

When Safety Fails

Cuando Falla la Seguridad

September 19, 2024

Alex Gryska

About me....

Acerca de mí....



ST. FRANCIS XAVIER
UNIVERSITY



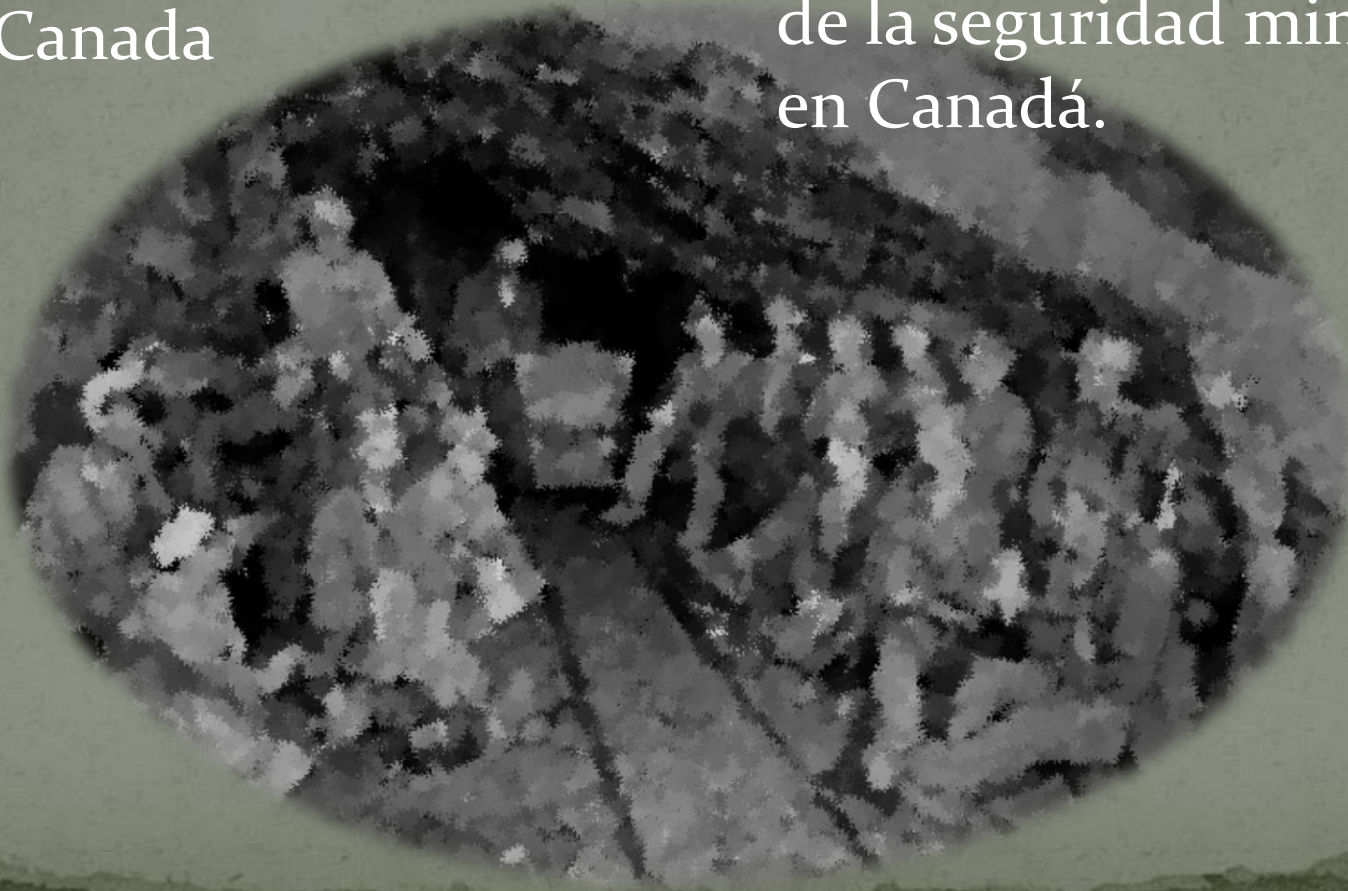
Alex Gryska Consulting
"Vision Zero"

Objective

- Provide an overview of evolution of mine Safety in Canada

Objetivo

- Proporcionar una visión general de la evolución de la seguridad minera en Canadá.



The “Magic” to making mining safe!
¡La "magia" para hacer seguro la minería!

There is no magic
**¡La "magia" para hacer
segura la minería!**

Its all about changing Behavior
Se trata de cambiar el comportamiento

Hollinger Mine Fire 1928



Incendio
de la mina
Hollinger
1928

Mining 101

Minería 101



Mining is
hard work

Mines are
dark , deep
and
dangerous.

Injuries are
common

La minería es
un trabajo duro

Las minas son
oscuras,
profundas y
peligrosas.

