



Workplace Environment Self-Assessment Checklist

Workplace Environment Self-Assessment Checklist



Workplace Safety North (WSN) is the health and safety association serving underground and surface mines, tunneling, smelters, refineries and related sectors in Ontario. We provide auditing and consulting services, training and information to help our member companies meet our shared vision of an industry where every worker comes home safe and healthy, every day.

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FOREWORD

Occupational health is a growing concern in the mining industry and WSN would like to thank the Workplace Environment Committee for initiating a review and update of the Workplace Environment Checklist.

The checklist is designed to capture a point-in-time picture of industrial hygiene programs at a worksite. It can be used by supervisors, Joint Health and Safety Committees or health and safety departments. The checklist can be used anytime, but it is recommended to revisit the checklist if a new operation sets up or significant changes occur in operations or procedures.

The document is divided into categories based on common worksite health hazards. References to legislation and work practices are provided within the checklist. If you have any questions regarding programs or legislation, feel free to contact a WSN Health and Safety Specialist for more information.

WSN's third edition of the Workplace Environment Checklist represents current revisions on the subject of workplace environment worksheets. It is a valuable reference for those who desire to improve the health and safety of their workplace. WSN would like to thank the contributions of previous members of WSN's Workplace Environment Technical Advisory Committee, and to current committee members in making this new edition possible.

1. Workplace Environment Committee members (as of December 31, 2014):

Lise Sauvé-Gingras (<i>Chair</i>)	Glencore - Sudbury Integrated Nickel Operations
Anthony Chevrier (<i>Vice-Chair</i>)	Vale - North Atlantic Base Metals Ontario Operations
Jason Chevrier	KGHM International Ltd. - Sudbury Operations,
Brian Maeck	Boart Longyear Canada - Eastern Zone
Judit Nelson	First Nickel Inc. - Lockerby Mine
Laura Mucklow	Glencore - Sudbury Smelter Operations
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Stephen Hardcastle (<i>Technical Advisor</i>)	CANMET Mining - Sudbury
Philip Dirige (<i>Coordinator</i>)	Workplace Safety North

1. PHYSICAL HAZARDS

1.1 NOISE

COMPANY	SITE/OPERATION	
1. Has a noise survey been conducted to assess the likelihood of worker exposure to high noise levels?	YES <input type="checkbox"/> NO <input type="checkbox"/>	
<i>1(a) - As a rule of thumb, a noise survey should include all work areas where it is difficult to communicate at a normal speech level within a distance of one metre.</i>	If no, see box 1(a)	
2. Were all noise levels measured in the survey below 85 dBA?	YES <input type="checkbox"/> NO <input type="checkbox"/> If yes, go to question 4.	
3. List the locations where noise levels exceeded 85 dBA.		
LOCATION	RANGE (dBA)	AVG. (dBA)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
<i>A "Noise Map" of the plant will be useful to quickly identify the areas with the highest noise levels. A more detailed survey of the areas showing high noise levels should be conducted.</i>		

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<p>4. Has any monitoring been conducted to evaluate the $L_{ex,8}$ of the workers by occupation? The term "$L_{ex,8}$" refers to the eight-hour equivalent of noise exposure experienced by the worker.</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>																																												
<p><i>4(a) - A program should be in place to assess the $L_{ex,8}$ of all job tasks. This may be accomplished either with the use of an approved noise dosimeter or by logging the individual's movements and calculating his/her exposure based on length of time spent in each area.</i></p>	<p>If no, see box 4(a) If work shift is longer than eight hours ($>L_{ex,8}$), go to question 7.</p>																																												
<p>5. Did the monitoring indicate that workers would not experience a $L_{ex,8}$ noise exposure in excess of 85 dBA?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>																																												
<p><i>5(a) - Section 293.1 (6) of Regulation 854 states that workers must not be exposed to sound levels greater than an equivalent of 85 dBA for eight-hour work shift, ($L_{ex,8}$).</i></p> <p><i>For work shift longer than 8 hours (e.g., 10 hrs, 10.5 hrs or 12 hrs), the exposure limit should be pro-rated.</i></p>	<p>If yes, stop here If no, see box 5(a)</p>																																												
<p>6. List the $L_{ex,8}$ noise exposures measured for each occupation:</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">OCCUPATION</th> <th style="width:20%;">RANGE (dBA)</th> <th style="width:20%;">AVG. (dBA)</th> <th style="width:30%;">MEASUREMENT (C/D)*</th> </tr> </thead> <tbody> <tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr> </tbody> </table> <p>- calculated D - dosimetry</p>		OCCUPATION	RANGE (dBA)	AVG. (dBA)	MEASUREMENT (C/D)*	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
OCCUPATION	RANGE (dBA)	AVG. (dBA)	MEASUREMENT (C/D)*																																										
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<p>7. Has any monitoring been conducted to evaluate the weighted exposure levels of workers for extended work shifts ($> L_{ex,8}$) (i.e. 10, 10.5, 12-hr shifts)?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>																																												
<p><i>7(a) - A program should be in place to assess the exposure levels of workers for extended work shifts of all job tasks. This may be accomplished either with the use of an approved noise dosimeter or by logging the individual's movements and calculating his/her exposure based on length of time spent in each area..</i></p>	<p>If no, see box 7(a)</p>																																												

<p>8. Did the monitoring indicate that workers would not experience higher dBA exposures than the adjusted dBA levels based on the extended work shift?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If yes, stop here</p> <p>If no, see box 8(a)</p>
<p><i>8(a) - Workers must not be exposed to sound levels greater than the equivalent adjusted dBA determined for the extended work shift. For work shifts longer than eight hours, weighted exposure levels should be adjusted based on the extended work shifts time.</i></p> <p><i>Weighted exposure levels for extended work shifts can be adjusted using the equations:</i></p> <p><i>Daily adjustment formula:</i></p> $\text{Adjusted Threshold Level Value (TLV)} = 8 - \text{hr TWA} \times \frac{8}{h}$ <p><i>Where, h is the number of hours worked per day</i></p> <p><i>Weekly adjustment formula:</i></p> $\text{Adjusted Threshold Level Value (TLV)} = 8 - \text{hr TWA} \times \frac{40}{h}$ <p><i>Where, h is the number of hours worked per week</i></p>	

9. List the extended work shift noise exposures measured for each occupation:

OCCUPATION	RANGE (dBA)	AVG. (dBA)	MEASUREMENT (C/D)*
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

*C - calculated D - dosimetry

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<p>10. Has a written hearing conservation program been prepared for this plant or operation?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>10(a) - A written hearing conservation program should be prepared and implemented. The program should address noise measurement, engineering and administrative controls, personal hearing protection and audiometry.</i></p> <p><i>Resource: Establishing a Noise Control Program in the Workplace, WSIB.</i></p>	<p>If no, see box 10(a)</p>
<p>11. Have all protective measures reasonably necessary in the circumstances to protect workers from exposure to hazardous sound levels been carried out, including the provision and use of engineering controls and work practices?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>11(a) - Section 293.1 (3) of Regulation 854 states that every employer shall take all measures reasonably necessary in the circumstances to protect workers from exposure to hazardous sound levels, and (4) states that protective measures shall include the provision and use of engineering controls, work practices and, subject to subsection (7), personal protective equipment.</i></p>	<p>If no, see box 11(a)</p>
<p>12. Is personal hearing protection made available to all employees who are at risk of exposure to $L_{ex,8}$ noise levels in excess of 85 dBA or to noise levels in excess of the adjusted TLV for extended work shifts?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>12(a) - Ensure that the rated and actual attenuation of the protective equipment is adequate for the maximum levels of noise encountered as defined by your company's policy and procedures.</i></p>	<p>If yes, see box 12(a)</p>
<p><i>12(b) - Ensure that appropriate hearing protection is made available to all employees who require it. Note: Double hearing protection should be worn when noise levels exceed 105 dBA.</i></p>	<p>If no, see box 12(b)</p>
<p>13. Are workers aware of ototoxic chemicals in the workplace, and how to take precautions when working with or near ototoxic chemicals?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>13(a) - Workers must be aware of workplace hazards. Ototoxic chemicals such as styrene, toluene, xylene, carbon monoxide, lead and manganese are known to be toxic to the organs of the ear.</i></p>	<p>If no, see box 10(a)</p>

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<p>14. Are all entrances or equipment with high noise levels (i.e. >85dBA) posted with suitable signs stating the noise level and reminding employees of the type of hearing protection (single or double) that is required?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>14(a) - A clearly visible warning sign must be posted at every approach to a high noise area. Employees should be trained in the proper use of personal protective equipment.</i></p>	<p>If no, see box 11(a)</p>
<p>15. Are employees who are exposed to noise hazards at this site/ operation included in an established audiometry program?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>15(a) - An audiometry program, including provisions for pre-employment and periodic audiometric testing and evaluation should be in place.</i></p>	<p>If no, see box 12(a)</p>

<p>Checklist completed by:</p>	
<p>NAME</p>	<p>TITLE</p>
<p>DATE</p>	
<p>References: Regulation 854 (Mines and Mining Plants), Section 293.1, as amended by Ontario Regulation 34/14, R.R.O. 1990 Health and Safety Ontario - Hearing Conservation, Workplace Safety and Prevention Services (WSPS) Ontario Occupational Health and Safety Act (OHSA) R.R.O 1980 Establishing a Noise Control Program in the Workplace, Workplace Safety and Insurance Board</p>	

1.2 IONIZING RADIATION

COMPANY		SITE/OPERATION	
1. Does the site/operation have any equipment which emits ionizing radiation? This may include units such as gamma density or level gauges, x-ray fluorescence analyzers, industrial radiography equipment (such as bin measurement devices), equipment used to check welding work, static eliminators, soil testers, etc.		YES <input type="checkbox"/> NO <input type="checkbox"/> If no, stop here.	
2. List all equipment that emits ionizing radiation:			
EQUIPMENT TYPE	USE	LOCATION	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
3. Does any of the equipment listed in (2) contain a radioisotope? <i>Note: Equipment containing a radioactive isotope of an element is federally regulated, while x-ray equipment is provincially regulated.</i>		YES <input type="checkbox"/> NO <input type="checkbox"/> If no, go to question 10	
4. Is a Radioisotope License required under the Nuclear Safety and Control Act, for the equipment listed in (2)?		YES <input type="checkbox"/> NO <input type="checkbox"/> If no, go to question 10	

5. List the Radioisotope licenses applicable to this site/operation:	
LICENCE NUMBER/RENEWAL DATE	DESCRIPTION/APPLICATION
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
6. Is a copy of each license posted in a conspicuous location?	
<i>6(a) - Required under the Nuclear Safety and Control Act.</i>	YES <input type="checkbox"/> NO <input type="checkbox"/> If no, see box 6(a)
7. Is a current inventory of all equipment containing radioisotopes (in quantities requiring licensing) available?	
<i>7(a) - Part of the records required under the Nuclear Safety and Control Act.</i>	YES <input type="checkbox"/> NO <input type="checkbox"/> If no, see box 7(a)
8. Are leak tests performed on each sealed unit, at a frequency specified in the conditions of the license(s)?	
<i>8(a) - Requirement for maintenance of license.</i>	YES <input type="checkbox"/> NO <input type="checkbox"/> If no, see box 8(a)
9. Are clearly visible and legible signs, providing the name and number of a contact person or department, located on, or near, all devices containing radioactive prescribed substances?	
<i>9(a) - Requirement for maintenance of license.</i>	YES <input type="checkbox"/> NO <input type="checkbox"/> If no, see box 9(a)
10. Are x-ray machines present or used at this site?	
	YES <input type="checkbox"/> NO <input type="checkbox"/> If no, go to question 16
11. Is the employer who has possession of the x-ray source registered with the Director of the Special Studies and Services Branch of the Ontario Ministry of Labour (MOL)?	
<i>11(a) - Regulatory requirement.</i>	YES <input type="checkbox"/> NO <input type="checkbox"/> If no, see box 11(a)

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<p>12. Is a current inventory of all x-ray sources at the site/operation available?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>12(a) - Having an inventory of all x-ray sources is required by law.</i></p>	<p>If no, see box 12(a)</p>
<p>13. Are all areas, rooms, or enclosures where x-ray equipment is used, or where radioactive isotopes are present appropriately marked with durable signs?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>13(a) - Refer to the applicable regulations.</i></p>	<p>If no, see box 13(a)</p>
<p>14. Are the risk of atomic radiation and/or x-ray workers exposure assessed based on the radiation sources in the workplace and based on the risk of exceeding the effective/equivalent dose limits set-out by the Canadian Nuclear Safety Commission (CNSC)?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>14(a) - This is a regulatory requirement, consult appropriate regulation(s).</i></p>	<p>If no, see box 14(a)</p>
<p>15. Are all atomic radiation workers and/or x-ray workers provided with suitable personal dosimeters to provide an accurate measure of the dose equivalent received by the worker?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>15(a) - This is a regulatory requirement, consult appropriate regulation(s).</i></p>	<p>If no, see box 15(a)</p>
<p>16. Is a management system in place to address the personal dosimetry (e.g. Worker notification of results, record retention, etc.)?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>16(a) - This is a regulatory requirement, consult appropriate regulation(s).</i></p>	<p>If no, see box 16(a)</p>
<p>17. Are written training programs in place for atomic radiation workers and/or x-ray workers?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>17(a) - This is a regulatory requirement, consult appropriate regulation(s). Training should be provided to all workers working near or with radiation sources.</i></p>	<p>If no, see box 17(a)</p>

Workplace Environment Self-Assessment Checklist

Checklist completed by:

NAME

TITLE

DATE

References:

FEDERAL

Nuclear Safety and Control Act (NSC Act) 2000

Canadian Nuclear Safety Commission (CNSC).

