not grind coatings. Grinding dust may be toxic.
 - The use of engineering controls (e.g., ventilation)
 - The use of appropriate respiratory protection
15. Prior to performing hot work on the jacket of a car containing flammable commodity or residue the following must be completed:
 - a. Test the jacket space for any flammable gas local to the work area, through:
 - b. an existing access point to in the jacket space
 - c. or by creating an access point, local to the work area, into the interstitial space between the shell and jacket using a pneumatic or intrinsically safe drill and keeping the drill bit and work area cool with a suitable coolant.
16. Where any amount of flammable gas is found, the source shall be determined, and if the source is from inside the jacket space it shall be eliminated or controlled

prior to any hot work being performed. Record this on the **Hot Work Hazard Assessment and Task Observation** sheet.

17. If it is reasonably believed that the jacket space may become contaminated with a flammable gas during performance of the work (e.g. product leaks from a tank) then the jacket space shall be continuously monitored.
18. Where contamination is found in the jacket space other than a flammable gas (e.g. sulphur), an assessment of the hazards shall be made and appropriate precautions taken to protect the health and safety of the worker.
19. If the **Hot Work Hazard Assessment and Task Observation** condition is violated, or there is reasonable cause to believe that it may be violated during the performance of the work (e.g. product leaks from a tank into the area of hot work, leaks from a nearby process), the work shall stop immediately while the source is investigated. Retesting must be performed to ensure that the conditions are safe before continuing. The new findings shall be recorded on the **Hot Work Hazard Assessment and Task Observation** sheet.

RESPONSIBILITIES

Employer:

- Ensure that a written program for hot work is developed and maintained in accordance with all relevant legislation.
- Ensure that the hot work program is developed and maintained in consultation with the workplace health and safety committee and/or policy health and safety committee.
- Ensure that the hot work program and associated documentation is current and available to all workers and contractors (as required) performing any hot work.
- Ensure that an adequate assessment of the hazards related to the hot work being performed has been carried out before any worker begins hot work.
- Appoint a person with adequate knowledge, training, and experience to carry out the assessment and maintain a record containing details of the person's knowledge, training, and experience.
- Ensure all workers are given adequate training in recognition of hazards and safe work practices associated with hot work.
- Maintain adequate training records showing who provided the training, who received the training, and the date the training was provided.
- Provide all personal protective equipment (PPE) required to ensure safe work.

Site Supervisor:

- Ensure a full hazard assessment is completed and any hazards are identified and controlled before hot work begins.

- Where rail car contains a flammable commodity or acid base commodity ensure that the Hot Work Hazard Assessment and Task Observation sheet completed.
- Inspect and monitor all hot work jobs to ensure procedures are being followed, and adequate fire protection is provided for a fire watch on site
- Ensure that all work does not begin until all conditions identified have been met.
- Ensure that all personnel follow this policy and procedure.
- Assign an Observer to watch for dangerous sparks in the area above and below the work being completed.

Manager of Quality Assurance Department:

- When hot work is to be performed on a rail car determine the last contents of the rail car and if possible determine the paint system.
- Perform/delegate required testing on the car to ensure the car is safe to work on and/or identify control measures required to eliminate risk.
- Place an ONTC pass or fail sticker on the car to indicate quality assurance testing complete.

Observer:

- Ensure all conditions, precautions and controls are followed.
- Watch for sparks in the area above and below the work being completed.
- Conduct fire watch at all times including any coffee breaks or lunch breaks for 60 minutes after any hot work has been completed. Maintain a fire watch at thirty min intervals to monitor area for 4 hours after work has been completed, in case of flare ups.

Workers:

- Comply with this program and be fully aware of the contents of relevant assessments.
- Notify the site supervisor of any questions or concerns with the hot work being performed or the hot work program.
- Notify the site supervisor of any contraventions of Part 2 of the Canada Labour Code, H&S regulations, and or any ONTC policies and procedures.
- Ensure all required PPE is in worn when conducting hot work.
- Participate in all required training.
- Inspect all cutting torches, and welding equipment for wear, defective parts and any other safety hazard before beginning any hot work and as often as required by the manufactures instructions.

