

Occupational Health and Safety Branch

Mining Sector Plan

2009-2010

Safe At Work Ontario
Enforcement > Compliance > Partnership >

Ministry of Labour

Contents

Introduction 2

The mining sector 3

 Health and safety characteristics of the mining sector..... 3

 Health and safety hazards inherent in mining work 3

 Ministry of Labour’s compliance focus in mining for 2009-2010 4

Partnerships: a key success factor 4

Compliance: intervention based on need 4

The Internal Responsibility System – fostering a culture of safety 4

 Enforcement: focused enforcement to maximize impact 5

Injury rates and chronic violators..... 5

The underground economy..... 5

Mining sector blitzes 5

 Sub-sector description and health and safety characteristics 6

 Major hazards and inspection focus 6

Summary and highlights 8

Introduction

Introduced in the Spring of 2008, *Safe At Work Ontario* (SAWO) is the Ministry of Labour's occupational health and safety compliance strategy. *Safe At Work Ontario* seeks to improve the health and safety culture of workplaces leading to a reduction of injuries and avoidance of associated costs for employers, the Workplace Safety and Insurance Board (WSIB) and health care system. Through proactive enforcement, *Safe At Work Ontario* strives to provide a level playing field for compliant employers.

Safe At Work Ontario encourages stakeholder involvement in the planning process, introduces broader selection criteria to identify workplaces for proactive inspections and involves integrated planning with system partners. The focus of *Safe At Work Ontario* is to facilitate proactive enforcement of the Occupational Health and Safety Act (OHSA) on the top hazards in each sector and promote compliance and the development of a strong health and safety culture in the workplace.

Safe At Work Ontario has turned MOL's enforcement direction around, moving it from a traditional reactive, enforcement-based program to a modern, proactive, flexible, compliance-based program. It is innovative, transparent and inclusive of stakeholder concerns, while continuing to protect the public interest.

Safe At Work Ontario expands the factors that the MOL uses to identify a firm for a proactive inspection beyond the firm's injury history. Additional factors include regional information, compliance history and/or hazards inherent in the work or work processes. It includes hazard-based inspections, and actively engages health and safety system partners (such as the WSIB and health and safety associations) in building a safety culture in workplaces across the province. Under *Safe At Work Ontario*, the ministry aims to be into workplaces before injuries occur.

The level of engagement with the workplace depends on factors such as the employer's commitment to a strong health and safety culture and a well defined, suitable and sustainable Internal Responsibility System (IRS). Other factors affecting the level of engagement include the number of lost-time injuries (LTIs) and no lost-time injuries (NLTIs), nature and extent of any past non-compliance identified, and corrective actions required of the employer to achieve compliance.

The *Safe At Work Ontario* strategy is administered through five specialized sector programs: construction, industrial, mining, health care, and specialized and professional services. Sector plans are developed on an annual basis for each program area. These documents outline the enforcement focus for each year and identify planned blitzes. They are posted on the ministry's web site to encourage voluntary compliance. The sector plans also provide basic information about each sector and a brief overview of health and safety hazards and non-compliance concerns.

The following is the mining sector plan for 2009-2010. Other sector plans can be found at www.labour.gov.on.ca.

The mining sector

The mining sector in Ontario is varied in terms of location, setting and activity. It is characterized by both large and small firms and includes unionized and non-unionized workplaces.

Approximately 22,000 employees work in the mining sector, which includes mining, aggregate and oil and gas operations. The number of registered premises is in the order of 8,113.

The mining sector consists of the following sub-sectors:

- Underground mines – may involve access via ramp or shaft, and can include a variety of bulk or narrow vein mining methods;
- Open pit mines and quarries – involving large scale drilling, blasting and trucking;
- Sand and gravel operations – where material is removed without blasting;
- Mineral exploration sites – including bulk sampling, diamond drilling;
- Mining Plants – including mills, blast furnaces, smelters, refineries;
- Oil and gas extraction sites and facilities, both on land and on water;
- Asphalt plants that operate in conjunction with mine sites.

Health and safety characteristics of the mining sector

The mining sector is health and safety conscious and makes substantial efforts to deal with the hazards present in its work processes. Hazards tend to be more common in the underground mine sub-sector. The sub-sector's lost time injury rates range from 0.6 per 200,000 hours for mining and mine contractors to 1.6 for aggregate operations for 2008. The overall rate for the sector was 1.2. While the LTI rate is below the provincial average (1.7 per 100 workers), the hazards that are encountered in mining can be substantial, especially in the Underground operations, and injuries that occur can be significant or fatal.