Transport Packaging of Radioactive Materials Regulations

ONTARIO

Regulations for Mines and Mining Plants, R.R.O. 1990, Reg. 854, Sections 288-293 Regulations Respecting X-Ray Safety R.R.O 1990, Regulation 861

1.3 RADON (Underground Mining Only)

COMPANY	SITE/OPERATION
<p>1. Has your worksite been tested for radon progeny by a competent person?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>1(a) - This is required by Section 289 (4) of Regulation 854 (Mines and Mining Plants).</i></p>	<p>If no, see box 1(a)</p>
<p>2. Is additional radon progeny sampling done whenever: (a) a mine is reopened; (b) within six months after the commencement of a new mine; (c) an inflow of water is established or (d) a breakthrough of active workings occurs into an abandoned, inactive or active mining area?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>2(a) - Sampling whenever a mine is opened and within six months of excavation is required by law under Section 289 (2) of Regulation 854. It is recommended to complete additional testing for breakthroughs and new inflows of water.</i></p>	<p>If no, see box 2(a)</p>
<p>3. Does the Joint Health and Safety Committee have a copy of the radon progeny test results</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>3(a) - This is required by law under Section 289 (5) of Regulation 854.</i></p>	<p>If no, see box 3(a)</p>
<p>4. Are the results of all testing posted in a conspicuous place for at least 14 days for workers to see?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>4(a) - This is required by law under Section 289(5) of Regulation 854.</i></p>	<p>If no, see box 4(a)</p>
<p>5. Are results of the testing kept on file by the company?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>5(a) - This is required by law under Section 289(6) of Regulation 854.</i></p>	<p>If no, see box 5(a)</p>

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6. From the site sampling, was the concentration of radon progeny in any area:

- less than 0.03 WL?** *If yes, go to question 13.*
- Between 0.03 - 0.06 WL?** *If yes, go to question 10*
- Between 0.061 - 0.10 WL?** *If yes, go to question 9*
- Greater than 0.10 WL?** *If yes, go to question 7*

NOTE: If a concentration of greater than 0.33 WL is recorded the mine must immediately remove all workers from the affected area (Section 291 of Regulation 854) and implement the measures and procedures required by Section 255 (1) of Regulation 854.

7. Is the workplace retested for radon progeny at least once a month?

YES NO

7(a) - This is required by Section 289(3)(a) of Regulation 854.

If no, see box 7(a)

8. Have written descriptions of work practices been developed with the JHSC (or health and safety rep) for areas with radon progeny greater than 0.10 WL?

YES NO

8(a) - This is recommended by WSN, proceed to question 10.

If no, see box 8(a)
If yes, go to question 10

9. Is the workplace sampled for radon progeny at least every three months?

YES NO

9(a) - This is required by Section 289(3)(b) of Regulation 854.

If no, see box 9(a)

10. Is corrective action taken to reduce levels (if possible) and is the area resampled after corrections are made?

YES NO

10(a) - Resampling is recommended to ensure corrective actions were effective.

If no, see box 10(a)

11. Are locations with potential worker exposure to radon gas clearly identified?

YES NO

11(a) - This is required by law.

If no, see box 11(a)

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<p>12. Is worker exposure to areas with radon gas limited?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>12(a) - Ministry of Labour (MOL) guidelines outline the radon levels that workers can be exposed to.</i></p>	<p>If yes, see box 12(a)</p>
<p>13. Does a competent person assess at least once a year whether to retest the air for radon progeny by taking into account previous test results and changes in the mine and mining operations? Is this done in consultation with the JHSC?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If yes, see box 13(a)</p>
<p><i>13(a) - This is required by Section 289(4) of Regulation 854.</i></p>	

<p>Checklist completed by:</p>	
<p>NAME</p>	<p>TITLE</p>
<p>DATE</p>	
<p>References</p>	
<p>Mines and Mining Plants, R.R.O 1990 Regulation 854, Section 287-293 Regulation 583/91,58</p>	

1.4 NON-IONIZING RADIATION

COMPANY	SITE/OPERATION
<p>1. Have all possible sources of non-ionizing radiation such as ultraviolet radiation (including exposure to sun, tanning beds, black lights, etc.), visible (white light) radiation, infrared radiation, and electromagnetic fields (EMFs) radiations (including microwave, radio waves, radar, radiation produced by electric transmission, wired and wireless electronic equipment, etc.) been identified?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 1(a).</p>
<p><i>1(a) - Required by the Occupation Health and Safety Act (OHSA).</i></p>	
<p>2. Have sources of non-ionizing radiation been evaluated by a competent person?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 2(a).</p>
<p><i>2(a) - Required by the Occupation Health and Safety Act (OHSA).</i></p>	
<p>3. Have workers been aware of the hazards of non-ionizing radiation and how to protect themselves? Are training records kept and stored by the company?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 3(a).</p>
<p><i>3(a) - Required by the Occupation Health and Safety Act (OHSA).</i></p>	
<p>4. Are workers with medical conditions that may be affected by ionizing radiation (pacemakers, metallic implants) identified and evaluated? Is their exposure monitored?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 4(a).</p>
<p><i>4(a) - Required by the Occupation Health and Safety Act (OHSA).</i></p>	

Checklist completed by:	
NAME	TITLE
DATE	
References:	
NIOSH, Non-Ionizing Radiation: Self-Inspection Checklist	

1.5 HEAT STRESS

COMPANY		SITE/OPERATION											
1. Do employees encounter high temperature, humidity, radiant heat, or areas of low air flow while performing physical work activity?		YES <input type="checkbox"/> NO <input type="checkbox"/>	If no, stop here										
2. Are workers required to work at a high metabolic rate?		YES <input type="checkbox"/> NO <input type="checkbox"/>	If no, see box 2(a)										
<i>2(a) - Examples of metabolic rate categories.</i>													
<table border="1"> <thead> <tr> <th>Categories</th> <th>Example activities</th> </tr> </thead> <tbody> <tr> <td>Light</td> <td>Sitting with moderate arm and leg movements Standing, working with arms in light lifting, turning Using small power tools Walking slowly on level surface carrying minimal weight</td> </tr> <tr> <td>Moderate</td> <td>Rapid and/or forceful arm movements Walking with moderate lifting or pushing Walking 6 km/hr on level surface carrying 3 kg load</td> </tr> <tr> <td>Heavy</td> <td>Hand sawing, Shoveling light material Heavy whole body motions Intermittent heavy lifting or working with hands above head Walking slowly up steep grades</td> </tr> <tr> <td>Very heavy</td> <td>Shoveling heavy material, near continuous heavy lifting Walking 6 km/hr up grades and/or carrying heavy load</td> </tr> </tbody> </table>		Categories	Example activities	Light	Sitting with moderate arm and leg movements Standing, working with arms in light lifting, turning Using small power tools Walking slowly on level surface carrying minimal weight	Moderate	Rapid and/or forceful arm movements Walking with moderate lifting or pushing Walking 6 km/hr on level surface carrying 3 kg load	Heavy	Hand sawing, Shoveling light material Heavy whole body motions Intermittent heavy lifting or working with hands above head Walking slowly up steep grades	Very heavy	Shoveling heavy material, near continuous heavy lifting Walking 6 km/hr up grades and/or carrying heavy load		
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Very heavy	Shoveling heavy material, near continuous heavy lifting Walking 6 km/hr up grades and/or carrying heavy load												
3. Are workers required to wear multiple layers of clothing or impermeable clothing that may restrict heat loss?		YES <input type="checkbox"/> NO <input type="checkbox"/>	If no, see box 2(a)										
<i>3(a) - Thermally insulating clothing, multiple layers of clothing and encapsulating suits severely restrict heat removal.</i>													
4. Does your site or company have a program to manage heat stress?		YES <input type="checkbox"/> NO <input type="checkbox"/>	If no, see box 2(a)										
<i>4(a) - A heat stress response plan indicates when to post heat stress alert notices, and specifies the amount of water and rest time that should be provided based on the temperature. Humidity must be taken into account to gather accurate data regarding workplace temperature.</i>													

Workplace Environment Self-Assessment Checklist

<p>5. Are workers trained in identifying signs of heat-related illness and heat stress?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 5(a and b)</p>
<p><i>5(a) - Workers should be trained to identify signs and symptoms of heat illnesses. Heat illnesses become progressively worse with more exposure. Recognizing signs and symptoms early can prevent more complicated heat illnesses such as heat stroke from developing.</i></p>	
<p><i>5(b) - The most common signs and symptoms of heat exhaustion include: Confusion, dark-colored urine (a sign of dehydration), dizziness, fainting, fatigue, headache, muscle or abdominal cramps, nausea, vomiting or diarrhea.</i></p>	
<p>6. Do you have a method to monitor heat exposure in your workplace?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 6(a)</p>
<p><i>6(a) - The Occupational Health and Safety Council of Ontario has published a Heat Stress Prevention Guideline which provides information on how to monitor heat exposure.</i></p>	
<p>7. Is a heat stress control plan (developed in consultation with the JHSC) in place to prevent workers from exposure to heat-stress-related illness?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 7(a)</p>
<p><i>7(a) - An effective heat stress control plan will prevent workers from suffering heat-stress-related illnesses.</i></p> <p><i>Resource: Heat Stress - Ministry of Labour (MOL) Health and Safety Guidelines.</i></p>	
<p>8. Does your company have a program for controlling worker exposure to heat-related illnesses such as hydration stations, self-regulation or co-worker observation to monitor for heat-related illnesses?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 8(a)</p>
<p><i>8(a) - Employees should be provided with hydration breaks in high-risk situations and trained to be able to identify signs of heat stress within themselves. A co-worker observation system assigns workers to be responsible for each other. This is especially useful for heat illnesses as signs and symptoms are often easier for people to recognize in others than in themselves.</i></p>	

Workplace Environment Self-Assessment Checklist

Checklist completed by:

NAME

TITLE

DATE

References:

Beat the Heat: A Pocketbook Guide to Heat Stress and Strain, WSN

Heat Stress Awareness Guideline, Occupational Health and Safety Council of Ontario, WSIB 2007

Heat Stress - Ministry of Labour (MOL) Health and Safety Guidelines, 2014

1.6 COLD ENVIRONMENTS

COMPANY	SITE/OPERATION
<p>1. Are workers exposed to cold environments while performing physical work activity?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, stop here</p>
<p>2. Does your site or company have a program to manage cold stress?</p> <p><i>2(a) - A cold environment challenges the worker in three ways: by air temperature, air movement (wind speed), and humidity (wetness). A program to counterbalance these challenges and ensure workers work safely should be developed, such as the use of work clothes with proper insulation (layered protective clothing), by doing physical activity and by controlling exposure to cold (work warm-up schedule).</i></p> <p><i>Resource: Cold Environments - Working in colds, Canadian Centre for Occupational Health and Safety (CCOHS).</i></p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 2(a)</p>
<p>3. Are workers trained in identifying signs and symptoms of illnesses associated with exposure to cold environments?</p> <p><i>3(a) - Workers should be trained to identify signs and symptoms of the effects of exposure to cold environments. The effects of cold stress become progressively worse with more exposure. Recognizing signs and symptoms early can prevent more complicated illnesses associated with exposure to cold environments, such as hypothermia or dangerous overcooling of the body, from developing.</i></p> <p><i>3(b) - Warning signs of hypothermia can include complaints of nausea, fatigue, dizziness, irritability or euphoria. Workers can also experience pain in their extremities (hands, feet, ears, etc.), and severe shivering.</i></p> <p><i>Resource: the Canadian Centre for Occupational Health and Safety (CCOHS) Cold Environments - Working in cold, and the Ministry of Labour (MOL) Guideline No. 33: Working In Extreme Temperature Conditions / Safety Guidelines for the Film and Television Industry in Ontario</i></p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 3(a) and (b)</p>

