

PRE-START HEALTH AND SAFETY REVIEW: REGULATION AND PRACTICE IN ONTARIO

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Overview

- Background
- The Regulation
- Due Diligence for Engineers who Conduct Pre-Start Health and Safety Reviews
- The Link Between the PSR and PSLM

Evolution of PSR (Section 7)

Pre-1997

- Required plans regarding changes to and within the premises to be submitted to MOL for approval
- Resulted in long delays
- Questions were raised by private interests

1997-2000

- Process was privatized
- Owners/lessees of certain hazardous processes had to obtain a report called a Pre-Development Review (PDR) from a P.Eng.
- Report basically stated the equipment complied with requirements of the OHSA
- Provisions were found to be too vague, too difficult to enforce
- Partners went back to the drawing board

Background

- In October 2000, the Province of Ontario brought in a new regulation under the Occupational Health and Safety Act that requires owners, lessees, or employers to obtain a Pre-Start Health and Safety Review (PSR) by a Professional Engineer before performing work with a new or modified device, process or structure

PSR is required for selected sections of existing regulations

- Flammable liquids
- Safeguarding devices that signal the apparatus to stop; mechanical or electrical interlocks
- Racks and stacking structures
- Process involving risk of ignition
- Dust collectors involving risk of ignition
- Molten metals
- Lifting device, traveling crane, automobile hoist
- Substance that may result in the overexposure of a worker

22(1) Describes containers

(2) Describes facility

(3) *235 l in 23 l containers*

(4) Describes mechanical/electrical requirements of area

1

Flammable liquids are located or dispensed in a building, room or area.

Reg. S 22(1), (2) & (4)

2

Any of the following are used as protective elements in connection with an apparatus:

- Safeguarding device that signals apparatus to stop including but not limited to safety light curtains and screens, area scanning safeguarding systems, radio frequency systems and capacitance safeguarding systems, safety mat systems, two-hand control systems. Two-hand tripping systems and single or multiple beam systems.
- ii) Barrier guards that use interlocking mechanical or electrical safeguarding devices.

Reg. S 24, 25, 26, 28, 31, 32

- 24. Access
- 25. Nip
- 26. Waste stock
- 27. *E Stop*
- 28. Operating Control
- 29. *Grinding wheel*
- 30. *Grinding wheel work rest*
- 31. Interlocking device for centrifuge
- 32. Locking device for mill/dryer
- 33. *Warning devices for conveyors*

Safeguarding – safety measures consisting of the use of specific technical means called safeguards (guards, safety devices), to protect persons from hazards which cannot reasonably be removed or sufficiently limited by design. ISO 12100-1 / EN292-1

45. Material, articles or things,

- (a) required to be lifted, carried or moved, shall be lifted, carried or moved in such a way and with such precautions and safeguards, including protective clothing, guards or other precautions as will ensure that the lifting, carrying or moving of the material, articles or things does not endanger the safety of any worker;*
- (b) shall be transported, placed or stored so that the material, articles or things,**
 - (i) will not tip, collapse or fall, and**
 - (ii) can be removed or withdrawn without endangering the safety of any worker; and**
- (c) to be removed from a storage area, pile or rack, shall be removed in a manner that will not endanger the safety of any worker.*

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**Material articles or things
are placed or stored on
structure that is a rack or
stacking structure**

Reg. S 45(b)

63. A process that is likely to produce a gas, vapour, dust or fume, to such an extent as to be capable of forming an explosive mixture with air shall be carried out in an area which has provision for safe disposal by burning under controlled conditions or in an area which,

- (a) is isolated from other operations;
- (b) has a system of ventilation adequate to ensure that the gas, vapour, dust or fume does not reach a hazardous concentration;
- (c) has no potential sources of ignition;
- (d) has provision for explosion venting; and
- (e) has, where applicable, baffles, chokes or dampers to reduce the effects of any explosion.

4 process as per section 7

A process involves a risk of ignition or explosion that creates a condition of imminent hazard to a person's health or safety.

Reg. S63

65.(1) Subject to subsection (2), a collector that collects aluminum, magnesium or other fine dust of an easily ignitable nature shall be located,

(a) outdoors; or

(b) in a room used solely for the housing of dust collecting equipment which is,

(i) separated from the rest of the building by a dust-tight partition having a minimum fire resistance rating of one hour, and

(ii) constructed to provide explosion venting to the outdoors.