Las lesiones son
comunes

Mining Can be Unforgiving

La Minería Puede ser Implacable

Kerr Addison Mine



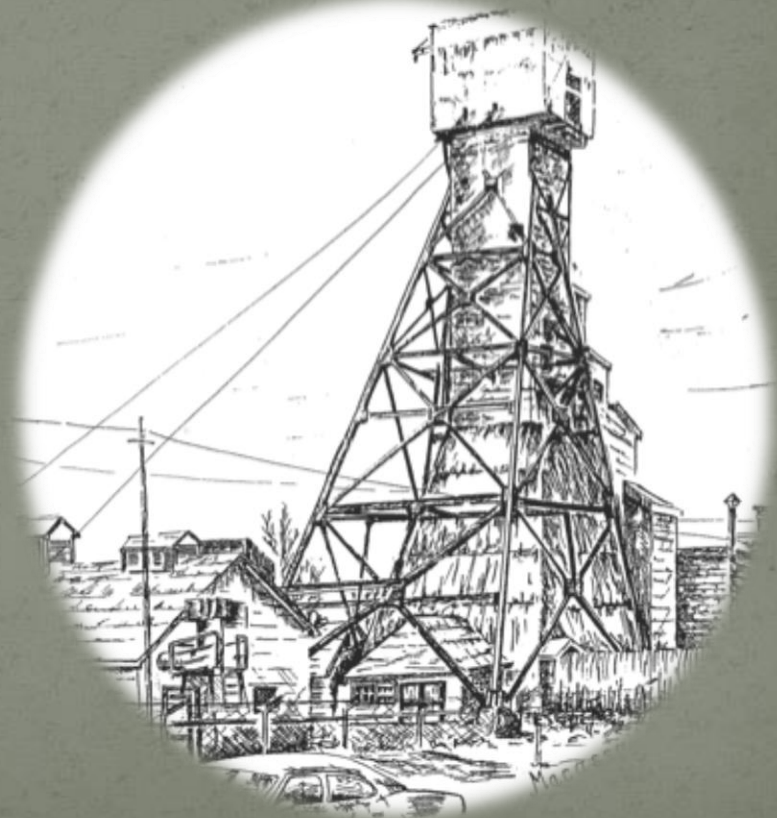
Mina Kerr Addison



The Safety Supervisor Responsible for Safety

El Supervisor de Seguridad Responsable de la Seguridad

Macassa Mine



Mining is Potentially very Dangerous Work

La Minería es un trabajo Potencialmente muy Peligroso

- High risk environment
- May be highly mechanized
- Many hazards



- Entorno de alto riesgo
- Podría estar altamente mecanizado
- Muchos peligros

Understanding the Impact of Loss

Comprender el Impacto de la Pérdida

Lamps Forever Lit

A Memorial to
Kirkland Lake Area Miners



Bernie Jaworsky

More than 300 miners killed
in Kirkland Lake mines
from 1918 to 1999.

Más de 300 mineros
murieron en las minas de
Kirkland Lake entre 1918
y 1999.

