

Fatality Prevention Program

Development and Implementation

Presented by:

Derek Budge, CRSP

Director - Health, Safety and Environment J.S. Redpath Limited

Roberta Spicer, B.Sc, CRSP Superintendent - Health and Safety J.S. Redpath Limited

Redpath



- Mining Contractors and Engineers
- Started in 1962
- 4500 employees
- 44 Clients
- 13 Countries, 6 Continents



Project Locations - Worldwide





- 1. Sumitomo, Pogo Alaska
- 2. Barnard, Blue Lake Alaska
- PCS, Scissors Creek (AMC) Saskatchewan PCS, Corey (AMC) - Saskatchewan Mosaic, Esterhazy (AMC) - Saskatchewan Agrium, Vanscoy (AMC) - Saskatchewan
- 4. HudBay, Lalor Manitoba HudBay, 777 - Manitoba
- Goldcorp, Red Lake Ontario Goldcorp, Campbell - Ontario Goldcorp, Cochenour – Ontario Goldcorp, Musselwhite - Ontario NAP, Lac des Iles - Ontario
- 6. Barrick, Williams Ontario Lake Shore Gold, Timmins West - Ontario
- 7. Vale, Totten Ontario FNI, Lockerby - Ontario Vale, North Mine - Ontario
- 8. Goldcorp, Eleonore Quebec
- Barrick, Meikle/Rodeo Nevada Barrick, Bazza - Nevada Newmont, Leeville - Nevada Newmont, Midas - Nevada
- 10. Kennecott, Eagle Michigan
- 11. Codelco, El Teniente Chile Las Cenizas - Chile
- Troy, Casposo Argentina
 Yamana, Gualcamayo Argentina
- 13. Goldcorp, Cerro Negro Argentina

Project Locations - Worldwide





- 1. Neves Corvo Portugal
- DME, Konrad Germany
 Asse Germany
 K+S Germany
 SWS, Heilbronn Germany
 Sedrun Germany
 Altena Burg Germany
- 3. First Quantum, Turkey
- . Mindola, Zambia
- 5. Gem, Ghaghoo Botswana
- Northam South Africa
 Gold Fields, South Deep South Africa
 Umnotho weSizwe, Mooihoek South
 Africa
 - Samancor, Doornbosch South Africa Harmony, Phakisa – South Africa Gold One, Cooke – South Africa
- 7. Uralkali, Ust Jaiwa Russia Uralkali, Solikamsk Russia
- 8. Rio Tinto, Oyu Tolgoi Mongolia
- Freeport, Grasberg Indonesia Freeport, Big Gossan - Indonesia Freeport, DOZ - Indonesia
- MMG, Golden Grove Australia
 St. Barbara, Gwalia Australia
 - BHP, Cannington Australia
 BHP, Gregory Crinum Australia
 Anglo American, Grosvenor Australia
 - Perilya, Potosi Australia
 Rio Tinto, Northparkes Australia
 - 13. CMT, Mt. Lyell Tasmania

Outline



Why do we need another program?

Background/Development

FPP Components

Implementation Challenges/Solutions

Planning for Sustainability

Why Do We Need a Fatality Prevention Program?



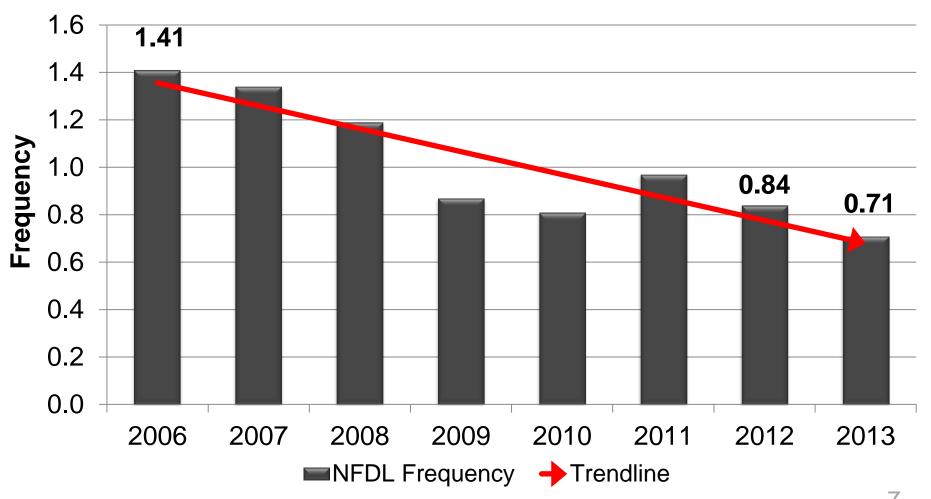
Overall trend suggests that occupational fatality rates have plateaued.

We have experienced fatalities.