(2) Subsection (1) does not apply to a collector,

(a) that uses an inert liquid as a medium to collect dust;

(b) that is used for a woodworking operation other than wood flour manufacturing and having less than 0.47 cubic metres per second capacity;

(c) that will safely contain explosions; or

(d) that will resist explosions and is equipped with effective explosion venting to the outdoors.

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**Dust Collector
involving risk of
ignition creating a
condition of
imminent hazard**

Reg. 65

**Section 87.1, Section 87.2, Section 87.6, Section 97,
Section 87.3, Molten metal, spill prevention
Section 87.4, Molten metal, adequate egress provision
Section 87.5, Molten metal, location provisions
Section 88, Molten metal, maintenance, space requirements
Section 89, Molten metal, marking for gangways
Section 90, Molten metal, gangway minimum width
Section 91, Molten metal, pouring aisle minimum width, Table
Section 92, Molten metal, poured from crane etc, requirements
Section 93, Molten metal, handling requirements
Section 94, Molten metal, gangway, general requirements
Section 95, Molten metal, cupola specification
Section 96, Molten metal, cupola bottom specifications
Section 98, Molten metal, breaking a vessel open before charging
Section 99, Molten metal, breaking castings, shield for
Section 100, Molten metal, container requirement
Section 101, Molten metal, moisture near melting unit, prevention
Section 102, Molten metal, where handled, floor specifications**

6

**Factory produces
aluminium or steel or
is a foundry that melt
materials or handles
molten material**

**Reg. S 87.3, 87.4, 87.5, 88,
90(1), (2), (3), 91, 92, 94, 95,
96, 99, 101, 102**

51.(1) A lifting device shall,

(a) be so constructed, of such strength and be equipped with suitable ropes, chains,

(b) be thoroughly examined by a competent person

(c) be plainly marked with

(d) have a cab, screen, canopy guard or other.....

(e) when it is a pneumatic or hydraulic hoist

(2) A lifting device shall be operated,

(a) only by,

(b) in such a way that,

(3) Sub clause (2)(b)(iii) does not apply to,

(4) Hoisting controls operated from other than a cab or cage shall,.....

(5) Where a lifting device is equipped with limit switches, the switches shall,

52. A crane, lift truck or similar equipment shall be used to support, raise or lower a worker only when, ..

53. Where a travelling crane is operated on a crane, there shall be,

(a) rail stops or bumpers extending at least

(b) similar rail stops at the ends of the crane bridge.

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**The construction,
addition, installation
or modification
relates to a lifting
devices, travelling
crane or automobile
hoist
Reg. S 51, 53**

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- be free from contamination with any ...
- enter in such a manner so as,
- to prevent blowing settled dust into .
- prevent interference with exhaust
- not cause undue drafts

(3) The discharge of any air from any exhaust shall be in such a manner as to prevent the return of contaminants to any workplace

8 process as per section 7

A process uses or produces a substance that may result in the exposure of a worker in excess of any occupational exposure limit set out in following

Regulations: 833 [Control of Exposure to Biological and Chemical Agents], 835 [Acrylonitrile], 836 [Arsenic], 837 [Asbestos], 838 [Asbestos on Construction Sites and in Buildings and Repair Operations], 839 [Benzene], 840 [Coke Oven Emissions], 841 [Ethylene Oxide], 842 [Isocyanates], 843 [Lead], 844 [Mercury], 845 [Silica] or 846 [Vinyl Chloride]

127, 128

To Whom Does the Regulation Apply?

- It applies to every Ontario employer who operates a factory (as defined in the OHSA)
- It does not apply to construction sites, mines, mining plants, or logging operations

When Is a PSR Required?

- **new** apparatus, structure or protective element constructed, added or installed or a new process to be used.
- **existing** apparatus, structure, protective element or process is to be modified and one of the following steps must be taken to obtain compliance with the Table:
 - **1.** new or modified eng. controls are used;
 - **2.** other new or modified measures are used;
 - **3.** a combination (1) & (2) is used.
- But, PSR is **not** required where an apparatus, structure, protective element is “reconstructed” after maintenance has been performed.

Who can conduct a PSR?