Both the underground and surface sectors have advanced safety activities. These include a variety of safety association meetings, frequently assisted by the Mines and Aggregates Health and Safety Association. Meetings are held quarterly across the province, and consist of the Northern Safety Group (for Diamond Drillers), the Ontario Mine Contractor's Safety Association (for underground contractors), the Safety and Loss group (which is mainly attended by the larger mining companies), and the Porcupine Safety Group (a coalition of underground and surface mining representatives from the Timmins and Kirkland Lake area). The Ontario Mining Association, the Ontario Stone Sand & Gravel Association and the Canadian Diamond Drilling Association strongly encourage safety improvements within the sector.

Health and safety hazards inherent in mining work

The major causes of serious injury continue to be falls of person, vehicle worker contact and falls of ground.

Other hazards in mining include noise, entanglement and engulfment. Major causes of occupational illness include inhalation of dusts and other substances resulting in cancers and other respiratory illnesses.

These causes of injury have been fairly consistent over the last five to ten years. A noticeable decrease in injuries has been noted, however, in the last six months as indicated by critical injuries which are 38% of those last year at this time (as of June 30, 2009). This is likely the result of a decrease in surface and underground mining activity, and extensive layoffs in the underground base metals mining sector. In the last few years, the rate of critical injuries had not been declining but appeared to have reached a plateau.

Ministry of Labour's compliance focus in mining for 2009-2010

Partnerships: a key success factor

The Ministry of Labour is one of several partners in the health and safety system in Ontario focused on preventing and reducing injuries and illnesses. The Mining Health and Safety Program (MHSP), within the Ministry of Labour, works collaboratively with a number of other partners both within and outside the ministry to improve health and safety on Ontario mining and related sites.

The Mining Health and Safety Program meets regularly with representatives from the Health and Safety Association and WSIB as part of a Sector Inter-agency Group (SIG). This group provides a forum to share concerns and develop and coordinate solutions to issues as they arise in the field.

A key partnership is that between MOL and various sector representatives from both employer and employee groups. These health and safety association meetings provide opportunities for candid discussion of health and safety concerns by all parties.

One of the most prominent partnerships is the Mining Legislative Review Committee (a committee established under section 21 of the Occupational Health and Safety Act). Meeting regularly, the committee allows dialogue on safety concerns between industry management and labour and issues joint recommendations to the Minister for improvements. Initiatives recommended and endorsed by this group include: tightening of underground diesel emissions limits, simplification of basic common core training requirements, and clarification of adequate barricade design for open holes underground.

Compliance: intervention based on need

Some businesses require targeted and focused enforcement intervention up to and including prosecution to deter non-compliance. While these firms are not the majority of businesses in Ontario, the ministry will continue to pay particular attention to them.

Mining inspectors refer workplaces to the [Mines and Aggregates Safety and Health Association](#) (MASHA) for assistance. MASHA can provide a wide selection of materials for education and training as well as provide on-site training when desired.

The Internal Responsibility System – fostering a culture of safety

The Ministry of Labour has a primary responsibility to ensure that workplaces comply with Ontario's [Occupational Health and Safety Act](#) (OHSA) and related legislation. This means ensuring that a strong Internal Responsibility System (IRS) is in place. A strong IRS implies, in part, a well-functioning Joint Health and Safety Committee (JHSC), where required, that fosters a strong, sustainable culture of workplace health and safety.

A strong health and safety workplace culture consists of:

- **Competence** (appropriate knowledge and training, systems for responding to events, properly functioning JHSC and other IRS components),
- **Commitment** (demonstration by the employer of leadership on safety, appropriate policies and procedures to protect workers, low tolerance for poor health and safety practices, insistence upon full compliance), and
- **Capacity** (adequate resources for preventing injuries, a good system for obtaining assistance from HSAs and the WSIB).

A strong IRS produces a strong culture of health and safety. Strong leadership by senior executives and other managers sets the tone and establishes a corporate culture that nurtures the IRS. A health and safety culture requires all workers to pay constant, appropriate attention to workplace health and safety.

A sustainable workplace health and safety culture needs a strong commitment by everyone to prevent injuries and illness and to reduce risk.

The functioning of the Internal Responsibility System in mining establishments is a key focus of mining inspections this year.

Enforcement: focused enforcement to maximize impact

Injury rates and chronic violators

Workplaces that have higher than average lost time injury (LTI) rates, chronic violators or serious repeat violators are the focus of inspections in the mining sector this year, as well as the special enforcement activity noted below. Currently, the MOL mining health and safety program is targeting 132 mining workplaces for inspection.

The underground economy

The mining sector is a generally well-known community. This reduces the likelihood of mining operators working in the “underground economy” (working outside the regulatory framework).

Mining inspectors will pay particular attention to any information about mines in the “underground economy” (working outside the regulatory framework), as well as out-of-province operators who may not be familiar with Ontario law.