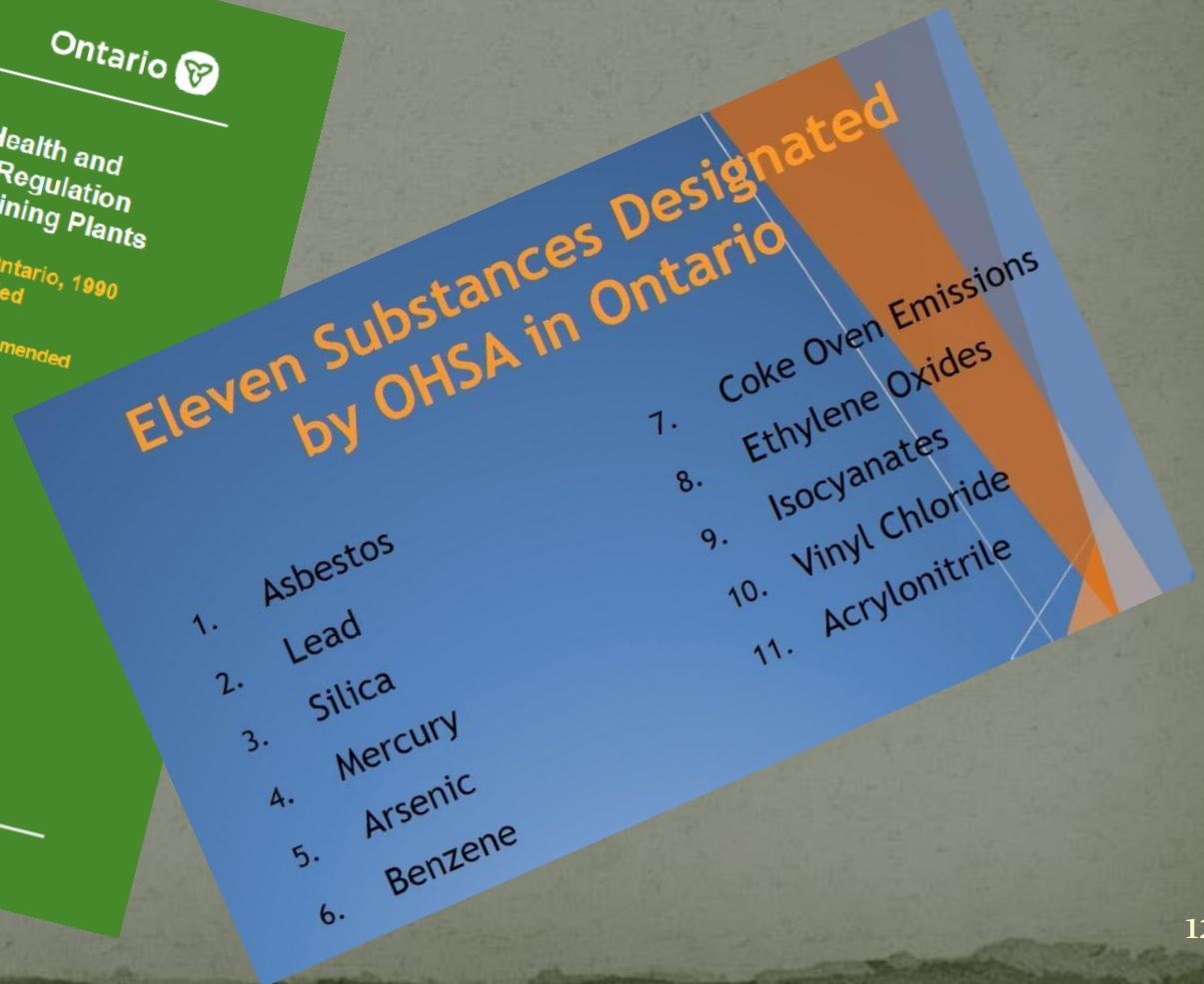
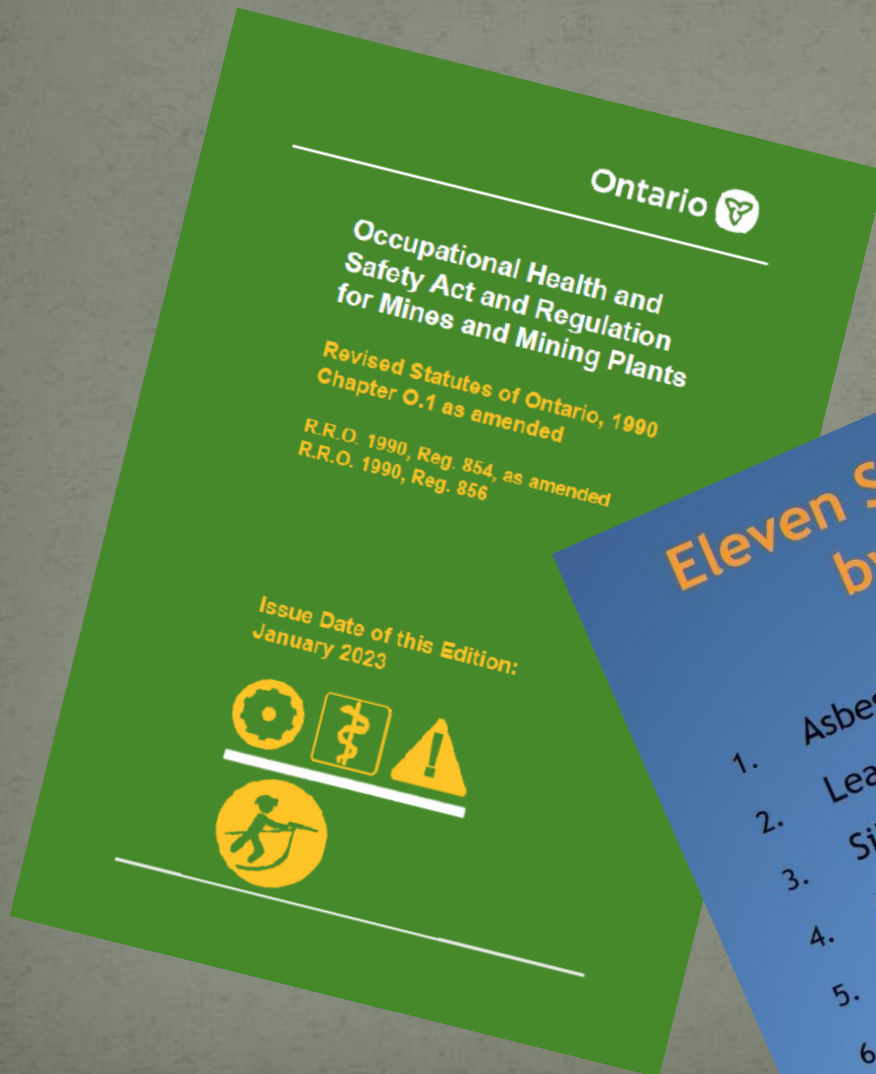
Mining Inquiries/Commissions

Consultas/Comisiones Mineras



Mining Laws and Regulations

Leyes y Regulaciones Mineras



Fundamental Rights

Derechos Fundamentales

- Right to Know
- Right to Participate
- Right to Refuse
- Derecho a saber
- Derecho a participar
- Derecho a negarse

