



Processing – Safe Work Practices in Mining Plants

January 11, 2017

Welcome to the webinar: Processing – Safe Work Practices in Mining Plants

- Thank you for joining us!
- We will be getting started at **10:00 a.m. EST**
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Housekeeping notes

- Please note the 'CHAT BOX' in the top right hand corner of your screen. At any time during the presentation, feel free to type in your questions. Alternatively, you may send an email to robertmarin@workplacesafetynorth.ca. We may answer some questions as we go, but most will be answered after the presentation.
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- This presentation will be available on workplacesafetynorth.ca after the webinar. We'll provide the link after the content of the presentation have been cleared by MOL and WSN.

Agenda

- Introduction
- Processing equipment hazards in mining plants and controls
- What Ministry of Labour Mining Health and Safety Inspectors will be looking for during the inspection blitz
- Ontario requirements pertaining to Safe Work Practices in the workplace in mining plants (Occupational Health and Safety Act, Regulation 854)
- WSN information and resources
- Q&A

Processing – Safe Work Practices – In Mining Plants

Feb 1st- Mar 31st, 2017

***Workplace Safety North
Webinar
January 11th, 2017***

Why Is The MOL Doing A Safe Work Practices Blitz

- ❑ Between 2000 to 2015, four workers died in Ontario mines as a result of incidents involving processing equipment in smelters, refineries and mills in mining plants.
- ❑ Workers can be at risk of injury, or even death, if hazards exist involving processing equipment in smelters, refineries and mills in mining plants.
- ❑ Raising awareness of key health and safety hazards related to processing at mining plants can help prevent these injuries
- ❑ Increasing workplace compliance with the law will also protect workers from injuries and illnesses that could arise from unsafe work practices

IMPORTANT: Safe Work Practices

- ❑ For information purposes, this presentation references specific sections of Regulation 854 (Mines and Mining Plants) under the Occupational Health and Safety Act (OHSA) to highlight some key focus areas of Ministry of Labour (MOL) inspectors' activities during this Blitz. It is the employer's responsibility to be aware of all relevant requirements that are set out under the OHSA and its regulations. Please see the notice on slide 26.
- ❑ MOL inspectors may also check for compliance with requirements under the OHSA and its regulations that relate to issues other than the ones outlined in this presentation including training, procedures, etc.
- ❑ Inspectors will take enforcement action, as appropriate, if they find violations of the OHSA and any of its regulations.

Blitz Focus: Safe Work Practices

- Workers are trained for the work they perform
- Environmental hazards have been addressed to protect workers
- Equipment is properly guarded
- Procedures for lock and tag are adequate for work being performed, including for the use of lock boxes
- All stored energy has been dissipated and verified for zero energy before work is started
- Workers have been trained and are using the proper and correct methods for rigging and lifting materials
- Risk assessments have been performed, and measures to control hazards identified and in place

Blitz focus:

Safe Work Practices: Regulation 854

Sections 5.1, 5.2, 5.3 Risk Assessment:

- 5.1 (1) An employer shall conduct a risk assessment of the workplace for the purpose of identifying, assessing and managing hazards, and potential hazards, that may expose a worker to injury or illness.
- (2) A risk assessment must take into consideration the nature of the workplace, the type of work, the conditions of work at that workplace and the conditions of work common at similar workplaces.

Blitz focus:

Safe Work Practices: Regulation 854

Sections 5.1, 5.2, 5.3 Risk Assessment:

- (3) The results of an assessment must be provided, in writing, to the joint health and safety committee or the health and safety representative, if any.
- (4) If no joint health and safety committee or health and safety representative is required at the workplace, the results of an assessment must be communicated to workers at the workplace and provided, in writing, to any worker at the workplace who requests them.
- (5) The requirement in subsection (1) to conduct a risk assessment is in addition to any specific assessments required by the Act or any Regulation made under it.

Blitz focus:

Safe Work Practices: Regulation 854

Sections 5.1, 5.2, 5.3 Risk Assessment:

5.2 (1) An employer shall, in consultation with the joint health and safety committee or the health and safety representative, if any, develop and maintain measures to eliminate, where practicable, or to control, where the elimination is impracticable, the hazards, and potential hazards, identified in a risk assessment conducted under subsection 5.1 (1).