Mining sector blitzes

Blitzes afford a stronger, focussed enforcement and awareness opportunity on key hazards and prevention approaches. Blitzes allow inspectors to focus on very specific health and safety issues unique to the sector, while also promoting general compliance. They also raise awareness at the workplace level to encourage year-long compliance.

This year’s blitz on Musculoskeletal Disorders (MSD) hazards in the mining industry paid close attention to the handling of drills and drill rods, also Hand Arm Vibration Syndrome that could result from the use of hand-held drills. Items that came under inspector scrutiny commonly included MSD hazard

awareness training, proper lifting technique training, ergonomic design of drill rod storage, and suitable work floor conditions for moving or handling equipment.

A blitz focussed on electrical hazards began in September 2009. This mining blitz will address items such as working live, lockout procedures and proper protection. The data continue to confirm that individuals responsible for the installation or maintenance of electrical equipment often do not turn the power source off before working on equipment. Working on electrical equipment live (energized) is a major safety hazard. If an inspector observes electrical work being done without disconnecting and locking out and it is determined by the inspector that it was practical to do so, enforcement action will be initiated.

Sub-sector description and health and safety characteristics

1. Underground mines – These include a variety of ramp or shaft (with cage) access mines with a variety of mining methods. In 2008, the average LTI was an exemplary 1.5. Unfortunately, the severity of injuries can be great and this is reflected in the large proportion of mining sector fatalities, which average more than one annually (1.4 based on a five-year average). Critical injuries stemming from this sub-sector average 16.6 annually. In the last five years, the MOL conducted 45 inspections and issued 840 orders.
2. Surface mines – Principally these are open pits and quarries, usually but not only producing aggregate materials. In 2008, the LTI rate was 1.9 and the average annual fatality rate is 0.6. Critical injuries stemming from this sub-sector average 6.6 annually. In the past five years, MOL conducted 634 inspections and issued 701 orders.

Orders related to guarding of equipment and the safety of motorized vehicles are the most frequently written orders under the [Mining Regulation](#) (Regulation 854).

3. Other – Data on critical injuries and other health and safety issues are not readily available for other related mining activities such as mills, smelters, mineral exploration and surface extraction for oil and gas.

Major hazards and inspection focus

Ministry of Labour inspectors enforce the OHSA and its regulations at workplaces and construction sites across the province. As part of the *Safe At Work Ontario* strategy they will give special focus to certain specific sector and workplace hazards; however, they will continue to ensure overall compliance with the Act and its regulations. Inspectors are not limited to the issues identified in this document as major hazards or key health and safety issues, and will take appropriate enforcement action based on the facts at each individual workplace inspected.

Major hazards and key health and safety issues	MOL Mining Health and Safety Program inspection focus
Falls of persons	• Are ladder and travelways in safe condition; how about on large vehicles that may need to allow worker access for maintenance and repair? • Is fall arrest equipment being used as required, e.g., around open holes?

Major hazards and key health and safety issues	MOL Mining Health and Safety Program inspection focus
	• Are procedures for rescue in place where workers are using fall arrest? • Are barricades for open holes adequate and properly signed for the hazard?
Vehicle worker contact	• Important related procedures include pre-operational checks, daily vehicle brake tests, installation and use of remote stands, use of remote harnesses for scoop operations, etc. • An over-arching requirement is the presence and practice of a clear means of communication between vehicle operators and pedestrians.
Falls of ground	• If loose ground is observed in a heading underground, or in a quarry that poses a potential hazard to workers, it should be removed by mine personnel promptly. • Workers need to know proper procedures to deal with seismicity in headings. • Ground support must be adequate where workers are exposed to hazards from loose ground.
Occupational disease	• Does the site's use of controlled products adhere to WHMIS? What WHMIS- controlled products are used in the workplace? • Does the personal protective equipment program include respiratory protection essentials such as fit-testing, routine checks, cleaning, and mask selection?
Shaft sinking	• Workers must have training and know procedures for their activities.
Shaft inspections	• Are repair workers trained? • Are shaft problems logged? • Are shafts and manways inspected & maintained?
Hoisting	• Proper inspections, adequate repair.
Blasting practices	• Any stray current potential from hanging blasting cables on metal bolts or screen? • Do workers know and practice proper loading, clearing and guarding procedures? • Do workers know the proper safe procedure to find the problem in shorted lines?

Summary and highlights

MOL inspection staff will continue to visit proactively and review health and safety practices in mining operations, especially involving the more known hazards: hoist plants, shaft inspection, shaft sinking, explosives use and storage, and electrical practices. They will also continue to assess and promote, along with system partners, the development of a strong and sustainable health and safety culture (IRS) in the mining sector.

For more information on mining health and safety visit the MOL website at www.labour.gov.on.ca and the Mines and Aggregates Safety and Health Association at www.masha.on.ca.