<p>4. Do you have a method to monitor cold temperature exposure in your workplace?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>4(a) - The Canadian Centre for Occupational Health and Safety (CCOHS) published on its website Cold Environments – Working in the Cold, which provides information on working in cold environment.</i></p> <p><i>The combined effect of cold air and wind speed is expressed as "equivalent chill temperature" (ECT) or simply "wind chill" temperature in °C or °F. It is essentially the air temperature that would feel the same on exposed human flesh as the given combination of air temperature and wind speed. It can be used as a general guideline for deciding clothing requirements and the possible health effects of cold.</i></p> <p><i>In some parts of Canada the term "wind chill factor" is used. This is a measurement of a heat loss rate caused by exposure to wind and it is expressed as the rate of energy loss per unit area of exposed skin per second (e.g., joules/[second-metre²] or watts/metre², W/m²).</i></p>	<p>If no, see box 4(a)</p>
<p>5. Is a cold stress prevention program (developed in consultation with the JHSC) in place to prevent workers from exposure to cold related illnesses?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>5(a) - An effective cold stress prevention program will prevent workers from suffering cold related illnesses.</i></p> <p><i>Resource: the Ministry of Labour (MOL) Guideline No. 33: Working In Extreme Temperature Conditions / Safety Guidelines for the Film and Television Industry in Ontario and the Canadian Centre for Occupational Health and Safety (CCOHS) Cold Environments – Working in the Cold</i></p>	<p>If no, see box 5(a)</p>
<p>6. Does your company have a program for controlling worker exposure to cold-related illnesses, such as the use of protective clothing and work/rest schedule?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>6(a) - The Ministry of Labour (MOL) published on its website Guideline No. 33: Working In Extreme Temperature Conditions / Safety Guidelines for the Film and Television Industry in Ontario items to be considered in a cold stress prevention program.</i></p> <p><i>The Canadian Centre for Occupational Health and Safety (CCOHS) published on its website a Wind Chill Chart, which was adapted from American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs[®]) and Biological Exposure Indices (BEIs[®]) that can be used as a general guideline for deciding clothing requirements and the possible health effects of cold.</i></p> <p><i>The "work warm-up schedule" developed by the Saskatchewan Department of Labour can be used for work/rest schedule for workers in cold environment.</i></p>	<p>If no, see box 6(a)</p>

Checklist completed by:

NAME

TITLE

DATE _

References:

Cold Environments – Working in the Cold, Canadian Centre for Occupational Health and Safety (CCOHS) website http://www.ccohs.ca/oshanswers/phys_agents/cold_working.html

Guideline No. 33: Working In Extreme Temperature Conditions / Safety Guidelines for the Film and Television Industry in Ontario, Ministry of Labour (MOL), 2010, website http://www.labour.gov.on.ca/english/hs/pubs/filmguide/gl_33.php

Wind Chill Chart, American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs®) and Biological Exposure Indices (BEIs®), 2013.

Work warm-up schedule, Saskatchewan Department of Labour

1.7 VIBRATION

COMPANY	SITE/OPERATION
<p>1. Are workers exposed to vibration while performing work activity?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p>1(a) - <i>Health effects associated with exposure to vibration are:</i></p> <p><i>Whole-body vibration syndrome (WBVS) - caused by the prolonged exposure of the body to vibration from the use of equipment. Whole-body vibration can cause fatigue, insomnia, stomach problems, headache and "shakiness" shortly after or during exposure; and</i></p> <p><i>Hand-arm vibration syndrome (HAVS) also known as Raynaud's phenomenon and vibration-induced white finger (VWF) - caused by the prolonged exposure of the hand and arm to vibration from hand-held equipment. It is a painful and disabling disorder of the blood vessels, nerves and joints.</i></p> <p><i>Resource: Vibration - Health Effects, Canadian Centre for Occupational Health and Safety (CCOHS).</i></p>	<p>If no, stop here</p> <p>If yes, see box 1(a)</p>
<p>2. Has the source of vibration in the workplace been identified?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p>2(a) - <i>The employer must ensure that workers are not exposed to vibration in excess of the limits specified in:</i></p> <p><i>The American Conference of Governmental Industrial Hygienists publication entitled Threshold Limit Values and Biological Exposure Indices, for hand-arm vibration; and</i></p> <p><i>The ANSI Standard S3.18-2002/ISO 2631-1-1997, Mechanical Vibration and Shock - Evaluation of Human Exposure to Whole Body Vibration - Part 1: General Requirements, whole-body vibration.</i></p>	<p>If no, see box 2(a)</p>
<p>3. Have vibration measurements been conducted to assess the likelihood of worker exposure to vibration levels above the allowable limits?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p>3(a) - <i>For hand-arm vibration (HAV) limits, refer to The American Conference of Governmental Industrial Hygienists publication entitled Threshold Limit Values and Biological Exposure Indices; and</i></p> <p><i>For whole-body vibration limits, refer to the ANSI Standard S3.18-2002/ISO 2631-1-1997, Mechanical Vibration and Shock - Evaluation of Human Exposure to Whole Body Vibration - Part 1: General Requirement.</i></p>	<p>If no, see box 3(a)</p>

4. List the equipment/tools where hand-arm vibration and whole-body vibration dominant frequency or frequency-weighted limits exceeded allowable levels (e.g. scooptram, hauler trucks, jacklegs, scissor decks, Alimak climber platform, hand-held drills, etc.).

EQUIPMENT/TOOLS	RANGE (ms ⁻² , Hz)	AVG. (ms ⁻² , Hz)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

5. Does your site or company have a program for controlling worker exposure to vibration?

YES NO

5(a) - Protecting workers from the effects of vibration usually requires a combination of appropriate tool selection, the use of appropriate vibration-absorbing materials (in gloves, for example), good work practices, and education programs.

Resource: Vibration - Measurement, Control and Standards, Canadian Centre for Occupational Health and Safety (CCOHS).

If no, see box 5(a)

<p>6. Have all methods reasonably necessary in the circumstances to protect workers from exposure to vibration in excess of the limits in the workplace been carried out, including the provision and use of engineering controls and work practices?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, go to box 6(a)</p>
<p><i>6(a) – The Vibration - Measurement, Control and Standards of the Canadian Centre for Occupational Health and Safety (CCOHS), cites the following control measures:</i></p> <p><i>Anti-Vibration Tools - Tools can be designed or mounted in ways that help reduce the vibration level;</i></p> <p><i>Anti-Vibration Gloves - Anti-vibration gloves are made using a layer of viscoelastic material. Such gloves have limited effectiveness in absorbing low-frequency vibration, the major contributor to vibration-related disorders. Therefore, they offer little protection against developing vibration-induced white finger syndrome.</i></p> <p><i>Safe Work Practices - Along with using anti-vibration tools and gloves, workers can reduce the risk of hand-arm vibration syndrome (HAVS).</i></p> <p><i>Employee Education - Training programs are an effective means of heightening the awareness of HAVS in the workplace.</i></p>	
<p>7. Has the efficiency of controls being implemented by the company for controlling workers exposure to vibration been evaluated?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If yes, see box 9(a)</p>
<p><i>7(a) - Ensure that appropriate methods for controlling workers exposure to vibration are efficient. as defined by your company's policy and procedures.</i></p>	

<p>Checklist completed by:</p> <p>NAME _____ TITLE _____</p> <p>DATE _____</p>	
<p>References:</p> <p>Vibration - Health Effects, Canadian Centre for Occupational Health and Safety (CCOHS).</p> <p>Vibration - Measurement, Control and Standards of the Canadian Centre for Occupational Health and Safety (CCOHS)</p> <p>Hand-arm vibration (HAV) limits, American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values and Biological Exposure Indices</p> <p>Whole-body vibration limits, ANSI Standard S3.18-2002/ISO 2631-1-1997, Mechanical Vibration and Shock - Evaluation of Human Exposure to Whole Body Vibration - Part 1: General Requirement.</p>	

1.8 MUSCULOSKELETAL DISORDERS (MSDs)

COMPANY	SITE/OPERATION
<p>1. The following is a list of Musculoskeletal Disorders:</p> <ul style="list-style-type: none"> • Repetitive strain injury (RSI), Musculoskeletal injury (MSI, MSK), Occupational overuse syndrome (OOS) or Cumulative trauma disorder (CTD), Work-related musculoskeletal disorder (WMSD) (e.g. carpal tunnel syndrome, tendonitis, trigger finger, epicondylitis, tenosynovitis, back pains, muscle injury, tendon injury, nerve injury, back injury, etc.) • Sprains such as a stretch or tear of a ligament (a band of fibrous tissue that connects two or more bones at a joint), and strains such as an injury to a muscle or tendon (a fibrous cord of tissue that connects a muscle to a bone). 	
<p>2. Are any of the MSD-related injuries listed in (1) experienced by employees while performing physical work activity at this site/ operation?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If yes, go to question 3 If no, go to question 11</p>
<p>3. Check the injuries applicable to (2):</p> <p><input type="checkbox"/> Repetitive strain injury (RSI), Musculoskeletal injury (MSI, MSK), Occupational overuse syndrome (OOS) or Cumulative trauma disorder (CTD) Work-related musculoskeletal disorder (WMSD) (e.g. carpal tunnel syndrome, tendonitis, trigger finger, epicondylitis, tenosynovitis, back pains, muscle injury, tendon injury, nerve injury, back injury, etc.)</p> <p><input type="checkbox"/> Sprains such a stretch or tear of a ligament (a band of fibrous tissue that connects two or more bones at a joint), and strains such as an injury to a muscle or tendon (a fibrous cord of tissue that connects a muscle to a bone).</p>	
<p>4. Is the nature of the physical work activity likely to cause an MSD injury to the worker?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, stop here</p>
<p>5. Have you had any MSD lost-time, medical or first aid claims in the last 5 years?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p>5(a) - Record the number of claims below:</p> <p>Lost-time claims _____ Medical claims _____ First Aid claims _____</p>	<p>If yes, see box 3(a)</p>
<p>5(b) - MSD statistics may be obtained onsite through your incident investigation database, or by contacting Workplace Safety North (WSN) and requesting your statistical profile.</p>	<p>If no go to box 5(b)</p>

Workplace Environment Self-Assessment Checklist

<p>6. Are workers, supervisors, and management trained on manual material handling, taking the proper body position, risk factors associated with MSDs, signs and symptoms of MSDs and how to report discomfort?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>6(a) – Providing education and awareness of MSD risk factors to the workforce is an important part of a MSD prevention program.</i></p>	<p>If no, see box 6(a) and go to question 7</p>
<p>7. What are the job tasks or occupations with the most MSD claims or worker reported discomfort?</p> <p>List the top 3 job tasks you identified.</p> <p>1) _____</p> <p>2) _____</p> <p>3) _____</p>	
<p>8. Has a written assessment been prepared to determine the exposure or likelihood of exposure of a worker to MSD-related injuries?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>8(a) - A written assessment is required for each substance. Where applicable, the assessment must be prepared in consultation with the JHSC.</i></p>	<p>If no, see box 8(a)</p>
<p>9. Has a formal risk assessment been performed on the job tasks/ occupations with MSD hazards?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>9(a) - Conducting a risk assessment will allow you to make a simple or, if required, in-depth assessment of the level of risk to workers who perform jobs with recognized MSD hazards, and identify the root causes of the hazard.</i></p>	<p>If no, see box 9(a)</p>
<p>10. Did the assessment(s) reveal that a worker may suffer MSD related injuries due to the nature of physical work activity?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, stop here</p>
<p>11. Has a formal assessment been done to ensure that workers assigned to do the work are physical capable of doing so?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>11(a) - An effective approach to MSD prevention is to “fit the task to the worker”.</i></p> <p><i>Resource: WSN’s Musculoskeletal Disorders (MSDs) Take Ten to Safety presentation.</i></p>	<p>If no, see box 11(a)</p>