Workplace/Policy Health and Safety Committee:

- Conduct regular audits to ensure the hot work procedures are being adhered to.
- Participate in policy review and provide recommendations to the employer if required

SWITCHING

1. A car that has been dropped off by a switching company (CN, CP, Railserve, etc.) and contains a flammable commodity, is not to be moved with a Trackmobile or similar equipment until an assessment is made to ensure that it is not leaking excessively.
2. Where a car that is leaking to the point where the airborne concentration of gas is likely to exceed 10 percent of the LEL at the coupler, a buffer car shall be positioned between the leaking car and the Track mobile, or similar equipment.
3. The distance set out in Section 3 of Hot Work on Residue/Loaded Rail Cars shall be considered when a car is to be moved such that the car does not enter an area where the requirements of this procedure would be violated (e.g. welding)
4. A car that contains a flammable commodity shall not be brought indoors unless it is confirmed that it is not leaking and it is being brought into an area that meets the requirements of NFPA 497.

Hot Work Hazard Assessment and Task Observation – RECORD RETENTION

When the work has been completed on Residue/Loaded Rail Cars:

1. Quality Assurance Tags to be removed from the car and the hot work hazard assessment and task observation sheets are filed and maintained for a minimum of 2 years.
2. Records for the testing must be kept for a minimum of three years.

TESTING EQUIPMENT

1. The gas monitoring equipment used for this standard is the VENTIS MX4.
2. Where available, the unit is to be set in the PPM mode for all tests.
3. A functional (“bump”) test must be performed on every instrument prior to each day’s use. A functional test is defined as a brief exposure of the monitor to known concentration of gas(s) for the purpose of verifying sensor and alarm operation. It is not intended to be a measure of accuracy of the instrument. The bump test shall be recorded on the bump test form.
4. A full instrument calibration must be performed monthly using certified concentrations of calibration gas(s) and recorded. Each gas-monitoring unit must have a calibration form, which will be maintained with the unit. Record the unit’s model and serial number, date calibrated and the name of the individual performing the calibration. Enter the full span reading for each sensor and the calibration has used.
5. The recommended calibration gas for the LEL sensor is Pentane.
6. The unit shall have the alarm set at 10 percent for LEL.

TRAINING

Any personnel performing hot work on residue/loaded rail cars must receive applicable training including but not limited to Hazard Assessment, WHMIS, and in some

circumstances Transportation of Dangerous Goods. Employees performing the tasks described in the procedure must also be aware of the commodity present in the particular car they are working on.

Personnel performing calibrations, bump testing, or other gas testing must be trained on the specific use and limitations of the particular gas detection devices they are using.

REFERENCES

1. Canada Labour Code R.S.C., 1985, c. L-2, Part II – Occupational Health and Safety
2. Canada Occupational Health & Safety Regulations (SOR/86-304)
3. PSP-S-03 - PROCOR Limited Standard Responsible Care Standard for Hot Work On Residue/Loaded Rails Cars
4. NFPA 51B - Fire prevention in the use of cutting and welding Processes
5. CSA W117.2-12 Safety in Welding, cutting, and allied processes
6. ANSI Z49.1:2012 Safety in Welding, Cutting, and Allied Processes
7. Canadian Centre for Occupational Health & Safety
http://www.ccohs.ca/oshanswers/safety_haz/welding/hotwork.html

DATE FORMALIZED February 2019 REVISED September 2021	Contractor/Subcontractor
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POLICY STATEMENT

In keeping with our values of safety, accountability, and continuous improvement, Ontario Northland Transportation Commission (ONTC) adheres to the requirements of the Canada Labour Code and all applicable Regulations, by ensuring that all selected contractors and subcontractors meet the set health and safety standards associated with each project.