Defining Responsibilities

Definición de responsabilidades

Direct Responsibility

Responsabilidad
directa

Suppliers Manufacturers

Proveedores Fabricantes

Owners

Propietarios

Employers

Empleadoras

Contributive Responsibility

Responsabilidad Contributiva

Supervisors

Supervisoras

Workers

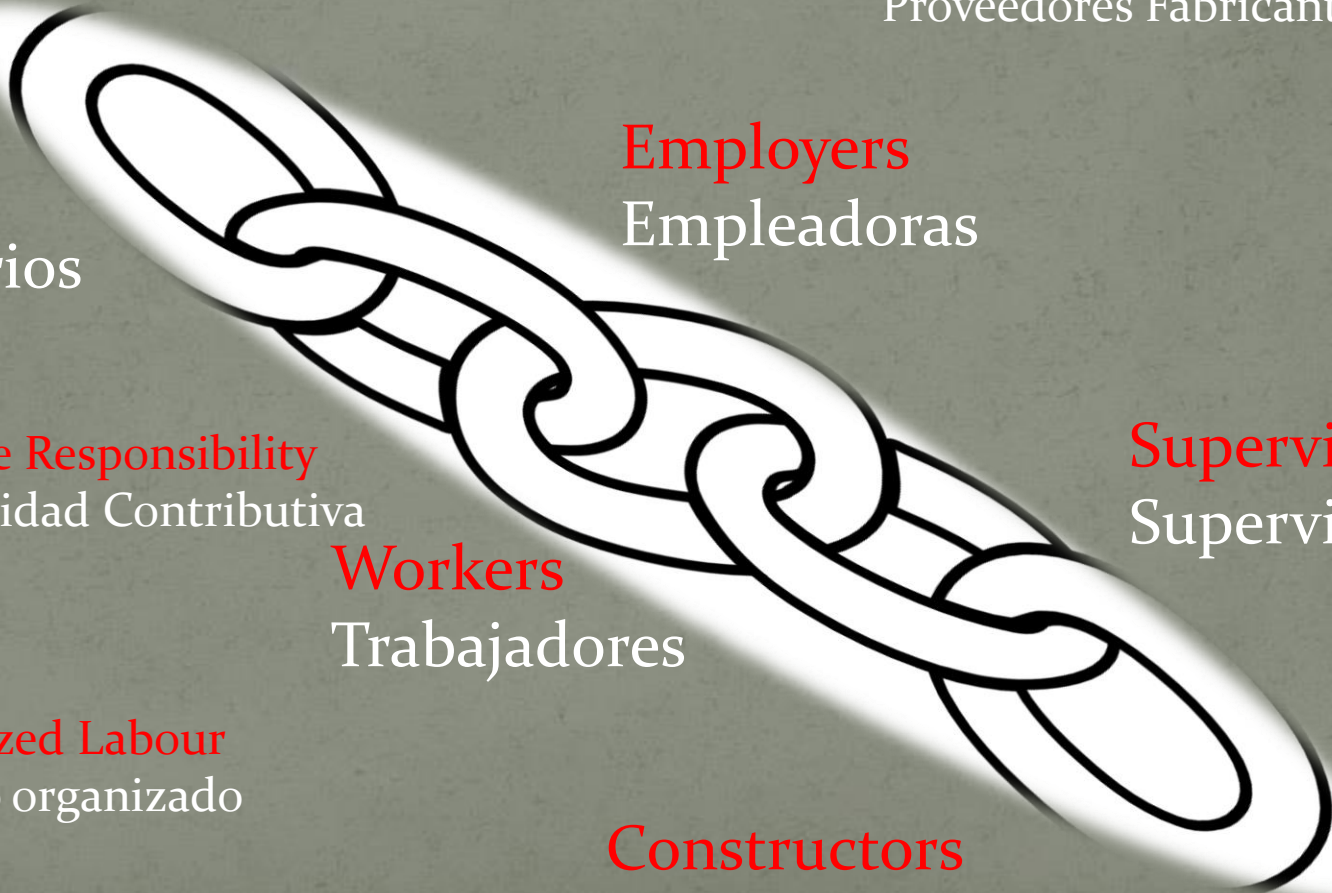
Trabajadores

Organized Labour

Trabajo organizado

Constructors

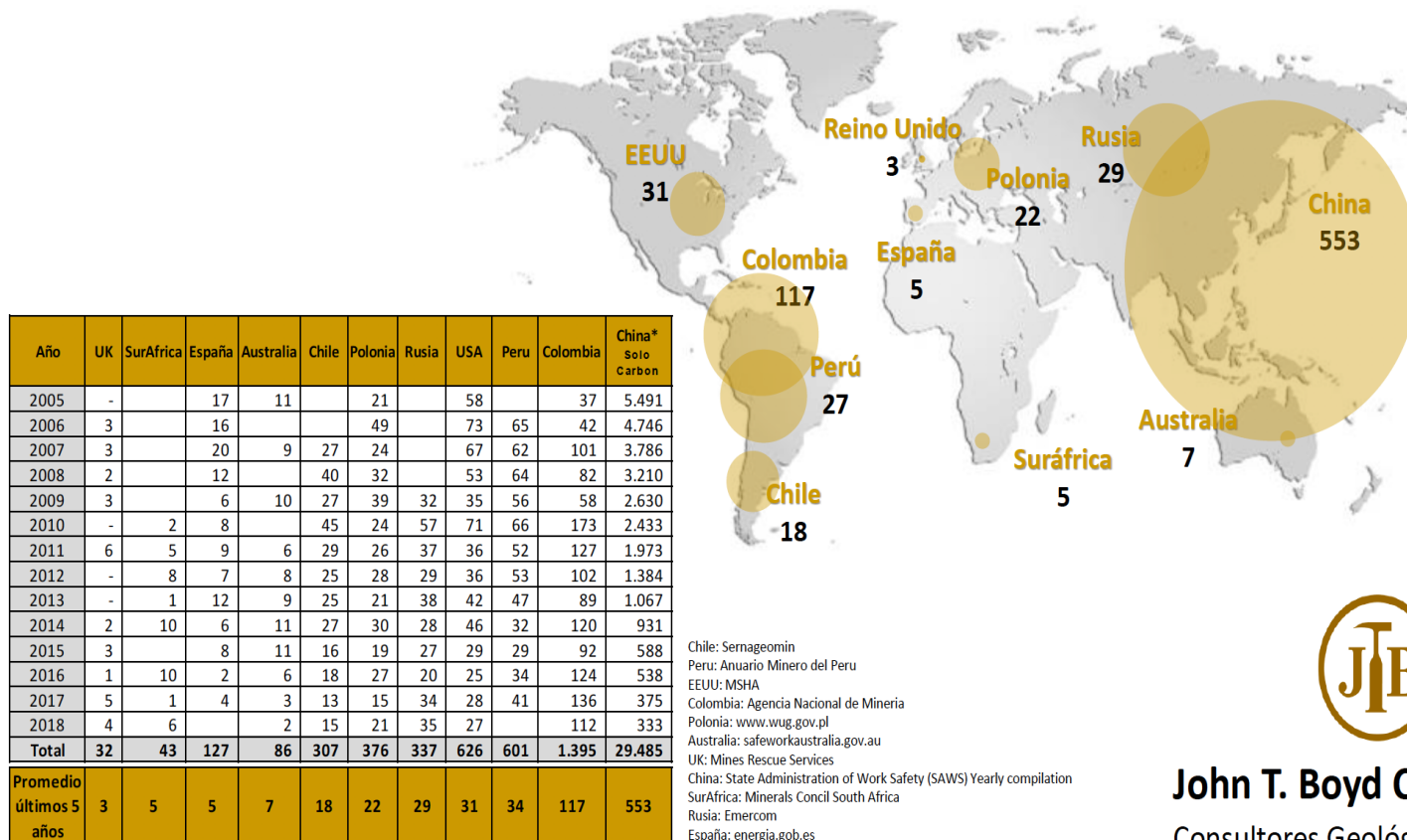
Constructoras



Importance of Data Collection

Importancia de la Recopilación de Datos

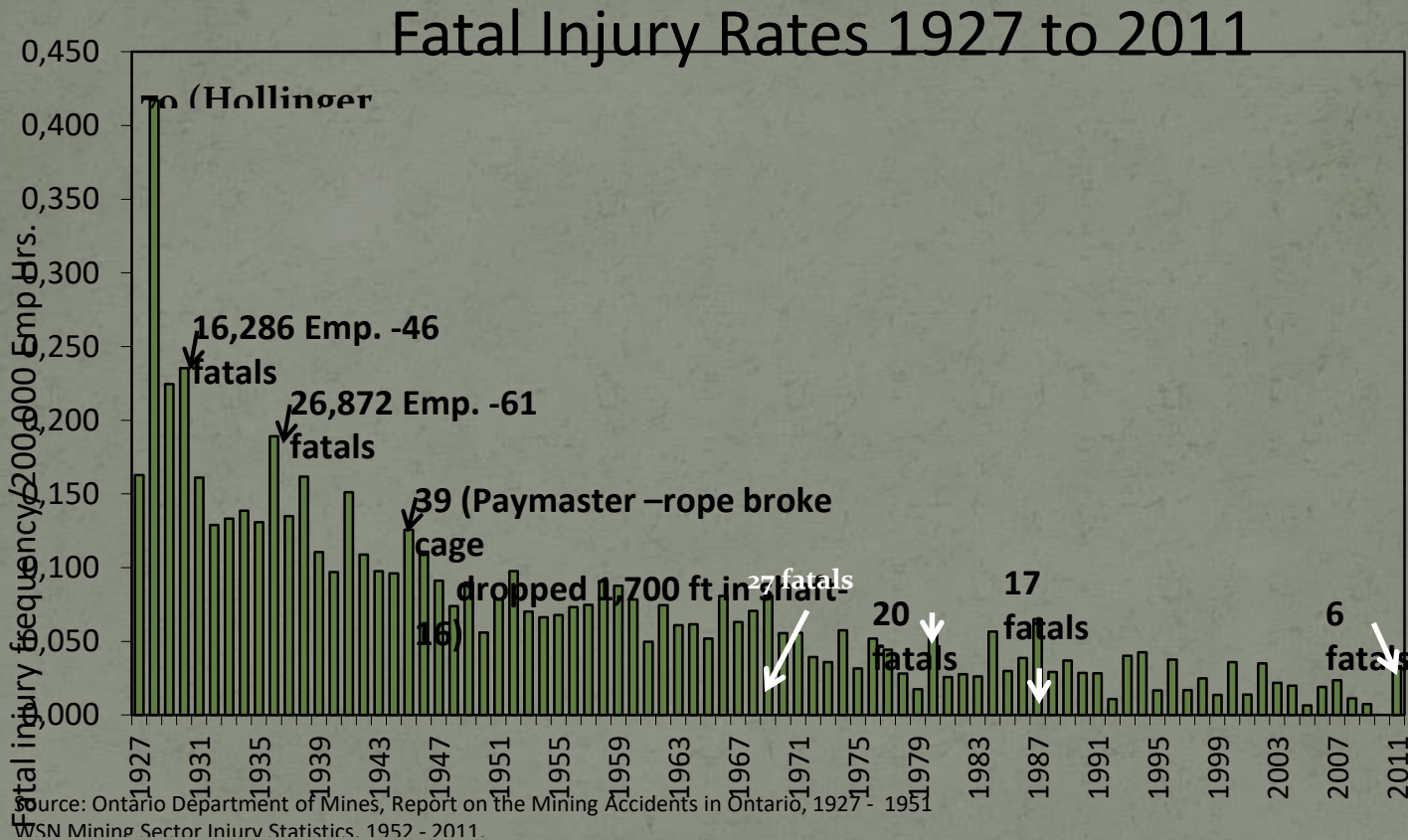
Fatalidades Mineras



John T. Boyd Company
 Consultores Geológico-Mineros

Achieving a Workplace Without Harm

Lograr un Lugar de Trabajo sin Daños



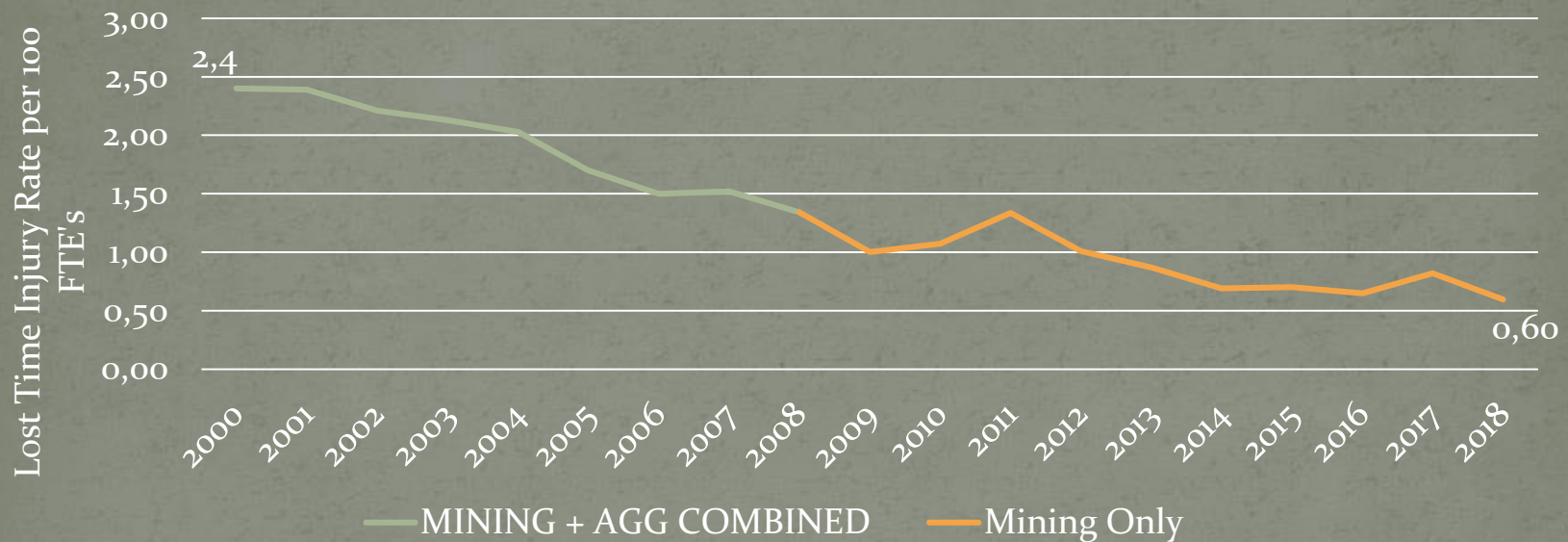
690 McKeown Avenue
North Bay, Ontario P1B 9P1 Canada
workplacesafetynorth.ca

TF: 1.888.730.7821 (Ontario) T: 705.474.7233 F: 705.472.5800