Workplace Environment Self-Assessment Checklist

<p>12. Is an MSD prevention program (developed in consultation with the JHSC) in place to reduce workers' exposure to MSD hazards?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>12(a) - An effective approach to MSD prevention can help employers to: reduce cost; increase productivity; improve the quality of products and services; and stimulate innovation.</i></p> <p><i>Resource: Resource Manual for the MSD Prevention Guideline for Ontario, WSIB.</i></p>	<p>If no, see box 12(a)</p>
<p>13. Was the control(s) effective in resolving the root cause(s) of the MSD risk factor(s)?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>13(a) - What made the control(s) ineffective?</i></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>If no, complete box 12(a)</p>
<p>14. Was a follow-up risk assessment conducted of the control(s) and job task to evaluate effectiveness of the control(s) or if new MSD risk factors were introduced?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>14(a) - Performing a risk assessment after implementation of a control is a good practice to ensure the root cause was eliminated and that no new risk factors were created as a result of the control.</i></p>	<p>If no, see box 13(a)</p>
<p>15. Is there a system in the program to evaluate the entire MSD prevention process?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>15(a) - A method for evaluation of the program would highlight strengths, weaknesses and gaps in the process.</i></p>	<p>If no, see box 14(a)</p> <p>If yes, complete box 14(b)</p>
<p><i>15(b) - Explain the evaluation process below:</i></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	

Workplace Environment Self-Assessment Checklist

Checklist completed by:

NAME

TITLE

DATE _

References:

Ontario Health and Safety Council of Ontario: MSD Prevention Guideline and Resource Manual
Resource Manual for the MSD Prevention Guideline for Ontario, WSIB, Occupational Health and Safety Council of Ontario (OHSCO), MSD PREVENTION SERIES

2. BIOLOGICAL HAZARDS

2.1 BIOLOGICAL AGENTS

COMPANY	SITE/OPERATION
<p>1. Are any of the agents listed in Ontario Regulation 833 “Regulation Respecting Control of Exposure to Biological or Chemical Agents” produced, used, handled or stored, or present in a product or by-product at this site/operation?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, stop here</p>
<p>2. List the agents applicable to (1).</p> <p>a) _____ g) _____ m) _____</p> <p>b) _____ h) _____ n) _____</p> <p>c) _____ i) _____ o) _____</p> <p>d) _____ j) _____ p) _____</p> <p>e) _____ k) _____ q) _____</p> <p>f) _____ l) _____ r) _____</p>	
<p>3. Is the nature of the process(es) such that it is possible for a worker to inhale, ingest, absorb or come into contact with any of the agents listed in (2)?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, stop here</p>
<p>4. List the agents applicable to (3).</p> <p>a) _____ g) _____ m) _____</p> <p>b) _____ h) _____ n) _____</p> <p>c) _____ i) _____ o) _____</p> <p>d) _____ j) _____ p) _____</p> <p>e) _____ k) _____ q) _____</p> <p>f) _____ l) _____ r) _____</p>	

<p>5. Has air monitoring been conducted to determine the exposure or likelihood of exposure of a worker to each of the agents listed in (4), with respect to TWA, STEL and C limits?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>5(a) - A monitoring program should be in effect to determine whether a problem exists. Sampling and analysis should be conducted in accordance with recognized procedures (preferably NIOSH methods).</i></p>	<p>If no, see box 5(a)</p>
<p>6. Are any of the agents listed in (4) present in sufficient concentration to cause exposures which could affect the health of workers?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>6(a) - As a rule of thumb the likelihood of exposure exists when the measured exposure concentrations exceed half of the allowable limit (50% of the TWA), known as the "action level".</i></p>	<p>If no, stop here If yes, see box 6(a)</p>
<p>7. List the agents applicable to (6).</p> <p>a) _____ g) _____ m) _____</p> <p>b) _____ h) _____ n) _____</p> <p>c) _____ i) _____ o) _____</p> <p>d) _____ j) _____ p) _____</p> <p>e) _____ k) _____ q) _____</p> <p>f) _____ l) _____ r) _____</p>	
<p>8. Is a control program (developed in consultation with the JHSC) in place to limit worker exposure to the agent(s) listed in (7)?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>8(a) - The program must include provisions for engineering controls, monitoring, record-keeping, medical surveillance, and training. The JHSC must be consulted in the development of the program.</i></p>	<p>If no, see box 8(a) and then go to question 10</p>
<p>9. Describe the control program:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	

Workplace Environment Self-Assessment Checklist

Describe the control program (continued):	
<hr/> <hr/> <hr/> <hr/>	
10. Is personal respiratory protection with 'fit-testing' provided to exposed workers?	YES <input type="checkbox"/> NO <input type="checkbox"/>
<i>10(a) - Appropriate personal protective equipment must be provided in instances where engineering controls are not obtainable, not practical, or ineffective.</i>	If no, see box 10(a)
11. Does the personal respiratory protection provided meet the requirements for the levels of the agent(s) present in the workplace?	YES <input type="checkbox"/> NO <input type="checkbox"/>
<i>11(a) - The respiratory protection provided must be appropriate for both the type and airborne concentration of the agent(s) present.</i>	If no, see box 11(a)
12. Do employees know their level of exposure to contaminants and the significance of those levels? Are the results of the testing (with names kept confidential) posted in a conspicuous place for at least 14 days?	YES <input type="checkbox"/> NO <input type="checkbox"/>
<i>12(a) - Employees must be made aware of the hazard and their level of exposure. In cases where the exposure is significant, training in the proper use of control equipment and personal protective equipment must be provided to the employees.</i>	If no, see box 12(a)

Checklist completed by:	
NAME	TITLE
DATE	
References:	
Occupational Health and Safety Act, R.R.O. 1990	
Regulation 854 - Mines and Mining Plants, R.R.O. 1990	
Regulation Respecting Control of Exposure to Biological or Chemical Agents, O. Reg. 833	

2.2 BACTERIA, VIRUSES AND FUNGI

COMPANY	SITE/OPERATION
<p>1. Does the hazard of exposure to bacteria, viruses or fungi exist in the workplace?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, stop here</p> <p>If yes, go to question 2</p>
<p>2. List the agents applicable to (1) (e.g. moulds, west nile, e. coli, dust mites, yeast streptococcus, Lyme disease, chicken pox, measles, flu, athlete's foot, etc.).</p> <p>a) _____ g) _____ m) _____</p> <p>b) _____ h) _____ n) _____</p> <p>c) _____ i) _____ o) _____</p> <p>d) _____ j) _____ p) _____</p> <p>e) _____ k) _____ q) _____</p> <p>f) _____ l) _____ r) _____</p>	
<p>3. Are employees likely to be exposed to bacteria, viruses or fungi listed in (2) because of direct contact to the carrier or because of storage, handling, processing or use of an agent that is likely to be the source of viruses in the workplace?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, stop here</p> <p>If yes, go to question 4</p>
<p>4. Are workers aware of the hazards they are being exposed to?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>4(a) – Awareness training program should be provided to workers regarding the hazards exposure to viruses in the workplace.</i></p> <p><i>Workers and management should be aware of the chain of infection and possible routes of entry and transmission of the viruses: inhalation, ingestion, absorption through the skin</i></p>	<p>If no, see box 4(a)</p>

Workplace Environment Self-Assessment Checklist

<p>9. Is appropriate personal protective equipment (PPE) provided to exposed workers?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>9(a) - Appropriate personal protective equipment must be provided in instances where engineering controls are not obtainable, not practical, or ineffective (Section 7.2 (2) of Regulation 833).</i></p>	<p>If no, see box 10(a)</p>
<p>10. Are workers trained on how to use the personal protective equipment (PPEs) properly?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>10(a) - Training should be provided to workers on how to use personal protective equipment.</i></p>	<p>If no, see box 10(a)</p>
<p>11. Does the personal protective equipment (PPE) provided meet the requirements for the levels of the agent(s) present in the workplace?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>11(a) - The PPE provided must be appropriate for each of the agent(s) present.</i></p>	<p>If no, see box 10(a)</p>
<p>12. Are workers made aware of the level of exposure to contaminants and the significance of those levels? Are the results of the testing (with names kept confidential) posted in a conspicuous place for at least 14 days?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>12(a) - Employees must be made aware of the hazard and their level of exposure. In cases where the exposure is significant, training in the proper use of control equipment and personal protective equipment must be provided to the employees.</i></p>	<p>If no, see box 12(a)</p>

<p>Checklist completed by:</p>	
<p>NAME</p>	<p>TITLE</p>
<p>DATE</p>	
<p>References: National Institute for Occupational Safety and Health (NIOSH) Sampling Guide (NIOSH Manual of Analytical Methods (NMAM®), 4th ed. DHHS (NIOSH) Publication 94-113 (August, 1994), Cassinelli, M.E. & O'Connor, P.F., Eds.) Occupational Safety and Health Administration (OSHA) Sampling Guide (OSHA Sampling and Analytical Methods) Regulation Respecting Control of Exposure to Biological or Chemical Agents, O. Reg. 833</p>	

3. CHEMICAL HAZARDS

3.1 CHEMICAL AGENTS INCLUDING MINE GASES

COMPANY	SITE/OPERATION
1. Are any of the agents listed in Ontario Regulation 833 “Regulation Respecting Control of Exposure to Biological or Chemical Agents” produced, used, handled or stored, or present in a product or by-product at this site/operation?	YES <input type="checkbox"/> NO <input type="checkbox"/> If no, stop here
2. List the agents applicable to (1).	
a) _____ g) _____ m) _____	
b) _____ h) _____ n) _____	
c) _____ i) _____ o) _____	
d) _____ j) _____ p) _____	
e) _____ k) _____ q) _____	
f) _____ l) _____ r) _____	
3. Is the nature of the process(es) such that it is possible for a worker to inhale, ingest, absorb or come into contact with any of the agents listed in (2)?	YES <input type="checkbox"/> NO <input type="checkbox"/> If no, stop here
4. List the agents applicable to (3).	
a) _____ g) _____ m) _____	
b) _____ h) _____ n) _____	
c) _____ i) _____ o) _____	
d) _____ j) _____ p) _____	
e) _____ k) _____ q) _____	
f) _____ l) _____ r) _____	

Workplace Environment Self-Assessment Checklist

<p>5. Has air monitoring been conducted to determine the exposure or likelihood of exposure of a worker to each of the agents listed in (4), with respect to TWA, STEL and C limits?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 5(a)</p>
<p><i>5(a) - A monitoring program must be implemented to assess the likelihood of exposure and to evaluate the effectiveness of current controls in the workplace. Sampling and analysis shall be conducted in accordance with regulatory requirements, industry standards and recognized procedures (preferably NIOSH methods).</i></p>	
<p>6. Are any of the agents listed in (4) present in sufficient concentration to cause exposures which could affect the health of workers?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, stop here</p>
<p><i>6(a) - An Occupational Hygienist must be consulted for professional insight on the identification, evaluation, control and management of chemical hazards. As a rule of thumb the likelihood of exposure exists when the measured exposure concentrations exceed the "action level" set out by the company.</i></p> <p><i>An Occupational Hygienist can also ensure appropriate monitoring is conducted as well as evaluate the monitoring data to provide detailed analysis and outline the likelihood of exposure in comparison with the applicable occupational exposure limits (OEL).</i></p>	
<p>7. List the agents applicable to (6).</p> <p>a) _____ g) _____ m) _____</p> <p>b) _____ h) _____ n) _____</p> <p>c) _____ i) _____ o) _____</p> <p>d) _____ j) _____ p) _____</p> <p>e) _____ k) _____ q) _____</p> <p>f) _____ l) _____ r) _____</p>	

<p>8. Is an Occupational/Industrial Hygiene Program (developed in consultation with the JHSC) in place to limit worker exposure to the agent(s) listed in (7) following the hierarchy of controls including elimination, engineering and administration?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 8(a) and then go to question 9</p>
<p><i>8(a) - The program must be committed to the recognition, assessment and control of hazards that arise in or from the workplace that may result in illness, injury or discomfort. To help reduce the risk of hazardous exposures, improve working conditions and ensure regulatory compliance, appropriate occupational hygiene practices have been established. The program must also include provisions for providing record-keeping, medical surveillance, and training. The JHSC must be consulted in the development of the program.</i></p>	
<p><i>8(b) - Additional programs and procedures may need to be established as an administrative control if the risk of exposure cannot be reduced to an acceptable level via substitution, elimination or engineering controls. This can also be implemented to establish a standard to continuously control chemical hazards in the workplace. Describe the control program:</i></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	
<p>9. Is personal respiratory protection with ‘fit-testing’ provided to exposed workers?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>9(a) - Appropriate personal protective equipment must be provided in instances where engineering controls are not obtainable, not practical, or ineffective.</i></p>	<p>If no, see box 10(a)</p>
<p>10. Does the personal respiratory protection provided meet the requirements for the levels of the agent(s) present in the workplace?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 11(a)</p>
<p><i>10(a) - The respiratory protection provided must be appropriate for both the type and airborne concentration of the agent(s) present.</i></p>	