All work shall be done safely no matter how urgent the job is and ONTC will assure that all contractors and subcontractors working on any ONTC property and/or project will following this guideline, adhering to all health and safety legislation and working in a manner that puts the safety of each employee/worker and the environment as the top priority.

PURPOSE

The purpose of this policy is to ensure that the health and safety of all Ontario Northland Transportation Commission (ONTC) employees, equipment, property and the environment are protected when work is being performed by an outside agency.

To ensure that all contractors retained by the ONTC are compliant with ONTC policies, procedures, standards, and applicable legislation.

To ensure that all contractor employees and ONTC employees are provided with a safe and healthy work environment.

To eliminate or minimize the risk of loss to employees, equipment, property and the environment.

To minimize corporate liabilities.

APPLICATION AND SCOPE

This procedure applies to all ONTC divisions and departments that require the services of an outside agency to perform work at any level.

DEFINITIONS

Adequate: in relation to procedure, plan, material, device, object or thing, means

- a) Sufficient for both its intended use and actual use, and
- b) Sufficient to protect a worker from occupational illness or occupational injury

Competent Person: a person who is,

- a) Qualified because of knowledge, training, and experience to organize the work and its performance
- b) Is familiar with the Occupational Health and Safety Act and/or the Canada Labour Code and the regulations that apply to the work, and
- c) Has knowledge of any potential or actual danger to health or safety in the workplace

Construction: includes erection, alteration, repair, dismantling, demolition, structural maintenance, painting, land clearing, earth moving, grading, excavating, trenching, digging, boring, drilling, blasting, or concreting, the installation of any machinery or plant, and any work or undertaking in connection with a project, but does not include any work or undertaking in a mine.

Constructor: a person who undertakes a project for an owner and includes an owner who undertakes all or part of a project by himself/herself or by more than one employer.

Contractor: any person or entity contracted to provide service to ONTC.

Employer: a person who employs one more workers or contracts for the services of one or more workers and includes a contractor or subcontractor who performs work or supplies services and a contractor or subcontractor who undertakes with an owner, constructor, contractor or subcontractor, to perform work or supply services.

Prescribed: means prescribed by a regulation made under the Occupational Health and Safety Act or Canada Labour Code

Project: a construction project whether public or private, including

- a) The construction of a building, bridge, structure, industrial establishment, mining plant, shaft, tunnel, caisson, trench, excavation, highway, railway, street, runway, parking lot, cofferdam, conduit, sewer, watermain, service connection, telegraph, telephone or electrical cable, pipeline, duct or well, or any combination thereof,
- b) The moving of a building or structure, and
- c) Any work or undertaking, or any lands or appurtenances, used in connection with construction

Project Administrator: a person who leads/coordinates work project.

Regulation: the regulations made under the Occupational Health and Safety Act or the Canada Labour Code.

MATERIAL REQUIRED

Contractor Safety Checklist and Orientation Form
ONTC Contractors Safety Requirements & Liability Release Form
Project Hazard Assessment
Contractor Orientation Training Package

PROCEDURE

Before Contractors/Subcontractors begin work/project ensure the following is adhered to:

- Ensure that all contractors on the property are compliant and current with all legislative licensing requirements.
- Ensure that all contractors provide a valid WSIB Clearance Certificate and/or liability insurance before beginning any work on ONTC property.
- Provide orientation training to contractors prior to commencement of work.
- Ensure contractors understand their contractual obligations under this standard.
- Provide a designated ONTC contact person to ensure contractors compliance to ONTC policies, procedures and standards through ongoing work site inspections, communications and reported safety concerns.
- Ensure that application of this standard is delivered and used consistently throughout ONTC operations.

Responsibilities

The responsibility of health and safety can become complex when contractors/subcontractors are procured to conduct work for any ONTC project.

To ensure clarity of responsibility, where a contractor is hired to conduct work for ONTC and the Provincial Occupational Health and Safety Act applies in respect of that work, the Contractor will be deemed the Constructor.