Mining and Aggregates Lost Time Injury Rates

Tasas de lesiones con tiempo perdido en minería y agregados

Historical Lost Time Injury Rates in Mining Sector



Produced by Workplace Safety North

Data Source:

2009 to 2018: WSIB Firm Experience Schema, based on the March 2019 snapshot

2000 to 2009: WSIB Firm Experience Data, based on MASHA Statistics previously reported



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Achieving a Workplace Without Harm

Lograr un Lugar de Trabajo sin Daños

Workplace Health and Safety Snapshot for Ontario Mining Sector in 2022



23,894

Full-time employees

2 **4**
Injury Disease*
Work-related fatalities

1,317
Total
Injuries

299
Lost-time
Injuries

5.51
Total injury rate
per 100 workers

+8.64%
Change in injury rate from
previous year

Events resulting in lost-time injury or illness

Injury or illness severe enough to require one or more days lost from work



44%

Exposures
(contact with temperature extremes; exposure to caustic, noxious, or allergenic substances; radiation, traumatic or stressful event, air pressure change)



27%

Bodily reaction and exertion
(overexertion; repetitive motion; bodily reactions and exertion)



13%

Contact with objects or equipment
(struck by or against object; caught in, crushed, or compressed by equipment, objects; rubbed or abraded, by friction or pressure)



7%

Falls
(falls to same or lower level)



8%

Other
(highway and nonhighway accidents; pedestrian struck by vehicle, mobile equipment; railway accident)

Most common lost-time injuries

130

Exposures, from contact with hot objects or substances; exposure to caustic, noxious, or allergenic substances; environmental heat; ingestion or inhalation of substance; witnessing or hearing a traumatic or stressful event, emotional reaction; contact with skin, eyes, exposed tissue; exposure to radiation, air pressure change.