Workplace Environment Self-Assessment Checklist

11. Do employees know their level of exposure to contaminants and the significance of those levels? Are the results of the testing (with names kept confidential) posted in a conspicuous place for at least 14 days?	YES <input type="checkbox"/> NO <input type="checkbox"/> If no, see box 12(a)
<i>11(a) - Employees must be made aware of the hazard and their level of exposure. In cases where the exposure is significant, training in the proper use of control equipment and personal protective equipment must be provided to the employees.</i>	

<p>Checklist completed by:</p> <table><tr><td>NAME</td><td>TITLE</td></tr><tr><td>DATE</td><td></td></tr></table>	NAME	TITLE	DATE	
NAME	TITLE			
DATE				
<p>References: Occupational Health and Safety Act, R.R.O. 1990, Chapter 321 Regulation for Mines and Mining Plants, R.R.O. 1990, Reg. 854</p>				

3.2 SPECIFIC EXAMPLES FOR CHEMICAL AGENTS

3.2.1 Styrene

COMPANY	SITE/OPERATION
<p>1. Are workers exposed to styrene while performing work activity?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p>1(a) - <i>Health effects associated with exposure to styrene are:</i></p> <p><i>Acute (short-term) exposure to styrene in humans results in mucous membrane and eye irritation, and gastrointestinal effect; and</i></p> <p><i>Chronic (long-term) exposure to styrene in humans results in effects on the central nervous system (CNS), such as headache, fatigue, weakness, and depression, CSN dysfunction, hearing loss, and peripheral neuropathy. Several epidemiologic studies suggest there may be an association between styrene exposure and an increased risk of leukemia and lymphoma, increased frequency of spontaneous abortions and decreased frequency of births. EPA has not given a formal carcinogen classification to styrene. The U.S. National Toxicology Program has described styrene as "reasonably anticipated to be a human carcinogen" in June 2011.</i></p> <p><i>Resource: Styrene – United States Environmental Protection Agency (US EPA). U.S. National Toxicology Program June 10, 2011. Styrene Information and Research Center (SIRC)</i></p>	<p>If no, stop here</p> <p>If yes, see box 1(a)</p>
<p>2. Has the source of styrene in the workplace been identified?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p>2(a) - <i>The employer must ensure that workers are not exposed to styrene in excess of the limits specified in:</i></p> <p><i>The American Conference of Governmental Industrial Hygienists publication entitled Threshold Limit Values and Biological Exposure Indices; and</i></p> <p><i>The current Occupational Exposure Limits (OEL) for Ontario Workplaces Required under Regulation 833, which is TWA = 35 ppm and STEL = 100 ppm for Styrene monomer.</i></p>	<p>If yes, see box 2(a)</p> <p>If no, go to box 3</p>
<p>3. Styrene is primarily used in the production of polystyrene plastics and resins. Possible sources in underground workplaces are (check sources as it applies to your workplace):</p> <p>3(a) - <i>Resin cartridge for rebar bolt installation</i></p> <p>3(b) - <i>Pumpable resin for resin grouted cablebolts</i></p> <p>3(c) - <i>PVC pipe used for production blasthole casing</i></p> <p>3(d) - <i>Spray plastic sealant/insulation (e.g. mono foam, etc.)</i></p> <p>3(e) - <i>Other sources (specify, check MSDS of suspected sources) _____</i></p> <p>_____</p>	<p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p>

Workplace Environment Self-Assessment Checklist

<p>4. Have styrene concentration measurements been conducted to assess the likelihood of worker exposure to styrene levels above the allowable limits?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 4(a and b)</p>
<p>4(a) - Refer to the current Occupational Exposure Limits (OEL) for Ontario Workplaces Required under Regulation 833; TWA = 35 ppm and STEL = 100 ppm for Styrene monomer; and</p> <p>For the American Conference of Governmental Industrial Hygienists publication entitled Threshold Limit Values and Biological Exposure Indices, for styrene; TWA = 50 ppm (215 mg/m³) ST = 100 ppm (425 mg/m³).</p> <p>4(b) - Possible exposure routes are: inhalation, skin absorption, ingestion, skin and/or eye contact.</p>	
<p>5. Does your site or company have a program for controlling worker exposure to styrene?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 5(a)</p>
<p>5(a) - Protecting workers from the exposure to styrene requires a combination of appropriate personal protection and sanitation codes, good work practices, and education programs.</p> <p>Resource: National Institute for Occupational Safety and Health (NIOSH) Pocket Guide to Chemical Hazards - Styrene.</p>	
<p>6. Are all methods reasonably necessary in the circumstances to protect workers from exposure to styrene in excess of the limits in the workplace being carried out, including the provision and use of engineering controls and work practices?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, go to box 6(a)</p>
<p>6(a) - The Health and Safety Executive (HSE) cites the following control measures:</p> <p>During application process (pumpable resin application or resin rebar installation) - good ventilation; use of spray curtain or atomizer to minimize spread of contaminant;</p> <p>For exceptional cases or extreme conditions, supplement ventilation with respiratory protective equipment or use airline-fed equipment to ensure workers are not over-exposed.</p>	
<p>7. Has the efficiency of controls being implemented by the company for controlling workers exposure to styrene been evaluated?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If yes, see box 9(a)</p>
<p>7(a) - Ensure that appropriate methods for controlling workers exposure to styrene are efficient, as defined by your company's policy and procedures.</p>	

Workplace Environment Self-Assessment Checklist

Checklist completed by:

NAME

TITLE

DATE

References:

United States Environmental Protection Agency (US EPA) - Styrene.

U.S. National Toxicology Program June 10, 2011

Styrene Information and Research Center (SIRC)

Health and Safety Executive (HSE), August 2003, Assessing and controlling styrene levels during contact moulding of fibre-reinforced plastic (FRP) products

3.2.2 Welding Fumes

COMPANY	SITE/OPERATION
<p>1. Are workers exposed to welding fumes while performing work activity?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p>1(a) - <i>Health effects associated with exposure to welding fumes and gases are:</i></p> <p><i>Acute (short-term) effects include pulmonary edema, metal fume fever, nose irritation and ulceration; skin irritation, respiratory tract irritation, eyes and ears irritation, pneumonitis, chronic bronchitis, emphysema, pulmonary fibrosis</i></p> <p><i>Chronic effects include kidney damage and emphysema, pulmonary fibrosis, lung cancer, kidney and liver damage.</i></p> <p><i>Resource: Government of Canada Labour Program - A Guide to Health Hazards and Hazard Control Measures with Respect to Welding and Allied Processes; Information on Occupational Health and Safety</i></p> <p><i>Occupational Exposure Limits (OEL) for Ontario Workplaces Required under Regulation 833</i></p> <p><i>For the American Conference of Governmental Industrial Hygienists publication entitled Threshold Limit Values and Biological Exposure Indices, for chromium.</i></p>	<p>If no, stop here</p> <p>If yes, see box 1(a)</p>
<p>1. The following is a list of welding fumes and gases encountered during welding and metal thermal cutting operations in underground mines (for specific welding material composition/information of ingredients and trace elements, refer to the Material Safety Data Sheet (MSDS) for the welding material):</p> <ul style="list-style-type: none"> • Cadmium Oxide (CdO) • Chromium (VI) (Cr) • Copper (Cu) • Iron Oxide (FeO) • Magnesium Oxide (MgO) • Manganese (Mn) • Nickel (Ni) • Zinc Oxide (ZnO) • Flourides (F⁻) • Ozone (O₃) • Nitrogen Oxide (NO) • Carbon Monoxide (CO) 	

Workplace Environment Self-Assessment Checklist

<p>3. Are any of the substances listed in (1) produced or present at this site/ operation?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, stop here</p>												
<p>4. Check the welding fumes and gases applicable to (3):</p> <table border="0"> <tr> <td><input type="checkbox"/> Cadmium Oxide (CdO)</td> <td><input type="checkbox"/> Nickel (Ni)</td> </tr> <tr> <td><input type="checkbox"/> Chromium (VI) (Cr)</td> <td><input type="checkbox"/> Zinc Oxide (ZnO)</td> </tr> <tr> <td><input type="checkbox"/> Copper (Cu)</td> <td><input type="checkbox"/> Flourides (F⁻)</td> </tr> <tr> <td><input type="checkbox"/> Iron Oxide (FeO)</td> <td><input type="checkbox"/> Ozone (O₃)</td> </tr> <tr> <td><input type="checkbox"/> Magnesium Oxide (MgO)</td> <td><input type="checkbox"/> Nitrogen Oxide (NO)</td> </tr> <tr> <td><input type="checkbox"/> Manganese (Mn)</td> <td><input type="checkbox"/> Carbon Monoxide (CO)</td> </tr> </table>		<input type="checkbox"/> Cadmium Oxide (CdO)	<input type="checkbox"/> Nickel (Ni)	<input type="checkbox"/> Chromium (VI) (Cr)	<input type="checkbox"/> Zinc Oxide (ZnO)	<input type="checkbox"/> Copper (Cu)	<input type="checkbox"/> Flourides (F ⁻)	<input type="checkbox"/> Iron Oxide (FeO)	<input type="checkbox"/> Ozone (O ₃)	<input type="checkbox"/> Magnesium Oxide (MgO)	<input type="checkbox"/> Nitrogen Oxide (NO)	<input type="checkbox"/> Manganese (Mn)	<input type="checkbox"/> Carbon Monoxide (CO)
<input type="checkbox"/> Cadmium Oxide (CdO)	<input type="checkbox"/> Nickel (Ni)												
<input type="checkbox"/> Chromium (VI) (Cr)	<input type="checkbox"/> Zinc Oxide (ZnO)												
<input type="checkbox"/> Copper (Cu)	<input type="checkbox"/> Flourides (F ⁻)												
<input type="checkbox"/> Iron Oxide (FeO)	<input type="checkbox"/> Ozone (O ₃)												
<input type="checkbox"/> Magnesium Oxide (MgO)	<input type="checkbox"/> Nitrogen Oxide (NO)												
<input type="checkbox"/> Manganese (Mn)	<input type="checkbox"/> Carbon Monoxide (CO)												
<p>5. Is the nature of the process(es) such that a worker is likely to inhale or come into contact with any of the mine's gases?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, stop here</p>												
<p>6. Has air monitoring been conducted to determine the exposure or likelihood of exposure of a worker to each of the agents listed in (4) with respect to TWA, STEL and C limits?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 6(a)</p>												
<p><i>6(a) - A monitoring program should be in effect to determine whether a problem exists. Sampling and analysis should be conducted in accordance with recognized procedures.</i></p>													
<p>7. Are any of the agents listed in (6) present in sufficient concentration to cause exposures which could affect the health of workers?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, stop here</p>												
<p><i>7(a) - As a rule of thumb the likelihood of exposure exists when the measured exposure concentrations exceed half of the allowable limit (50% of the TWA), known as the "action level".</i></p> <p>If yes, see box 7(a)</p>													

Workplace Environment Self-Assessment Checklist

<p>8. Is a control program (developed in consultation with the JHSC) in place to limit worker exposure to the agent(s) listed in (6) following the hierarchy of controls, including elimination, engineering and administration?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 8(a) and then go to question 10</p>
<p>8(a) - The program must include provisions for engineering controls, monitoring, record-keeping, medical surveillance, and training. The JHSC must be consulted in the development of the program.</p>	
<p>9. Describe the control program:</p> <hr/> <hr/> <hr/> <hr/> <hr/>	
<p>10. Is personal respiratory protection with ‘fit-testing’ provided to exposed workers?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 10(a)</p>
<p>10(a) - Appropriate personal protective equipment must be provided in instances where engineering controls are not obtainable, not practical, or ineffective.</p>	
<p>11. Does the personal respiratory protection provided meet the requirements for the levels of the agent(s) present in the workplace?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 11(a)</p>
<p>11(a) - The respiratory protection provided must be appropriate for both the type and airborne concentration of the agent(s) present.</p>	
<p>12. Do employees know their level of exposure to contaminants and the significance of those levels? Are the results of the testing (with names kept confidential) posted in a conspicuous place for at least 14 days?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 12(a)</p>
<p>12(a) - Employees must be made aware of the hazard and their level of exposure. In cases where the exposure is significant, training in the proper use of control equipment and personal protective equipment must be provided to the employees.</p>	

Workplace Environment Self-Assessment Checklist

Checklist completed by:

NAME

TITLE

DATE

References:

Government of Canada Labour Program - A Guide to Health Hazards and Hazard Control Measures with Respect to Welding and Allied Processes; Information on Occupational Health and Safety

Occupational Exposure Limits (OEL) for Ontario Workplaces Required under Regulation 833