No ONTC employee will be assigned to work on the same project as the general contractor, unless there is an agreement between the Contractor and ONTC determining the contractor as the Constructor.

Where a project requires more than one employer, ONTC may enter into an agreement before the commencement of the project to determine control over the project identifying who will be the constructor.

Employer

The employer is responsible to:

- Ensure contractors, employees, supervisors and managers are adequately aware of the provisions and requirements of the POL Purchasing Policy and Procedure.

- Ensure that contractors, subcontractors and project worker companies are adequately prequalified in accordance with the Contractor Safety Prequalification Form for large projects or projects where the combined value of the project exceeds \$50,000.00 and where ONTC is the Constructor.
- Ensure contractors, subcontractors and project worker companies have agreed with and endorsed in writing, the terms of the Contractor Health and Safety Responsibility Agreement.
- Properly implement and periodically audit the contractor prequalification and safety procedure.
- Ensure that authorized staff comply within the Contractor Prequalification and Safety Procedure.
- Discipline and or remove from the authorized contractors list any contractor that fails to comply with this procedure.

Procurement

The Procurement Department is responsible to:

- Conduct prequalification in conjunction with the Project Administrator for consultants and service providers and ensure the completion of the Contractor Health and Safety Responsibility Agreement and the Contractor Prequalification Form (as required) before any work is initiated on any of the ONTC properties;
- Maintain a list of all service agreements, memorandums of understanding, service contracts; and
- Obtain a current copy of WSIB Clearance Certificates and Insurance Certificate for pre-qualified consultants and service providers.

Project Administrator

The Project Administrator is responsible to:

- Contract a pre-qualified contractor;
- Ensure contractors, subcontractors and project worker companies are prequalified in accordance with the Contractor Safety Prequalification Form;
- Ensure the contractor completes the Contractor Orientation Training with the contractor's workers prior to the beginning of a project;
- Complete with the contractor and maintain the Project Hazard Assessment;
- Request applicable training records, certificates, licenses, and written procedures and measures from the contractor as required;
- Ensure the Contractor Health and Safety Responsibility Agreement is completed by the contractor prior to the beginning of work;
- Conduct Safety briefings with the contractors prior to the work beginning and as required by the project;
- Periodically view the work areas to ensure compliance with the Act, associated regulations and the relevant ONTC safety procedures;
- Respond to safety concerns from contractors and others impacted by a project; and
- Ensure all relevant ONTC safety procedures are being implemented at the project.
- Ensure all contractor has provided SDS for all hazardous product used and that the SDS are readily available if stored on ONTC property.

Where a Contractor is hired to perform work for ONTC and the work is subject to the requirements of the Occupational Health and Safety Act, the Contractor will be the Constructor. The aforementioned duties or similar must be completed by the contractor.

Note: the Contractor – Constructor will be required to utilize their own prequalification and safety contract documents for any and all subcontractors hired to perform work on the project.

Contractors

Contractors are responsible to:

- Employ competent Supervisors and Workers;
- Comply with the Contractor Prequalification and Safety Procedure;
- Complete the ONTC Project Hazard Assessment and Contractor Health and Safety Responsibility Agreement;
- Furnish the ONTC with hard copies of applicable training records, certificates, licenses and written procedures and measures as required;
- Ensure that the Contractor Safety Checklist and Orientation form completed and signed;
- Notify the project administrator of any questions or concerns with Contractor Prequalification and Safety Policies;
- Notify the project administrator of any contraventions of the Act or ONTC's Procedures; and
- Participate in required safety training
- Provide WSIB documentation confirming the contractor is registered and their account is in good standing.
- Provide proof of liability insurance.
- Have all products used in their process evaluated by ONTC personnel prior to the products being brought onto ONTC property. This will be done through the evaluation of Safety Data Sheets (SDS) provided by the contractor/subcontractor.
- Ensure copies of all SDS are readily available.
- Immediately inform designated ONTC contact person of any changes in their process or products used in their operation.
- Prior to entering ONTC property, register with Security, appropriate supervisor or designated ONTC contact person for direction.
- Ensure that all equipment and vehicles are properly maintained and meet prescribed safety standards for that piece of equipment, e.g. no loose pins on backhoe extensions or arms, safety pins and safety features are working properly.