Blitz focus:

Safe Work Practices: Regulation 854

Sections 5.1, 5.2, 5.3 Risk Assessment:

(2) The measures referred to in subsection (1) shall be put in writing and shall include each of the following, as applicable and reasonable in the circumstances:

1. Substitution or reduction of a material, thing or process.
2. Engineering controls.
3. Work practices.
4. Industrial hygiene practices.
5. Administrative controls.
6. Personal protective equipment.

(3) Personal protective equipment shall only be used as a measure if the measures referred to in paragraphs 1 to 5 of subsection (2) are not obtainable, are impracticable or do not eliminate or fully control hazards and potential hazards.

Blitz focus:

Safe Work Practices: Regulation 854

Sections 5.1, 5.2, 5.3 Risk Assessment cont'd:

- 5.3 (1) The risk assessment required by section 5.1 must be reviewed as often as necessary and at least annually.
- (2) When conducting the review, the employer shall ensure that,
- (a) new hazards or new potential hazards are assessed;
 - (b) existing hazards or potential hazards that have changed are re-assessed; and
 - (c) the measures required by section 5.2 continue to effectively protect the health and safety of workers.
- (3) Subsections 5.1 (3) and (4) and section 5.2 apply with necessary modifications in respect of any new hazards and potential hazards and any existing hazards or potential hazards that have changed.

Blitz focus:

Safe Work Practices: Regulation 854

Section 11:

11(1) Employers in the following types of mines and mining plants shall establish and maintain the following training programs:

3. Mill process operation,
 - i. Common Core for Basic Mill Process Operator — Mineral Ore (Program #P810050),
 - ii. Specialty Modules for Mill Process Operator — Mineral Ore (Program #P810050).

Blitz focus:

Safe Work Practices: Regulation 854

Section 11:

11.2.2(1) Employers engaged in contiguous underground mine operations and smelter operations shall establish and maintain the following training programs:

1. Common Core for Basic Smelter Operations — Mineral Ore (Program #P810080).
2. Common Core for Non-Production Workers in a Smelter Operation — Mineral Ore (Program #P810090)

Blitz focus:

Safe Work Practices: Regulation 854

Section 158 Electrical Locking and Tagging:

158(1) This section applies with respect to all work done on electrical equipment or conductors, other than work that is performed on energized equipment as permitted under subsection 159 (1).

(2) An employer shall establish a written locking and tagging program to protect the health and safety of workers

Blitz focus:

Safe Work Practices: Regulation 854

158(3) Before doing any work to which this section applies, a worker shall verify, by testing, that the following requirements have been complied with:

1. All hazardous sources of electrical supply to the electrical equipment or conductors are isolated.
2. Subject to subsection (4), all energy isolating devices are properly engaged, locked and tagged in accordance with subsection (5).
3. All hazardous stored electrical energy is discharged.

Blitz focus:

Safe Work Practices: Regulation 854

185 (7) Machine Energy Isolation:

185(7) If any work is being done on a machine,

(a) the moving parts shall be stopped;

(b) any hydraulic, pneumatic or gravity stored energy shall be dissipated or contained;

(c) energy isolating devices shall be installed if the machine is not already equipped with them; and

(d) all energy isolating devices shall be properly engaged, locked and tagged.

(8) Before doing any work to which subsection (7) applies, a worker shall verify, by testing, that the requirements of that subsection have been complied with

Blitz focus:

Safe Work Practices: Regulation 854 **Section 185: equipment guarding**

185(1) In this section,
“machine” includes a prime mover, transmission equipment and thing.

(2): A machine that has an exposed moving part that may endanger the safety of any person shall be fenced or guarded unless its position, construction or attachment provides equivalent protection.

Blitz focus:

Safe Work Practices: Regulation 854

Section 196: Conveyor Guarding

196(3) Subsections (3.1) and (3.2) apply to the following pinch points on a conveyor:

1. The head, tail, drive, deflection and tension pulleys.
2. If the lift of the belt is restricted, the return rollers and the carry rollers.

(3.1) Subject to subsection (3.2), the pinch points referred to in subsection (3) shall be guarded by a guard that, unless it would render the pinch point inaccessible, extends at least 0.9 metres from the pinch point.

Blitz focus:

Safe Work Practices: Regulation 854

Section 196: Conveyor Guarding

(3.2) If it is impracticable to comply with subsection (3.1),

(a) a fence shall be in place that prevents access to the pinch points;

(b) a barricade shall be in place that prevents access to the pinch points; or

(c) a gate equipped with an interlocking device, which has a manual reset switch, shall be in place that prevents access to the pinch points while the conveyor is operating.