80

Bodily reaction and exertion, includes injuries resulting from overexertion in lifting, pulling, pushing, carrying, or turning objects; repetitive motion, bending, climbing, crawling, reaching, twisting, slipping, tripping; and slip, trip, twist, step on something without a fall; stepping in hole; repetitive movement, bodily reaction and conditions.

39

Contact with objects and equipment, from being struck by or against dislodged, falling, flying, swinging, slipping, or stationary object; struck by or slammed in swinging door; caught in, compressed by, or jarred by running equipment or machinery; rubbed or abraded by friction, pressure, foreign matter, vibration.

Top 3 Occupational Diseases

Based on approved WSIB claims for healthcare, being off work, loss of wages, or permanent disability

154

Hearing loss: noise effects on inner ear

128

Diseases of the respiratory system: viral infection, food poisoning, viral conjunctivitis (pink eye)

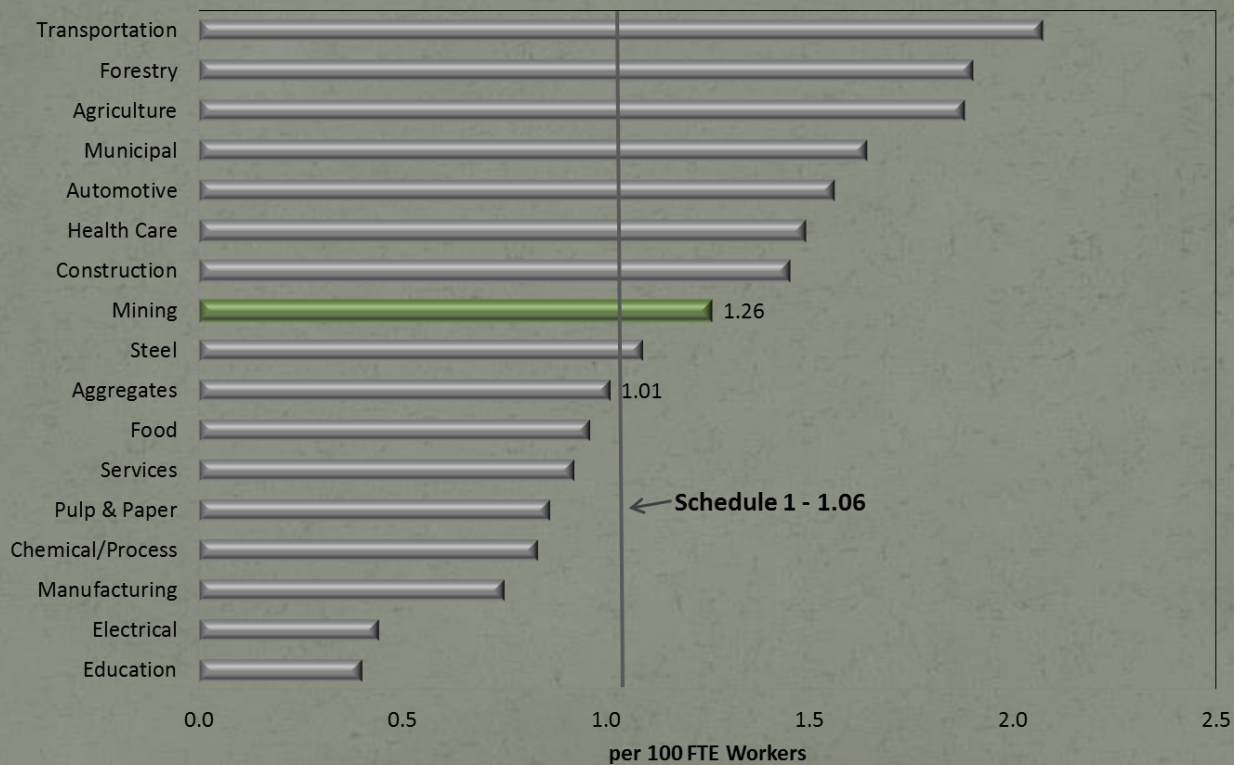
29

Diseases of the circulatory system: other peripheral vascular diseases

Mining Comparison with Industrial Sectors

Comparación Minera con Sectores Industriales

by Ontario Industrial Sector



Source: WSIB EIW, as of August 31, 2012.

Mining Tragedies Quickly Become Front Page News

Las Tragedias Mineras Rápidamente se Convierten en Noticia de Primera Plana



WORST MINING DISASTER IN HISTORY OF AMERICA

Hundreds of Workmen Entombed by Explosion of Coal Dust in Mines of Consolidation Company at Monongah, W. Va.



Investigations

- Determining Root Causes of Incidents
 - Standards and Procedures
 - Supervision and Competency
 - Training/Instruction
 - Engineering
 - Safety Equipment

Investigaciones

- Determinación de las causas fundamentales de los incidentes
 - Estándares y Procedimientos Supervisión y competencia
 - Entrenamiento/Instrucción
 - Ingeniería
 - Equipo de seguridad

Workplace Audits

Auditorías en el lugar de trabajo

➤ Conduct

➤ Assess

➤ Follow up

➤ Conducta

➤ Evaluar

➤ Hacer un seguimiento

Alex Gryski Consulting

EMERGENCY PREPAREDNESS ASSESSMENT

Site: _____

Date conducted: _____

1 THREAT ANALYSIS

Point	Standard	Criteria	Comments
1.1	The operation has prepared an emergency plan.	Obtain Plan	
1.2	The emergency plan identifies the types of hazards which may affect the enterprise.		
1.3	Each identified hazard is scaled for probability and consideration is given to the potential severity.	Risk Analysis	
1.4	Each identified hazard is assessed with regard to prevention.		
1.5	Each identified hazard is assessed with regard to emergency management.		