Workplace/Policy Health and Safety Committees

The WHSC/PHSC are responsible to:

- Participate in the development and review of the contractor subcontractor policy, procedure, and applicable forms; and
- Provide a resource to employees in regards to the contractor subcontractor policy, procedure, and applicable forms

Manager Health and Safety

The Manager of Health and Safety is responsible to:

- Provide assistance if needed with prequalification process of contractors as requires by the Purchasing Department and/or the Project Administrator;
- Approve/disapprove exceptions of the Contractor Safety Prequalification process.
- Facilitate in the development and review of the contractor subcontractor policy, procedure, and applicable forms; and
- Apply, audit and discipline compliance specific to the contractor subcontractor policy, procedure, and applicable forms.

TRAINING:

ONTC is responsible to ensure that those ONTC personnel who have duties and responsibilities to act under this procedure are adequately trained in these duties as applicable.

The training shall reinforce the hazard control hierarchy as follows:

- **Elimination:** activities or practices that involve the complete removal of the hazard from the worker in the workplace.
- **Substitution:** involves the replacement of high hazard task or workplace circumstance with a lower hazard task or workplace circumstance.
- **Engineering Controls:** involve creating and using designed infrastructure or equipment to minimize a hazard.
- **Administrative Controls:** involves creating protocols, involving stated obligations and prohibitions that change the way people work.
 - **Warning Signs:** are postings and placards that communicate the presence of a hazard as well as hazard control directives.
- **Personal Protective Equipment (PPE):** involves the use of gear that is worn by the worker to create a barrier between the hazard and the worker. PPE can include gloves, respirators, hard hats, safety glasses, high-visibility clothing, and safety footwear.

The Manager of Health and Safety will ensure that the training is refreshed at adequate frequency.

Retraining will be provided for all authorized workers or contractors whenever there is a change in their job assignments, a change in condition, equipment or processes that present a new hazard, or when there is a change in the Contractor Safety Prequalification Process.

Additional retraining shall also be conducted whenever a periodic inspection reveals, or whenever there is reason to believe, that there are deviations from or inadequacies in the worker's knowledge or use of the Contractor Safety Prequalification Process. The Project Hazard Assessment will be updated to add any additional hazards and corresponding controls, as required.

PROCEDURE:

General Information

The Project Administrator shall establish practices so that all contractors, subcontractors, or contract workers perform their work in a safe and effective manner and meet all the requirements of the Occupational Health and Safety Act, the Canada Labour Code and the Construction Regulations. The Project Administrator must be adequately familiar with all applicable laws, codes and regulations and be capable of applying them.

Where ONTC retains a “Contractor to act as Constructor”

- ONTC is not responsible for ensuring that the requirements of the applicable regulations are met for contractor activities on site, where ONTC has retained a “Contractor who fulfils the role of the constructor” who fully controls all work at a construction site. (Pre-award, ONTC should ask what a candidate Contractor-Constructor company does to prequalify contractors (and subcontractors) to determine how the Constructor proposes to maintain adequate safety on site. Once the project is awarded, ONTC should not involve itself in the project in any way that could be interpreted as “material control” that is strictly the Constructor’s duty).
- When ONTC retains the “contractor to act as constructor” for construction project: The ONTC does not have the health and safety responsibilities for this type of construction project, as long as the constructor completely controls all work and the ONTC workers are not intermingling in the project and ONTC is not controlling the project in any way.

ONTC will ensure that all contractors/subcontractors are properly trained, ensure that contractors/subcontractors are monitored and that requirements for safety are observed by the contractor, and that procedures for safe conduct of the work are in place and known to contractor employees.