(3.3) Subsections (3.1) and (3.2) do not apply if the position or construction of the conveyor provides equivalent protection that renders the pinch points inaccessible.

Blitz focus:

Safe Work Practices: Regulation 854

Environmental Hazards:

12(3) and (4):

12(3) An employer shall require a worker to wear or use such personal protective equipment, clothing and devices as are necessary to protect the worker from the particular hazard to which the worker may be exposed.

12(4) Every worker shall be properly fitted with personal protective clothing or equipment by a competent person or persons.

Blitz focus:

Safe Work Practices: Regulation 854

Environmental Hazards:

252(1) In a mining plant building, a ventilation system shall be provided, maintained and used, that will,

- (a) provide an oxygen content in the atmosphere of at least 19.5 per cent by volume to all workplaces therein; and
- (b) dilute and remove contaminants from all workplaces therein to prevent exposure of a worker to contaminants in excess of 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

Blitz focus:

Safe Work Practices: Regulation 854

Environmental Hazards:

252(2) Accurate plans and records of a mining plant building ventilation system shall be kept and maintained, showing,

- (a) the location of all ventilation openings;
- (b) the location of all ventilation fans;
- (c) the volumes of air in cubic metres per second handled by the fans and openings;
- (d) the volumes of air in cubic metres per second withdrawn by processing equipment; and
- (e) the location and functions of all ventilation regulating doors, louvres or other devices

Blitz focus:

Safe Work Practices: Regulation 854

Environmental Hazards:

252(3) Where in a mining plant the atmosphere may contain chemical or physical agents that are likely to endanger the health and safety of a worker, equipment for the detection of such agents shall be provided and such equipment shall be readily accessible.

Blitz focus:

Safe Work Practices: Regulation 854

Environmental Hazards:

266. Where dust or other material is likely to cause a hazard by becoming airborne, the dust, or other material, shall be removed with a minimum of delay by,

- (a) vacuuming;
- (b) wet sweeping;
- (c) wet shovelling; or
- (d) other suitable means

Blitz focus:

Safe Work Practices: Regulation 854

Environmental Hazards:

267(1) An annual survey of potentially hazardous minor elements shall be conducted on all feed streams to and concentrates coming from a mining plant.

(2) An assessment shall be made of the potential hazard from the elements detected in the survey required by subsection (1) due to the processes used in the mining plant.

(3) Workplaces in the mining plant shall be monitored for the hazardous elements and compounds revealed by the assessment required by subsection (2).

(4) The results of the survey, the assessment and description and results of the monitoring program shall be reported annually to the joint health and safety committee or health and safety representative, if any.

Blitz focus:

Safe Work Practices: Regulation 854

Environmental Hazards:

279. Where the clothing of a worker is likely to be contaminated by a biological or chemical agent that may be a hazard to health suitable facilities shall be provided for,

- (a) laundering work clothing; and
- (b) keeping work clothes separate from street clothes.

Blitz focus:

Safe Work Practices: Regulation 854

Environmental Hazards:

282(2) At every mining plant where poisonous or dangerous compounds, solutions or gases are present, there shall be kept or installed in a conspicuous place, as near the compounds, solutions or gases as is practical,

- (a) antidotes and washes;
- (b) eye wash fountains; and
- (c) where necessary, showers for treating injuries received from such compounds, solutions or gases.

(3) Antidotes and washes required under subsection (2) shall be properly labelled and explicit directions for their use shall be affixed to the boxes containing them.

Blitz focus:

Safe Work Practices: Regulation 854

Safe rigging practices:

184.1. A temporary attachment used to connect a lifting device to its load or to anchor it,

- (a) shall be appropriate for the use;
- (b) shall be designed and installed in accordance with safety factors recognized by good engineering practice; and
- (c) shall be used in a manner that minimizes shock loading.

192. (1) A lifting device shall be,

- (a) designed to safety factors recognized by good engineering practice;
- (b) installed in accordance with such design criteria;
- (c) provided with overwind protection if power operated; and
- (d) provided with an identification plate.

Blitz focus:

Safe Work Practices: OHSA and Other Regulations

Worker training:

OHSA 25(2)(a) An employer shall provide information, instruction and supervision to a worker to protect the health or safety of the worker.

In addition to modular training programs and other training required under Regulation 854, other regulations set out additional training requirements. These include worker and supervisor awareness training as per O. Reg. 297/13 and WHMIS training required under Reg. 860.