2 EMERGENCY PLAN PREPARATION

Point	Standard	Criteria	Comments
2.1	The emergency plan includes an evacuation procedure.		
2.2	The emergency plan details the method for identifying and accounting for the number of persons on site at all times.		

Emergency preparedness assessment

Page 1 of 9

There are Better Ways to Change Safety Culture than Enforcement

Hay Mejores Maneras de Cambiar la Cultura de Seguridad
que la Aplicación de la ley

As a Ministry of Labour
inspector...

- Investigated numerous critical/fatal accidents
- All were preventable through
 - Improved engineering
 - Training
 - Hazard recognition and risk mitigation

Como inspector del
Ministerio de Trabajo...

- Se investigaron numerosos accidentes críticos/mortales.
- Todos fueron prevenibles mediante
 - Ingeniería mejorada
 - Capacitación
 - Reconocimiento de peligros y mitigación de riesgos.



Assessing Risk

Evaluación del Riesgo

		Risk Assessment Matrix			
		Severity			
		Catastrophic - 4	Critical - 3	Marginal - 2	Negligible - 1
Probability	Frequent - 4	High (16)	High (12)	Serious (8)	Medium (4)
	Probable - 3	High (12)	Serious (9)	Serious (6)	Medium (3)
	Remote - 2	Serious (8)	Serious (6)	Medium (4)	Low (2)
	Improbable - 1	Medium (4)	Medium (3)	Low (2)	Low (1)

Assessing Risk

Evaluación del Riesgo



Assessing Risk

Evaluación del Riesgo



Even Rescues Can be Tragic 33-17-69

Incluso los Rescates Pueden ser Trágicos 33-17-69



August 5, 2010



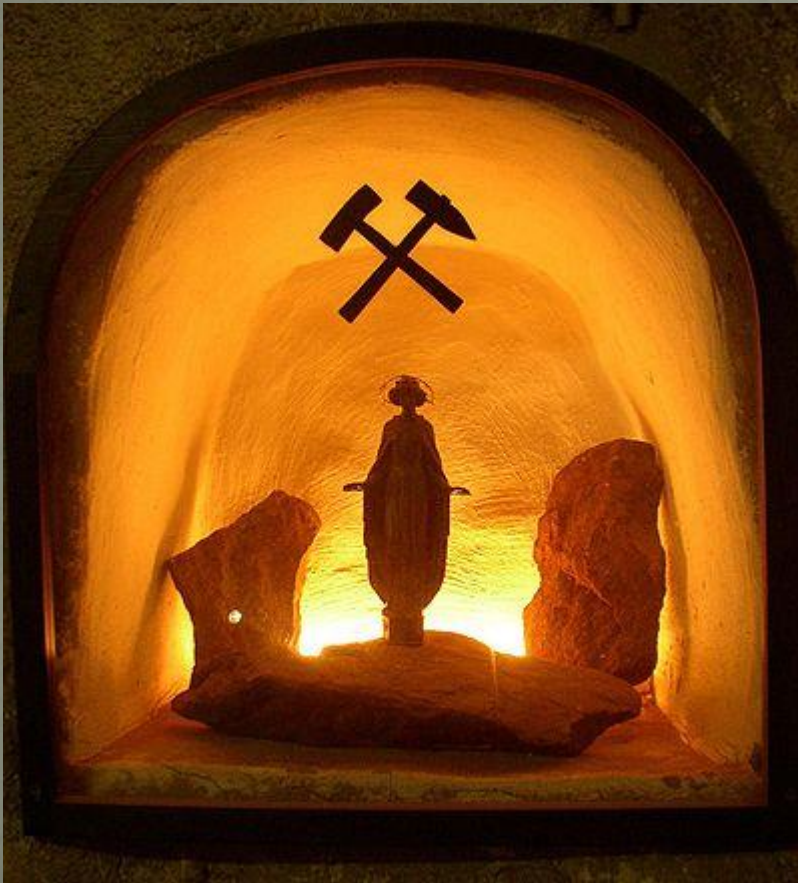
Mining is a Respected Profession...
La minería es una Profesión Respetada...



Learn to reflect and Celebrate

Aprende a Reflexionar y Celebrar

St Barbara Day



Miners' Monument



Why Safety Matters

Por qué es Importante la Seguridad

Safety Extends Beyond the Workplace ...

La Seguridad se Extiende más allá del lugar de
Trabajo...

It starts and ends at home...



Comienza y termina en casa...

"The most important thing to come out of a mine is the miner."

Frédéric Le Play (1806-1882)

French sociologist and inspector general of mines of France

"Lo más importante que sale de una mina es el minero".



**Gracias por escuchar y recuerde
que su familia está esperando
que regrese sano y salvo a casa.**

**Thank you for listening and
please remember that your
family is waiting for you to
come home safely.**