The Project Administrator shall direct the contractor in completion of all applicable documentation, as described by the Contractor Safety Prequalification Procedure. The Project Administrator shall ensure that the constructor maintains full responsibility for safety on the particular job.

If the work is Non-Construction work where ONTC is acting as the “Employer”

The Project Administrator shall review the ONTC’s applicable policies and procedures with the contractors/subcontractors. It is recommended that all contractor/subcontractor workers undergo this training orientation, but it is mandatory that at least the contractor’s supervisor or site superintendent receive the training orientation and then have a method to ensure that this information is passed on to all employees under their direct control. Please note that the requirement of “Lead Employer” must be fulfilled if the work is Confined Space Entry work.

It is the responsibility of the Project Administrator to ensure that the contractor is aware that project specific training is to be conducted.

The Project Hazard Assessment form shall be completed by the Project Administrator and reviewed with all contractors prior to commencement of work.

Contractors/subcontractors that regularly perform services at ONTC must complete a Contractor Training Orientation on annual basis or whenever there is a change in personnel or applicable and safety conditions which may affect the contractor's/subcontractors workers. For project contracts, a Hazard Safety Assessment form will be completed each time the contractor performs a new project, unless the same contract personnel had performed project work of a similar nature within the previous 12 months.

Prequalification

Pre-Qualification of a contractor is designed to ensure that the contractor has:

- Appropriate current and sufficient insurance;
- WSIB Coverage;
- An appropriate and compliant health and safety policy;
- Competent supervisors; and
- A program to completely undertake and control the construction work being conducted at ONTC

When pre-qualifying a contractor who will not act as "Constructor" ONTC shall determine whether the contractor has the specific policies, procedures, training and supervision to perform the job safely and in compliance with all provisions of the OHSA and the applicable regulations. Use the Contractor Safety Prequalification form to fulfill this policy obligation.

If the procurement department is completing the prequalification procedure, input may be required from the Manager of Health and Safety or the Project Administrator if there are specific requirements for a project.

The following items must be submitted by the contractor for prequalification:

- Certificates of insurance – general liability insurance (Minor projects \$2,000,000 minimum, Major Projects \$5,000,000 minimum)
- WSIB Safety Record – submit a copy for the last 3 years or equivalent accident/injury data.
- Current Clearance certificate – Confirms contractor has met reporting and payment obligations to WSIB. ONTC will be required to receive a copy of the clearance certificate every 2 months and before the final payment on the contract has been made.
- Contractor's Health and Safety Policy.
- Past Environmental, Health and Safety Records – a copy for the last 2 years.
- Training and Certification Records – Contractor must provide documentation verifying all workers have received the necessary safety training required for the specific job.
- Hazardous material list – the contractor must submit a list of all hazardous materials that will be brought onto ONTC property.
- ONTC may require a separate work plan detailing higher hazard work activity or any tasks that may tend to produce adverse.

The Project Administrator will ensure that the Contractor Health and Safety Responsibility Agreement has been completed by the contractor.

The Project Administrator will ensure current copies of insurance, and WSIB clearance certificates, and annual safety reviews are maintained for pre-qualified contractors.

Contractors that have already been pre-qualified should be reasonably favoured and used for OTNC projects.

Project Management

In all circumstances except where a Contractor has formally taken on the role of Constructor, the Project Administrator is responsible for the health and safety on the project, and must halt the project if there are health and safety concerns. The Project Administrator must maintain communication with the contractor throughout the project.

The Project Administrator will be responsible to ensure that all health and safety documentation for the project is completed and maintained.

The Project Administrator is responsible to obtain an ONTC Project Assessment Folder and complete it with Contractor prior to any work beginning.