- **For items 1 through 7**, a Professional Engineer
- **For item 8**, a Professional Engineer or a person who possesses special expert or professional knowledge appropriate to assess any potential or actual hazards. e.g., Certified Industrial Hygienist (CIH) or Registered Occupational Hygienist (ROH)”).

What must the PSR Report Include?

- Details of measures that must be taken to achieve compliance with the specified provisions of Table 1 Items. Reference to any standards, specifications, calculations, risk analyses upon which the Pre-Start Health and Safety Review is based.
- If testing is required, details of measures to protect the health and safety of workers.
- Details of the structural adequacy of the apparatus or structure if item 3 or 7 of Table 1 applies.
- The date and signature of the person performing the PSR. Engineers must also seal.

Document!

If it ain't written IT DON'T EXIST!

Document:

- Scope of work
- Assumptions
- Restrictions
- Understanding and agreements
- References
- **EVERYTHING!**

When is the PSR Complete?

- When all the measures identified in the PSR have been taken and the apparatus, structure or protective element is put into production.
- If the owner, lessee or employer does not take all of the measures specified in the PSR, they must notify the JHSC of what alternate measures have been taken to comply with the relevant provision of the regulation.
- Any alternate measures are to be the same type

About Equivalency:

- The alternate measure taken must provide **equal or greater protection** than the measure prescribed by the engineer in the PSR.
- A physical device can only be substituted with another physical device, NOT with a procedure or any other type of administrative control.

Who gets a Copy of the PSR?

- The engineer must provide the PSR report to the employer, owner or lessee whose responsibility it is to obtain the report.
- The employer, must provide a copy to the JHSC **before** the equipment or process can be used or operated following the installation, modification or construction.
- A copy (of the PSR or exemption documentation) must be maintained on the premises, along with any supporting documentation.
- Must be available for review by the JHSC and a Ministry of Labour inspector.

Are Exemptions Possible?

- There are exemptions in certain cases if documentation is available establishing that the Apparatus or Protective Element was manufactured and installed **in accordance with current applicable standards.**
- If an exemption is possible, then it is necessary to maintain the documents that support the exemption for as long as the equipment or process is used in the workplace.
- For table items 1, 5, 6, and 8, exemptions are **not** possible.

Due Diligence and the PSR

Professional Engineers Act

Professional Misconduct:

- negligence
- failure to make reasonable provision for safeguarding of life/health
- failure to make responsible provision for complying with applicable statutes
- undertaking work that engineer is not competent to perform, based on training/experience

Occupational Health and Safety Act

Section 31(2):

“...a professional engineer as defined in the *Professional Engineers Act* contravenes this Act if, as a result of his or her advice that is given or his or her certification required under this Act that is made negligently or incompetently, a worker is endangered”

Occupational Health and Safety Act

Section 66. (1)

“Every **person** who contravenes or fails to comply with,

- (a) a provision of this Act or the regulations;
- (b) an order or requirement of an inspector or a Director; or
- (c) an order of the Minister,

is guilty of an offence and on conviction is liable to a fine of not more than \$25,000 or to imprisonment for a term of not more than twelve months, or to both”

The PSR falls fits into a PSM system

- ✓ THE RIGHT ATTITUDE
- ✓ **KNOW YOUR OPERATION**
- ✓ REDUCE YOUR HAZARDS
- ✓ KNOWLEDGE AND SKILL ARE KEY
- ✓ **TAKE CHARGE OF CHANGE**
- ✓ PROTECT YOURSELF
- ✓ LEARN FROM MISTAKES
- ✓ BE A GOOD CITIZEN
- ✓ ONCE IS NOT ENOUGH

Some observations on the state of PSRs in Ontario are:

- There is a wide range of scope/quality in the PSR reports being provided. Complaints should be addressed to PEO
- Many practicing engineers who are being asked to conduct PSRs are not familiar with OHSA and regulations for Industrial Establishments, hazard analysis methods, relevant codes and standards
- Many engineers are concerned about due diligence. For complex systems, it is advisable to take a team approach
- The PSR legislation is proactive. This is a major cultural change from looking upon safety as a regulated obligation to realizing the opportunity the PSR provides for business benefits

OSPE's Course on PSR

- Introduction
- The PSR Regulation
- Knowing When a PSR is Required
- Navigating the PSR Process
- Codes & Standards
- Due Diligence Requirements & Best Practices for PSR
- Hazard Analysis Methods
- Risk Assessment
- Workshop

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