Blitz focus:

Safe Work Practices Blitz: Additional Duties for Employers, Supervisors and Workers

- Sections 25, 26, 27 and 28 of the OHSA set out the general duties of all employers, supervisors, and workers.

Disclaimer

LEGAL DISCLAIMER: *This document has been prepared to assist workplace parties in understanding some of their obligations under the [Occupational Health and Safety Act](#) (OHSA) and the regulations. It is not intended to replace the OHSA or the regulations and reference should always be made to the official version of the legislation.*

It is the responsibility of the workplace parties to ensure compliance with the legislation. This document does not constitute legal advice. If you require assistance with respect to the interpretation of the legislation and its potential application in specific circumstances, please contact your legal counsel.

Ministry of Labour inspectors will apply and enforce the OHSA and its regulations based on the facts as they may find them in the workplace. This document does not affect their enforcement discretion in any way.

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MOL Blitz between Feb 1-March 31

The Purpose of the Blitz

- Raise awareness of key health and safety hazards related to processing equipment in smelters, refineries and mills in mining plants.
- Raise awareness of having programs for the protection of workers including training, guarding, lock out, environmental hazards and rigging in mining plants.
- Promote awareness and compliance of mines and mining plants to regulatory requirements.
- Ensure the workplace parties are complying with the OHSA and its regulations

Risk Assessments in Mining Plants

- Assessment of feed streams
- Assessment of emergency response
- Assessments of hazardous substances
- Assessment of operating equipment
- Assessments of safe work practices
- Assessments of major maintenance and repairs , ball and sag mills

Risk Assessment Course

Think Safe: Operational Level Risk Assessment in Mining

Duration: 2 days

Intended Audience: This course is intended for supervisors from all mining sectors, JHSC members, health and safety personnel, and technical personnel.

Upcoming Risk Assessment Courses

- January 24-25 in Sudbury
<https://www.workplacesafetynorth.ca/training/course/think-safe-operational-level-risk-assessment-mining?sID=2226>
- February 1-2 in Timmins
<https://www.workplacesafetynorth.ca/training/course/think-safe-operational-level-risk-assessment-mining?sID=2228>

Safe Work Practices; Regulation 854

Section 158 Electrical locking and Tagging

Section 185(7) Machine Isolation

WSN Training Programs

- Lockout (online) Duration: 1 hour
- Lockout Programs: (Mining)Duration: 1 day
- JHSC Section 8: Lockout Duration : 2 hours

Conveyor Assessment Services Section 196: Conveyor Guarding

Workplace Safety North's (WSN) consultants conduct site visits to evaluate a company's conveyor system and help verify compliance and hazard control. WSN's Conveyor Assessment is a point-in-time assessment based on compliance requirements and best practices from:

- The Occupational Health and Safety Act
- Regulation 854, Mines and Mining Plants
- Regulation 851, Industrial Establishments
- CSA Standard Z432-04: Safe Guarding of Machinery

Conveyor Assessment Services

- WSN’s Conveyor Assessment is a point-in-time assessment based on compliance requirements and best practices.

Sample Final Report		
Main Conveyor	Storage Area D	May 1, 2015
A= Guarding	Company Guide: (Name)	
Deficiency Tracking #	Deficiency	Reference Photo
A-3	<p>The accessible return rollers should have proper guards in place that safeguard against the possibility of being caught in moving parts</p> <p><i>Regulation 854, Section 185(2), Section 196 (2)(d), (3)(i)</i></p> <p><i>Accessibility is a general term used to describe the degree of ease with which it is possible to reach a certain location from other locations.</i></p>	

Information and Resources: Safe Work Practices; Regulation 854 - Environmental Hazards

- Mining Workplace Environment Checklist
- General Safety Industrial Hygiene
- Mine Ventilation
- Industrial hygiene checklist specific to mining worksites
- Workplace Safety North videos:
 - Respirable Hazards Mining (6:56) ***NEW***
 - Risk Assessment No Time Like Now (16:10)
 - No Sign of Life (15:31)
 - Lock out Control of Energy Hazards (17:41)

Safe Work Practices; Regulation 854 - Environmental Hazards

Industrial Hygiene Testing: Gravimetric (Dust) Sampling/Noise Sampling:

- Gravimetric sampling is the assessment of the amount of a substance within the air at your workplace.
- A detailed report accompanies all sampling reports. Analytical fees and related costs are passed on to our clients.
- Please contact us for more information:

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Questions?

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