- Signed Contractor Safety Responsibility Agreement;
- Certificates of Insurance – General Liability Insurance;
- WSIB Safety Record;
- Current Clearance Certificate;
- Contractor's health and safety policy and procedures applicable to the work being conducted;
- Training, licensing and certification records;
- Hazardous materials list and current SDS for material brought onto ONTC property and already onsite that will be used during or encountered during the project;
- Completed Contractor Orientation Training Records;
- And copies of any applicable ONTC procedures that have been reviewed; and
- Completed Contractor Prequalification form.

The Project Hazard Assessment form must be filed once the project has been completed and made available for review if required for auditing purposes.

The Project Administrator must ensure that the Contractor Orientation Training is completed for all workers on the project.

On-Site Safety – All ONTC safety procedures (Fall protection, Confined Space Entry, Lockout/Tagout, Ladder Safety, WHMIS, Personal Protection Equipment, Respiratory Protection, etc.) apply at all construction on ONTC projects.

The Project Administrator shall review all applicable safety procedures with contractors/subcontractors at the site. Copies of the ONTC procedures can be obtained through the Project Administrator.

The Project Administrator will ensure that daily safety briefings are conducted prior to the beginning of each project work day, as well as regularly inspect the work site as the project requires.

If the contractor or subcontractor has a question or concern regarding safety on the project, they should speak to the Project Administrator or their immediate supervisor.

All contractor(s) or subcontractor(s) supervisors must report to the Project Administrator:

- Any unsafe actions or conditions,
- Contraventions of the OHS/CLC and regulations or any ONTC safety procedure, or
- Existence of any hazard at the project.

Any incident (first aid, near miss, etc.) on the project must be immediately reported to the Project Administrator.

NOTE: Workers and their supervisors shall be held accountable for violations of health and safety rules, regulations, and procedures. Disciplinary action, where necessary, will be dictated by the ONTC disciplinary procedure and will be based on the merits of the specific case.

APPENDICES/EDUCATIONAL MATERIAL:

- Contractor Safety Prequalification Form
- Contractor health and Safety Responsibility Agreement
- Contractor Orientation Training Checklist
- Project Hazard Assessment

REFERENCES:

- Ontario Occupational Health and Safety Act R.S.O 1990
- O.Reg 213/91 Construction Projects
- Canada Labour Code R.S.C., 1985 c L-2
- Canada Occupational Health and Safety Regulations SOR/86-304
- Contractors Subcontractors Safety NBRHC OH&S4-017

<p style="text-align: center;">CONTRACTORS WORKING ON ONTC PROPERTY NEAR RAILWAY TRACKS</p>
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The following procedure is to be followed when it is necessary for a Contractor to work on Ontario Northland Transportation Commission (ONTC) property near railway tracks.

- The Contractor, through the Contract Administrator, shall contact the District Manager for the Ontario Northland Railway (ONR) to coordinate and schedule their operations on or near ONR property.

Contact: Mr. Chad Martin
District Manager - District # 1
Englehart, Ontario
Office Phone No. (705) 544-2292, Extension 125
Cell No. (705) 545-0725

Contact: Mr. Dave Lallier
District Manager - District # 2
Cochrane, Ontario
Office Phone No. (705) 272-4610, Extension 632
Cell No. (705) 272-9588

- The Contractor shall fully comply with all requirements of ONR in the planning, scheduling and control of his works within the ONR right-of-way.
- The Contractor shall plan and carry out his work in a manner that does not interfere with rail traffic, or cause clearance restrictions.
- Flagging protection for railway traffic will be provided by the ONR upon notification as outlined herein. However, flagmen provided shall not relieve the Contractor from liability for damages to Railway facilities caused by the Contractor's operation.
- The Contractor shall have a responsible person present at all times to whom the Contract Administrator will issue instructions regarding work on ONR right-of-way.
- All communications with ONR shall be done through the Contract Administrator. ONR will not deal directly with the Contractor.
- All instructions from flagmen shall be obeyed immediately by all personnel on site.
- A flagman will be required when any personnel or equipment is working within 15 metres of the centerline of the nearest track, or protective devices where the work, in the opinion of the Contract Administrator or the Railway, may be exposed to or interfere with the operation of the Railway tracks.
- When a flagman is required, the Contractor, through the Contract Administrator, shall provide a written notice at least one week in advance to ensure the availability of flagmen.