For the American Conference of Governmental Industrial Hygienists publication entitled Threshold Limit Values and Biological Exposure Indices for chromium

3.2.3 Chromium (VI)

COMPANY	SITE/OPERATION
<p>1. Are workers exposed to chromium (VI), or hexavalent chromium while performing work activity?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p>1(a) - Health effects associated with exposure to chromium (VI) are:</p> <p><i>Acute (short-term) exposure to chromium (VI) in humans results in irritation or damage to the nose, throat, and lung (respiratory tract), irritation or damage to the eyes and skin if chromium (VI) contacts these organs in high concentrations; and</i></p> <p><i>Chronic (long-term) exposure to airborne chromium (VI) in humans results in lung cancer.</i></p> <p><i>Resource: Occupational Safety and Health Association (OSHA) - OSHA Fact Sheet</i></p> <p><i>Centers for Disease Control and Prevention (CDC), National Institute for Occupational Safety and Health (NIOSH) - Occupational Exposure to Hexavalent Chromium</i></p> <p><i>Portland Cement Association (PCA) Research and Development Information - Hexavalent Chromium in Cement Manufacturing: Literature Review</i></p>	<p>If no, stop here</p> <p>If yes, see box 1(a)</p>
<p>2. Has the source of chromium (VI) in the workplace been identified?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p>2(a) - The employer must ensure that workers are not exposed to chromium (VI) in excess of the limits specified in:</p> <p><i>The American Conference of Governmental Industrial Hygienists publication entitled Threshold Limit Values and Biological Exposure Indices, for hand-arm vibration; and/or</i></p> <p><i>The current Occupational Exposure Limits (OEL) for Ontario Workplaces Required under Regulation 833.</i></p>	<p>If yes, see box 2(a)</p> <p>If no, go to box 3</p>
<p>2. Chromium (VI) is used as pigment in dyes, paints, inks, and plastics, in chrome plating, smelting of ferrochromium ore, and welding stainless steel or nonferrous chromium alloys, and an impurity present in Portland cement. Possible sources in underground workplaces are (check sources as it applies to your workplace):</p> <p>3(a) - Portland cement used shotcreting, concreting and backfilling</p> <p>3(b) - Paints and plastics</p> <p>3(c) - Other sources (specify, check MSDS of suspected sources) _____</p> <p>_____</p>	<p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p>

Workplace Environment Self-Assessment Checklist

<p>4. Have chromium (VI) concentration measurements been conducted to assess the likelihood of worker exposure to levels above the allowable limits?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 4(a and b)</p>
<p><i>4(a) - Refer to the current Occupational Exposure Limits (OEL) for Ontario Workplaces Required under Regulation 833; TWA = 0.5 mg/m³ for Metal and Cr III compounds; 0.05 mg/m³ Water- soluble Cr VI compounds; and 0.01 mg/m³ for Insoluble Cr VI compounds; and</i></p> <p><i>For the American Conference of Governmental Industrial Hygienists publication entitled Threshold Limit Values and Biological Exposure Indices, for chromium.</i></p>	
<p>5. Does your site or company have a program for controlling worker exposure to chromium?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 5(a)</p>
<p><i>5(a) - Protecting workers from the exposure to chromium requires a combination of appropriate personal protection and sanitation codes, good work practices, and education programs.</i></p> <p><i>Resource: Centers for Disease Control and Prevention (CDC), National Institute for Occupational Safety and Health (NIOSH) - Occupational Exposure to Hexavalent Chromium.</i></p>	
<p>6. Are all methods reasonably necessary in the circumstances to protect workers from exposure to chromium in excess of the limits in the workplace been carried out, including the provision and use of engineering controls and work practices?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, go to box 6(a)</p>
<p><i>6(a) - The Health and Safety Executive (HSE) cites the following control measures:</i></p> <p><i>During shotcreting and cementing processes - good ventilation; use of spray curtain or atomizer to minimize spread of contaminant;</i></p> <p><i>For exceptional cases or extreme conditions, supplement ventilation with respiratory protective equipment or use airline-fed equipment to ensure workers are not over-exposed.</i></p>	
<p>7. Has the efficiency of controls implemented by the company for controlling workers exposure to chromium (VI) been evaluated?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If yes, see box 7(a)</p>
<p><i>7(a) - Ensure that appropriate methods for controlling workers exposure to chromium (V) are efficient, as defined by your company's policy and procedures.</i></p>	

Workplace Environment Self-Assessment Checklist

Checklist completed by:

NAME

TITLE

DATE

References:

Occupational Safety and Health Association (OSHA) - OSHA Fact Sheet

Centers for Disease Control and Prevention (CDC), National Institute for Occupational Safety and Health (NIOSH) - Occupational Exposure to Hexavalent Chromium

Portland Cement Association (PCA) Research and Development Information - Hexavalent Chromium in Cement Manufacturing: Literature Review

Occupational Exposure Limits (OEL) for Ontario Workplaces Required under Regulation 833

For the American Conference of Governmental Industrial Hygienists publication entitled Threshold Limit Values and Biological Exposure Indices, for chromium.

3.3 DESIGNATED SUBSTANCES

COMPANY	SITE/OPERATION												
<p>3. The following is a list of the current designated substances in Ontario:</p> <ul style="list-style-type: none"> • Acrylonitrile • Ethylene Oxide • Mercury • Arsenic • Isocyanates • Silica • Asbestos • Lead • Vinyl Chloride • Benzene • Coke Oven Emissions 													
<p>2. Are any of the substances listed in (1) produced, used, handled or stored, or present in a product or by-product at this site/operation?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, stop here</p>												
<p>4. Check the substances applicable to (2):</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;"><input type="checkbox"/> Acrylonitrile</td> <td style="width: 33%;"><input type="checkbox"/> Ethylene Oxide</td> <td style="width: 33%;"><input type="checkbox"/> Mercury</td> </tr> <tr> <td><input type="checkbox"/> Arsenic</td> <td><input type="checkbox"/> Isocyanates</td> <td><input type="checkbox"/> Silica</td> </tr> <tr> <td><input type="checkbox"/> Asbestos</td> <td><input type="checkbox"/> Lead</td> <td><input type="checkbox"/> Vinyl Chloride</td> </tr> <tr> <td><input type="checkbox"/> Benzene</td> <td><input type="checkbox"/> Coke Oven Emissions</td> <td></td> </tr> </table>		<input type="checkbox"/> Acrylonitrile	<input type="checkbox"/> Ethylene Oxide	<input type="checkbox"/> Mercury	<input type="checkbox"/> Arsenic	<input type="checkbox"/> Isocyanates	<input type="checkbox"/> Silica	<input type="checkbox"/> Asbestos	<input type="checkbox"/> Lead	<input type="checkbox"/> Vinyl Chloride	<input type="checkbox"/> Benzene	<input type="checkbox"/> Coke Oven Emissions	
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<input type="checkbox"/> Arsenic	<input type="checkbox"/> Isocyanates	<input type="checkbox"/> Silica											
<input type="checkbox"/> Asbestos	<input type="checkbox"/> Lead	<input type="checkbox"/> Vinyl Chloride											
<input type="checkbox"/> Benzene	<input type="checkbox"/> Coke Oven Emissions												
<p>4. Is the nature of the process(es) such that a worker is likely to inhale, ingest, absorb or come into contact with any of the designated substances?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, stop here</p>												
<p>5. Check the substances applicable to (4):</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;"><input type="checkbox"/> Acrylonitrile</td> <td style="width: 33%;"><input type="checkbox"/> Ethylene Oxide</td> <td style="width: 33%;"><input type="checkbox"/> Mercury</td> </tr> <tr> <td><input type="checkbox"/> Arsenic</td> <td><input type="checkbox"/> Isocyanates</td> <td><input type="checkbox"/> Silica</td> </tr> <tr> <td><input type="checkbox"/> Asbestos</td> <td><input type="checkbox"/> Lead</td> <td><input type="checkbox"/> Vinyl Chloride</td> </tr> <tr> <td><input type="checkbox"/> Benzene</td> <td><input type="checkbox"/> Coke Oven Emissions</td> <td></td> </tr> </table>		<input type="checkbox"/> Acrylonitrile	<input type="checkbox"/> Ethylene Oxide	<input type="checkbox"/> Mercury	<input type="checkbox"/> Arsenic	<input type="checkbox"/> Isocyanates	<input type="checkbox"/> Silica	<input type="checkbox"/> Asbestos	<input type="checkbox"/> Lead	<input type="checkbox"/> Vinyl Chloride	<input type="checkbox"/> Benzene	<input type="checkbox"/> Coke Oven Emissions	
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<input type="checkbox"/> Benzene	<input type="checkbox"/> Coke Oven Emissions												

Workplace Environment Self-Assessment Checklist

<p>6. Has a written assessment been prepared to determine the exposure or likelihood of exposure of a worker to each of the substances listed in (5)?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>												
<p><i>6(a) - A written assessment is required for each substance. Where applicable, the assessment must be prepared in consultation with the JHSC. Refer to specific regulations.</i></p>	<p>If no, see box 6(a)</p>												
<p>7. Did the assessment(s) reveal that the health of a worker may be affected by any of the substances listed in (5)?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, stop here</p>												
<p>8. Check the substances applicable to (7).</p> <table border="0" style="width: 100%;"> <tr> <td><input type="checkbox"/> Acrylonitrile</td> <td><input type="checkbox"/> Ethylene Oxide</td> <td><input type="checkbox"/> Mercury</td> </tr> <tr> <td><input type="checkbox"/> Arsenic</td> <td><input type="checkbox"/> Isocyanates</td> <td><input type="checkbox"/> Silica</td> </tr> <tr> <td><input type="checkbox"/> Asbestos</td> <td><input type="checkbox"/> Lead</td> <td><input type="checkbox"/> Vinyl Chloride</td> </tr> <tr> <td><input type="checkbox"/> Benzene</td> <td><input type="checkbox"/> Coke Oven Emissions</td> <td></td> </tr> </table>		<input type="checkbox"/> Acrylonitrile	<input type="checkbox"/> Ethylene Oxide	<input type="checkbox"/> Mercury	<input type="checkbox"/> Arsenic	<input type="checkbox"/> Isocyanates	<input type="checkbox"/> Silica	<input type="checkbox"/> Asbestos	<input type="checkbox"/> Lead	<input type="checkbox"/> Vinyl Chloride	<input type="checkbox"/> Benzene	<input type="checkbox"/> Coke Oven Emissions	
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<input type="checkbox"/> Benzene	<input type="checkbox"/> Coke Oven Emissions												
<p>9. Has a control program been implemented?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>												
<p><i>9(a) - The control program must include provisions for engineering and other controls, monitoring, record-keeping, medical surveillance, and training.</i></p>	<p>See box 9(a)</p>												
<p>10. Briefly describe the control program:</p> <hr/> <hr/> <hr/> <hr/>													
<p>11. Has a written copy of the control program(s) been developed in consultation with and provided to the JHSC, following the hierarchy of controls including elimination, engineering controls?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 11(a)</p>												
<p><i>11(a) - The JHSC must be consulted when the program is developed. Copies must be forwarded to the JHSC and affected employees must be acquainted with the program(s).</i></p>													

Workplace Environment Self-Assessment Checklist

<p>12. Is a medical surveillance program required, as part of the control program, for any of the substances listed in (8)?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, go to Question 15</p>
<p>13. Has a suitable medical surveillance program been put into effect for each of the substances identified in (12)?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>13(a) - Refer to the specific regulation(s) for requirements of the medical surveillance program</i></p>	<p>If no, see box 13(a)</p>
<p>14. Describe the medical surveillance program(s):</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	
<p>15. Is personal respiratory protection required to be worn by exposed workers?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, stop here.</p>
<p>16. Does the personal respiratory protection provided meet the requirements for the levels of the substance(s) present in the workplace?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>16(a) - Refer to the "Code for Respiratory Equipment" contained in the specific designated substance regulation(s).</i></p>	

Workplace Environment Self-Assessment Checklist

Checklist completed by:

NAME

TITLE

DATE

References:

Occupational Health and Safety Act, R.S.O. 1990, Chapter 321

Regulation 854 - Mines and Mining Plants, R.R.O. 1990

DESIGNATED SUBSTANCES REGULATION

Ontario Regulation 490/09 - Designated Substances

3.4 DIESEL PARTICULATE MATTER (DPM) in Underground Mines

COMPANY	SITE/OPERATION																											
<p>1. List all diesel-powered equipment used in underground operation:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 33%;">EQUIPMENT TYPE</th> <th style="width: 33%;">USE</th> <th style="width: 33%;">LOCATION</th> </tr> </thead> <tbody> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> </tbody> </table> <p><i>Add table if required.</i></p>		EQUIPMENT TYPE	USE	LOCATION	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
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<p>2. Does any of the equipment listed in (1) have DPM concentration level exceeding the regulated limit of 400 µm/m³ concentration in underground environment and does the flow of air meet the requirements of Regulation 854 provided to the workplace where diesel-powered equipment is operating?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If yes, see box 2(a)</p>																											
<p><i>2(a) - Section 183 of Regulation 854 states that the DPM concentration of diesel exhaust must be (a) reduced to the time-weighted average exposure of a worker to total carbon to not more than 0.4 milligrams per cubic metre of air; or (b) reduced to the time-weighted average exposure of a worker to elemental carbon, multiplied by 1.3, to not more than 0.4 milligrams per cubic metre of air.</i></p>																												
<p>3. Is the nature of the process(es) such that a worker is likely to be exposed to DPM?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, go to question 8</p>																											
<p>4. Has air quality monitoring been conducted to determine the exposure or likelihood of exposure of a worker to DPM, with respect to TWA limits?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 4(a)</p>																											
<p><i>4(a) - A monitoring program should be in effect to determine whether a problem exists. Sampling and analysis, and record keeping should be conducted in accordance with Regulation 854 and recognized procedures.</i></p>																												

Workplace Environment Self-Assessment Checklist

<p>5. Is DPM present in sufficient concentration to cause exposures which could affect the health of workers?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>5(a) - As a rule of thumb the likelihood of exposure exists when the measured exposure concentrations exceed half of the allowable limit (50% of the TWA), known as the "action level".</i></p>	<p>If no, stop here If yes, see box 5(a)</p>
<p>6. Is a control program (developed in consultation with the JHSC) in place to limit worker exposure to DPM following the hierarchy of controls, including elimination, engineering and administration?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 6(a) and then go to question 8</p>
<p><i>6(a) - The program must include provisions for engineering controls, monitoring, record-keeping, medical surveillance, and training. The JHSC must be consulted in the development of the program.</i></p>	
<p>7. Describe the control program:</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	
<p>8. Are engineering controls such as use of DPM filters, enclosed cabins, remote control operation, increased ventilation flow, etc., provided to prevent exposure of workers to DPM?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 8(a)</p>
<p><i>8a) - Appropriate engineering controls must be provided to prevent workers' exposure to excessive DPM levels.</i></p>	
<p>9. When engineering controls are not practical, is personal protective equipment (PPE) provided to exposed workers?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 9(a)</p>
<p><i>9a) - Appropriate personal protective equipment must be provided in instances where engineering controls are not obtainable, not practical, or ineffective.</i></p>	

Workplace Environment Self-Assessment Checklist

<p>10. Does the PPE provided meet the requirements for the levels of DPM present in the workplace?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>10(a) - The respiratory protection provided must be appropriate for both the type and airborne concentration of the agent(s) present.</i></p>	<p>If no, see box 10(a)</p>
<p>11. Do employees know their level of exposure to contaminants and the significance of those levels? Are the results of the testing (with names kept confidential) posted in a conspicuous place for at least 14 days?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 11(a)</p>
<p><i>11(a) - Employees must be made aware of the hazard and their level of exposure. In cases where the exposure is significant, training in the proper use of control equipment and personal protective equipment must be provided to the employees.</i></p>	

<p>Checklist completed by:</p>	
<p>NAME</p>	<p>TITLE</p>
<p>DATE _</p>	
<p>References: Occupational Health and Safety Act, R.S.O. 1990 Regulation 854 - Mines and Mining Plants, R.R.O. 1990</p>	

4. AUXILIARY MINE VENTILATION

COMPANY	SITE/OPERATION
<p>1. Are accurate plans and records of mechanical ventilation system in the underground mine available and maintained?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>1(a) - Section 253 (2) of Regulation 854 states that accurate plans and records of a mechanical ventilation system in an underground mine shall be kept and maintained showing: (a) the location of all ventilation fans;(b) the volumes of air in cubic metres per second handled by the ventilation fans;(c) the fan operating gauge pressure;(d) the direction of flow of main ventilating airflows;(e) the location and function of all fire doors; and(f) the location and function of all ventilation doors, brattices, stoppings and regulators controlling airflows.</i></p>	<p>If no, see box 1(a)</p>
<p>2. Is the required volume of air reaching the heading face sufficient (depending on the size and number of equipment used at the face, or square area of face, if no equipment is used)?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>2(a) - Section 183.1 (3) of Regulation 854 states that the flow of air must be at least 0.06 cubic metres per second for each kilowatt of power of the diesel-powered equipment operating in the workplace. For headings not governed by diesel requirements, best practice require 0.014 to 0.028 m³/s per square metre of face area (30-60 cfm per square foot of face area) or 0.250 m/s (50 fpm) air velocity for headings (WSN's Auxiliary Mine Ventilation Manual)</i></p>	<p>If no, see box 2(a)</p>
<p>3. Are mechanical ventilation systems installations maintained to ensure that a partial pressure of oxygen of more than eighteen kilopascals is provided, and contaminants are diluted and removed from all workplaces to prevent exposure of a worker to contaminants in excess of the limits?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>3(a) - Section 253 (1) of Regulation 854 states that in an underground mine, a mechanical ventilation system shall be provided, maintained and used that will, (a) provide a partial pressure of oxygen of more than eighteen kilopascals; and (b) except as provided by a regulation made in respect of a designated substance, dilute and remove contaminants from all workplaces therein to prevent exposure of a worker to contaminants in excess of the limits, (i) prescribed under section 4 of Regulation 833 of the Revised Regulations of Ontario, 1990 (Control of Exposure to Biological or Chemical Agents), or (ii) if no limits are prescribed under the said section 4, adopted as criteria or guides under section 283 of Regulation 854.</i></p>	<p>If no, see box 3(a)</p>

<p>4. Are charts (commonly known as diesel control boards) available and posted in locations where they are clearly visible and readily accessible to the operator of diesel-powered equipment? The charts should set out, (a) the actual volume of air flowing in the underground haulageways and workings where the equipment is operating; and (b) the total ventilation requirements for the equipment when it is operating normally in a single continuous course of air.</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 4(a)</p>
<p><i>4(a) - Section 183 (1) of Regulation 854 states that the employer shall maintain a chart of procedures for the use and operation of diesel-powered equipment that sets out, (a) the actual volume of air flowing in the underground haulageways and workings where the equipment is operating; and (b) the total ventilation requirements for the equipment when it is operating normally in a single continuous course of air. (2) The employer shall post the chart in a location where it is clearly visible and readily accessible to the operator of the diesel-powered equipment.</i></p>	
<p>5. Are airflows in headings sufficient to reduce the concentration of toxic substances from diesel exhaust emissions to prevent exposure of workers to a level of no more than the concentration limits prescribed under Section 4 of Regulation 833, and the time-weighted average exposure of workers to total carbon of not more than 0.4 milligrams per cubic metre of air?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 5(a)</p>
<p><i>4(a)- Section 183.1 (4) of Regulation 854 states that the employer shall ensure that the flow of air must reduce the concentration of toxic substances in diesel exhaust emissions to prevent exposure of a worker to a level of no more than, (a) the limits prescribed under section 4 of Regulation 833 of the Revised Regulations of Ontario, 1990 (“Control of Exposure to Biological or Chemical Agents”) made under the Act; or (b) if no limits are prescribed under that section, the threshold limit values adopted as criteria or guides under section 283. (5) The flow of air must reduce the time-weighted average exposure of a worker to total carbon to not more than 0.4 milligrams per cubic metre of air.</i></p>	

<p>6.1 Are all active development, exploration or production workplaces ventilated throughout by an auxiliary ventilation system for any advance in excess of sixty metres from a mechanical ventilation system?</p> <p>6.2 Is a continuous supply of fresh air provided and used to dilute and remove contaminants in all active raises?</p> <p>6.3 Is a continuous supply of fresh air provided and used to dilute and remove contaminants in all active sub-drifts for any advance in excess of ten metres from a mechanical ventilation system?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 6(a)</p> <p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 6(a)</p> <p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 6(a)</p>
<p><i>6(a) - Section 254 (1) of Regulation 854 states that in an underground mine, (a) subject to clause (b), a development, exploration or production workplace shall be ventilated throughout by an auxiliary ventilation system for any advance in excess of sixty metres from a mechanical mine ventilation system; and (b) if Regulation 833 (Control of Exposure to Biological or Chemical Agents) made under the Act applies, a continuous supply of fresh air shall be provided and used to dilute and remove contaminants in a raise, and in a sub-drift for any advance in excess of ten metres from a mechanical mine ventilation system, to prevent exposure of a worker to contaminants in excess of, (i) the limits prescribed under section 4 of Regulation 833, or (ii) if no limits are prescribed under section 4 of Regulation 833, the limits adopted as criteria or guides under section 283 of this Regulation.</i></p>	
<p>7. Are abandoned or unventilated areas in the underground mine effectively barricaded, posted with warning signs of no entry, and examined by a competent person before any other person enters or is permitted to enter the area?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 7(a)</p>
<p><i>7(a) - Section 255 (1) of Regulation 854 states that in an underground area that is not part of an underground mine ventilation system shall, (a) be effectively barricaded to prevent inadvertent entry;(b) be posted with signs to warn a person that entry is prohibited; and(c) subject to subsection (3), be examined by a competent person before any other person enters or is permitted to enter the underground area.</i></p>	

<p>8.1 Are tests conducted at least weekly to determine the volume of air flowing in underground haulageways and workings where diesel-powered equipment is operating?</p> <p>8.2 Are carbon monoxide contents of the undiluted exhaust discharging from diesel-powered equipment to the atmosphere tested, (i) immediately after repairs are made to the engine or the exhaust system or both, and (ii) at routine intervals for maintenance as the manufacturer recommends or, if there is no such recommendation, at least once a month?</p> <p>8.3 Are the volume of air flow and the carbon monoxide, nitrogen dioxide, formaldehyde or total carbon contents of the atmosphere tested at the request of a worker?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 8(a)</p> <p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 8(a)</p> <p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 8(a)</p>
<p><i>8(a) - Section 183.2 (1) of Regulation 854 states that the employer shall ensure that tests are conducted to determine the following matters at the times indicated: 1. The volume of air flowing in underground haulageways and workings where diesel-powered equipment is operating. This must be tested at least weekly. 2. The carbon monoxide content of the undiluted exhaust discharging from diesel-powered equipment to the atmosphere. This must be tested, i. immediately after repairs are made to the engine or the exhaust system or both, and ii. at routine intervals for maintenance as the manufacturer recommends or, if there is no such recommendation, at least once a month. 3. The volume of air flow and the carbon monoxide, nitrogen dioxide, formaldehyde or total carbon contents of the atmosphere. These must be tested at the request of a worker.</i></p>	
<p>9.1 Are testing procedures in relation to tests conducted under Item 8 developed and implemented in consultation with the Joint Health and Safety Committee (JHSC) or health and safety representative?</p> <p>9.2 Are individual piece of equipment tested under consistent conditions so that results from different tests can be compared?</p> <p>9.3 Are testing carried out, as far as is practical, on equipment under full load?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 9(a)</p> <p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 9(a)</p> <p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 9(a)</p>
<p><i>9(a) - Section 183.2 (1.1) of Regulation 854 states that the employer shall ensure that the following rules are complied with in relation to tests conducted under paragraph 2 of subsection (1): 1. The employer shall develop and implement testing measures and procedures in consultation with the joint health and safety committee or health and safety representative, if any, and shall take into consideration any recommendations made by the committee or representative. 2. Each individual piece of equipment must be tested under consistent conditions so that results from different tests can be compared. 3. Testing must be carried out, as far as is practical, on equipment under full load.</i></p>	

Workplace Environment Self-Assessment Checklist

<p>10. Are results of every test conducted under Item 8 provided to the JHSC or to the workplace health and safety representative?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>10(a) - Section 183.2 (2) of Regulation 854 states that the employer shall provide the results of every test conducted under subsection (1) to the joint health and safety committee or the health and safety representative, if any, for the workplace.</i></p>	<p>If no, see box 10(a)</p>
<p>11. Are records of results of every test conducted under Items 9.1, 9.2, and 9.3 kept and maintained?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>11(a) - Section 183.2 (3) of Regulation 854 states that the employer shall record the results of every test conducted under paragraphs 2 and 3 of subsection (1) and shall maintain the record.</i></p>	<p>If no, see box 11(a)</p>
<p>12.1 Are tests indicating that a worker has been exposed to diesel exhaust emissions containing a toxic substance in excess of the allowable level investigated and the worker notified?</p> <p>12.2 Are re-tests of the emissions conducted until the results show that the concentration of the toxic substance does not exceed the allowable level?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 12(a)</p> <p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 12(a)</p>
<p><i>12(a) - Section 183.2 (3) of Regulation 854 states that if a test indicates that a worker has been exposed to diesel exhaust emissions containing a toxic substance in excess of the level set out in subsection 183.1 (4) or clause 183.1 (5) (a) and if this test result could not have been predicted in the circumstances, the employer shall, (a) investigate the cause and take remedial action, if possible, to prevent a recurrence of the situation; (b) notify the worker and the joint health and safety committee or the health and safety representative, if any, for the workplace; and (c) conduct tests of the emissions until the results show that the concentration of the toxic substance does not exceed the level set out in subsection 183.1 (4) or clause 183.1 (5).</i></p>	
<p>13. Is air recirculation performed or practiced in the mine?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If yes, see box 14</p>

<p>14. Are there provisions made for a make-up air supply system having sufficient volume to keep any contaminants below the prescribed limits?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 14(a)</p>
<p><i>14(a) - Section 286 (1) of Regulation 854 states that if Regulation 833 (Control of Exposure to Biological or Chemical Agents) made under the Act applies and a local exhaust ventilation system recirculates air to the workplace, provision shall be made for a make-up air supply system having sufficient volume to keep any contaminants below, (a) the limits prescribed under section 4 of Regulation 833 of the Revised Regulations of Ontario, 1990; or(b) if no limits are prescribed under section 4 of Regulation 833 of the Revised Regulations of Ontario, 1990, the limits adopted as criteria or guides under section 283 of this Regulation. O. Reg. 496/09, s. 5.</i></p> <p><i>Section 286 (2) of Regulation 854 states that the contaminant level in the recirculated air shall not exceed 20 per cent of the limits described in subsection (1).</i></p>	

<p>Checklist completed by:</p>	
<p>NAME</p>	<p>TITLE</p>
<p>DATE</p>	
<p>References</p> <p>Regulation 854 - Mines and Mining Plants, R.R.O 1990</p> <p>Regulation 833 - Control of Exposure to Biological or Chemical Agents</p> <p>Auxiliary Mine Ventilation Manual</p>	

5. WORKING ON SURFACE AND WILDLIFE HAZARDS

5.1 WEST NILE VIRUS (WNV)

COMPANY	SITE/OPERATION
<p>1. Are employees required to work outdoors during the spring, summer or fall?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/> If no, go to question 4</p>
<p>2. Is there a policy of encouraging employees to wear tightly-woven, long-sleeved, and lightly-coloured clothing while working outdoors?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/> If no, see box 2(a)</p>
<p><i>2(a) - Covering up is the most effective way to prevent mosquito and bug bites.</i></p>	
<p>3. Is a personal insect repellent such as DEET provided for employees working outside? Are they aware of how to properly apply DEET-based repellents?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/> If no, see box 3(a)</p>
<p><i>3(a) - It is important employees are aware of the risks of DEET repellent and how it should be applied to skin and clothing.</i></p>	
<p>4. Are employees required to work in screened-in areas?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/> If no, go to question 6</p>
<p>5. Are windows and screens checked regularly to ensure they are in good condition?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/> If no, see box 5(a)</p>
<p><i>Box 5(a) - Screens should be checked regularly to prevent mosquitoes from entering the building through small openings.</i></p>	
<p>6. Are there procedures in place to remove any stagnant water on or near the worksite? This includes old tires, plastic containers, tin cans and clogged rain gutters.</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/> If no, see box 6(a)</p>
<p><i>6(a) - A policy should be developed to remove stagnant water from the workplace. Up to 1000 mosquitoes can breed in a small bucket over seven days. Holes can be drilled into the bottom of plastic containers to prevent puddles from forming.</i></p>	

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<p>7. Is there a policy of reporting dead crows, blue jays, ravens or hawks to the local authorities for testing? Are employees trained in how to handle dead birds?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/> If no, see box 7(a)</p>
<p><i>7(a) - Testing birds for West Nile Virus (WNV) is a reliable and accurate way to alert employees and the community if WNV is present in the area. Employees must understand how to safely handle dead birds.</i></p>	
<p>8. Are employees trained in recognizing the symptoms of WNV?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/> If no, see box 8(a)</p>
<p><i>8(a) - Employees should be aware of the symptoms of WNV so, if necessary, they can seek medical assistance immediately.</i></p>	
<p>9. Is there a procedure in place for handling suspected cases of WNV?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/> If no, see box 9(a)</p>
<p><i>9(a) - Workplace Safety North (WSN) recommends having a procedure in place to handle suspected cases.</i></p>	

<p>Checklist completed by:</p>	
<p>NAME</p>	<p>TITLE</p>
<p>DATE</p>	
<p>References: Public Health Agency of Canada Health and Safety: FAQ West Nile Virus</p>	

5.2 TICK BITES AND LYME DISEASE

COMPANY	SITE/OPERATION
<p>1. Are employees required to work outdoors during the spring, summer or fall?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, go to question 4</p>
<p>2. Are employees likely to be exposed to tick bites and Lyme disease?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, stop here If yes, go to question 3</p>
<p>3. Are workers aware of the hazards they are being exposed to?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 3(a)</p>
<p><i>3(a) – Awareness training program should be provided to workers regarding the hazards exposure to tick bites and Lyme disease in the workplace.</i></p>	
<p>4. Do workers know what to look for and what to do if they show signs of Lyme disease or tick bites?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 4(a)</p>
<p><i>4(a) - Workers should be trained of the signs and symptoms of Lyme disease and tick bite</i></p> <p><i>Lyme disease can be spread by blacklegged ticks (or deer ticks) and have many symptoms ranging from flu-like symptoms in its early stages to, if left untreated, more serious symptoms affecting the central nervous system, brain or even heart.</i></p> <p><i>When bitten by ticks, a rash that looks like a “bull’s-eye” target may appear after the tick bite. Late manifestations may even occur months to years later.</i></p> <p><i>Resource: Information about ticks and Lyme disease, Ontario Ministry of Health and Long-Term Care, and Protecting Outdoor Workers from Tick Bites and Lyme Disease, Ontario Ministry of Labour (MOL).</i></p>	
<p>5. Is there a policy of encouraging employees to wear tightly-woven, long-sleeved, and lightly-coloured clothing while working outdoors?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 5(a)</p>
<p><i>5(a) - Covering up is the most effective way to prevent tick or bug bites.</i></p>	
<p>6. Is a personal insect repellent such as DEET provided for employees working outside? Are they aware of how to properly apply DEET- based repellents?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 6(a)</p>
<p><i>6(a) - It is important employees are aware of the risks of DEET repellent and how it should be applied to skin and clothing.</i></p>	

Workplace Environment Self-Assessment Checklist

<p>7. Does the personal protective clothing workers wear and personal insect repellent meet the requirements for the levels of the agent(s) present in the workplace?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/> If no, see box 7(a)</p>
<p><i>7(a) - The personnel protection provided must be appropriate for the agent(s) present.</i></p>	
<p>8. Is there a procedure in place for handling suspected cases of Lyme disease?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/> If no, see box 8(a)</p>
<p><i>8(a) - Workplace Safety North (WSN) recommends having a procedure in place to handle suspected cases.</i></p>	
<p>9. Is there a policy of reporting workers who have developed Lyme disease to the company and to the Ministry of Labour (MOL)?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/> If no, see box 9(a)</p>
<p><i>8(a) - Section 52(2) of the Occupational Health and Safety Act (OHSA) requires that when the company is made aware that a worker has developed Lyme disease, it has to be reported to MOL as an occupational illness.</i></p>	

<p>Checklist completed by:</p>	
<p>NAME</p>	<p>TITLE</p>
<p>DATE</p>	
<p>References: Information about ticks and Lyme disease, Ontario Ministry of Health and Long-Term Care. Protecting Outdoor Workers from Tick Bites and Lyme Disease, Ontario Ministry of Labour (MOL). Occupational Health and Safety Act (OHSA).</p>	

6. WHMIS 2015

COMPANY	SITE/OPERATION																											
<p>1. Has an inventory of WHMIS-controlled products been prepared/ updated for this site/operation?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>																											
<p><i>1(a) - The Occupational Health and Safety Act (Sections 37 and 38) requires that an inventory be prepared and revised annually.</i></p>	<p>If no, see box 1(a)</p>																											
<p>2. Are all products being used in the workplace reviewed prior to use?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>																											
<p><i>2(a) - This will ensure that the appropriate precautions and controls are utilized while using these products. This should include product assessments and communication to the end users.</i></p>	<p>If no, see box 2(a)</p>																											
<p>3. Are current suppliers' material safety data sheets (MSDS) or safety data sheets (SDS) readily accessible for all WHMIS-controlled products?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>																											
<p><i>3(a) - The Occupational Health and Safety Act (Section 38) requires that MSDSs be "made available by the employer in a workplace in such a manner as to allow examination by the workers". Note:MSDSs expire three years after the date of publication.</i></p>	<p>If no, see box 3a)</p>																											
<p>4. Have MSDSs or SDSs and workplace labels been prepared for all WHMIS-controlled products <u>produced</u> at this site/operation?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>																											
<p><i>4(a) - Legal requirement under Section 29 of the Occupational Health and Safety Act.</i></p>	<p>If no, see box 4(a) If not applicable, go to Question 5</p>																											
<p>5. List the substances applicable to (3):</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%; text-align: center;">SUBSTANCE</th> <th style="width: 33%; text-align: center;">DATE OF MSDS or SDS</th> <th style="width: 33%; text-align: center;">COMPLETED BY</th> </tr> </thead> <tbody> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> </tbody> </table>		SUBSTANCE	DATE OF MSDS or SDS	COMPLETED BY	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
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<p>6. Are copies of MSDSs or SDSs readily made available to the workers in the workplace?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>6(a) - Legal requirement under the Occupational Health and Safety Act. Refer to Section 38(6) regarding special requirements governing the access of MSDSs or SDSs on computer terminals.</i></p>	<p>If no, see box 6(a)</p>
<p>7. Is there a management system in place to ensure that controlled products are properly labelled and accompanied by a current MSDS or SDS when purchased?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>7(a) - A system is required for efficient management of controlled products, Section 37(3) of the Occupational Health and Safety Act.</i></p>	<p>If no, see box 7(a)</p>
<p>8. Is there a procedure in place to ensure that supplier labels and workplace labels are affixed to all containers of controlled products and that controlled products in piping systems and vessels are properly identified?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>8(a) - Legal requirement under the Occupational Health and Safety Act.</i></p>	<p>If no, see box 8(a)</p>
<p>9. Is there a program in place to train workers who are exposed to or are likely to be exposed to hazardous agents? The program must include refresher training and training records must be kept.</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>9(a) - Legal requirement under the Occupational Health and Safety Act.</i></p>	<p>If no, see box 9(a)</p>
<p>10. Was the program developed in consultation with the Joint Health and Safety Committee (JHSC) or a health and safety representative?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>10(a) - Legal requirement under the Occupational Health and Safety Act.</i></p>	<p>If no, see box 10(a)</p>
<p>11. Briefly describe the training program:</p> <hr/> <hr/> <hr/> <hr/> <hr/>	

Workplace Environment Self-Assessment Checklist

<p>12. Is there a management system in place to ensure the training program is reviewed annually, in consultation with the Joint Health and Safety Committee (JHSC)?</p>	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>
<p><i>12(a) - Legal requirement under the Occupational Health and Safety Act.</i></p>	<p>If no, see box 12(a)</p>
<p>13. Is there a management system in place regarding contractors working in the area? Specifically, this should include:</p> <ul style="list-style-type: none"> • Verification that the contractor has received training in the generic aspects of WHMIS 2015 • Specialized training regarding the risks associated with the controlled products present in the area • Procedures for contractors to bring controlled substances to the worksite, including: notification to company, labelling of substances and availability of the current MSDS or SDS 	<p>YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>If no, see box 13(a)</p>
<p><i>13(a) - WSN recommends implementing these policies and procedures.</i></p>	

<p>Checklist completed by:</p>	
<p>NAME</p> <p>DATE</p>	<p>TITLE</p>
<p>References :</p> <p>FEDERAL</p> <p>Hazardous Products Act Hazardous Product Regulation</p> <p>ONTARIO</p> <p>Occupational Health and Safety Act R.R.O. 1980, Chapter 321 Workplace Hazardous Materials Information System Regulation O. Reg. 644/88</p>	