SCHEDULE "A"

If prior to work commencing, the Contractor, through the contract Administrator, receives confirmation that such flagmen are not available, the Contractor, through the Contract Administrator, shall reschedule the proposed work to a date and time when such flagging protection will be available.

- In no case shall the Contractor or any of his equipment or personnel work closer than 15 metres from the centerline of the nearest track without prior consent of the Contract Administrator.
- No construction equipment, materials, or debris shall be permitted to be used, stored, dropped, or allowed to accumulate within 15 metres of overhead cable and posts.
- All equipment must stop working on the approach of any train when said equipment is on ONR right-of-way or within 15 metres of the centerline of the nearest track.
- The Contractor shall ensure that both rails of the same tracks are never connected with any conductor of electricity, such as steel measuring tapes or metal traction equipment.

Fiber Optic Cable

Along much of ONR's right-of-way lies buried fiber optic cable. A cable locate must be done prior to any work taking place. A locate request can be completed online at <https://www.ontarioonecall.ca/portal/> or by calling 1-800-400-2255.

ONR Railway Flagging Policy and Costs

The Contractor shall be responsible for payment of flagman protection costs. Flagging protection will be billed out by the ONR in accordance with the following:

Any occupation or crossing of the operating railway right-of-way not covered under a license of occupation or private crossing agreement **MUST** be protected by a railway flagman.

Arrangements for flagging protection are to be made by the Contractor, through the Contract Administrator, at least one week in advance by contacting the appropriate District Manager at the numbers provided above.

Flagging protection will be billed out as per the attached "Railway Flagging Protection Policy".

**ONTARIO NORTHLAND TRANSPORTATION COMMISSION
RAILWAY FLAGGING PROTECTION POLICY**

Work or other activity (on, over or under) or within 15 metres of ONTC’s track may impact upon the safe use of the track. Consequently, it is essential that qualified ONTC personnel provide flagging protection when personnel, equipment or vehicles are going to be (on, over or under) or within 15 metres of the track for any purpose. Workers must follow the directions and instructions of the ONTC personnel providing the flagging protection, at all times.

Emergency Situations

There is no exception made to the requirement for flagging protection even when a condition arises where the reliability or safety of an installation or of equipment or the safety of personnel is at risk.

Grade Crossing Exemption

All crossings, equipment or structures encroaching onto railway lands require approval by ONTC, a signed licence agreement with ONTC and (in some cases) proof of insurance. If a person or business has fulfilled the requirements and has obtained a licence agreement for a grade crossing from ONTC, they are permitted to cross the track over their approved crossing – if the way is clear and safe.

Snow removal and brush clearing are subject to specific exemptions and requirements.

Procedure

Arrangements for flagging protection are to be made at least one week in advance by contacting the appropriate District Manager at one of the following numbers:

District # 1	Chad Martin	(705) 545-0725
District # 2	Dave Lallier	(705) 272-9588

Unless otherwise authorized by the Director of Rail Infrastructure, all fees, as listed below, are to be paid by the applicant. The applicant is to provide a Purchase Order number at the time the arrangements are made with the District Manager.

Billing is based on an hourly rate including travel time, rounded up to the nearest full hour – plus applicable taxes. Rates are provided below.

Service (\$ per hour)	ONTC Fiscal Year					
	2023-24		2024-25		2025-26	
	Regular	Overtime	Regular	Overtime	Regular	Overtime
Flagging - hirail included	\$146.50	\$202.00	\$150.00	\$206.7	\$153.00	\$210.85
Flagging - hirail operator only	\$111.00	\$166.50	\$113.40	\$170.10	\$115.70	\$173.55

Office of the Director of Rail Infrastructure
March 2023

FOR RAIL EMERGENCIES CALL: 1-800-558-4129 Ext. 141