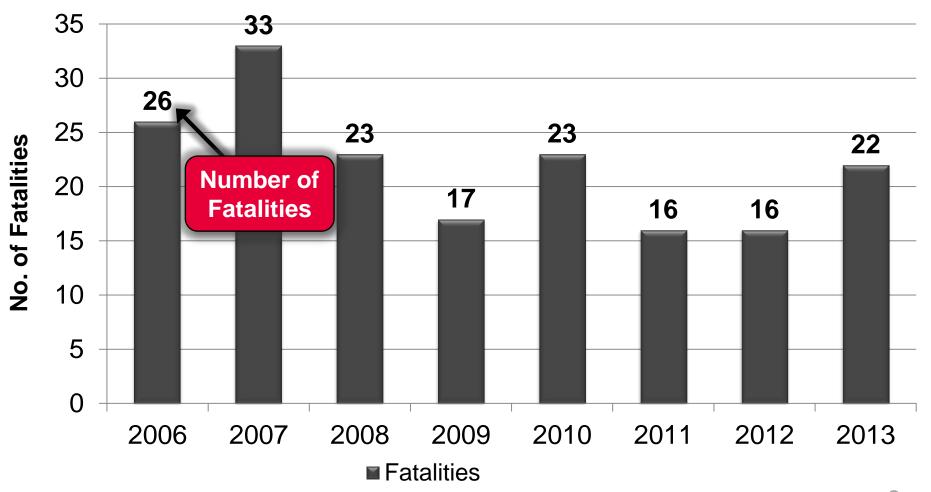
Falling injury rates can be deceiving.

A low or decreasing injury rate does not guarantee that fatal risks are being adequately managed.

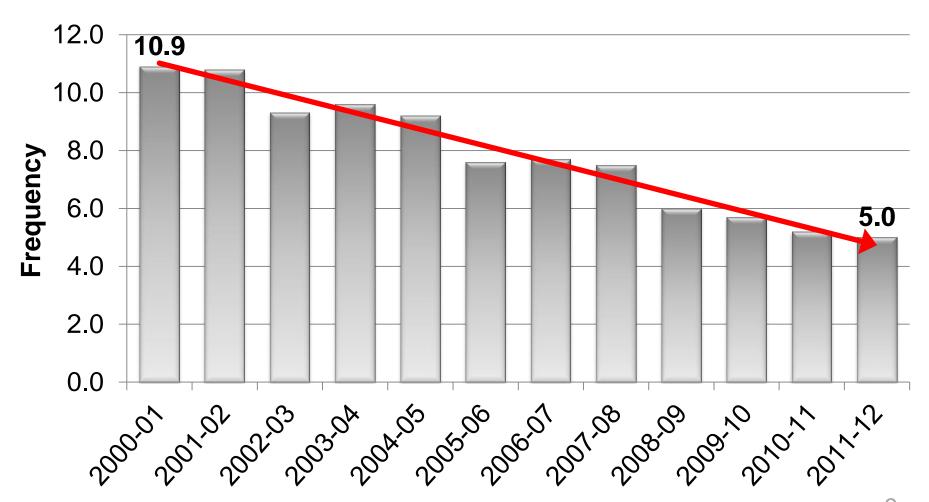
USA Metal/Non-metal Mining Lost-Time Injury Frequencies



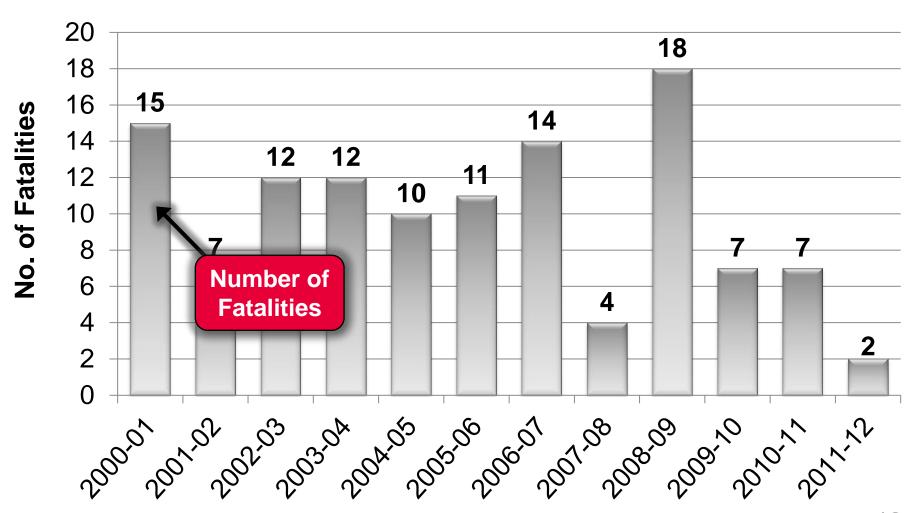
USA Metal/Non-metal Mining Fatal Injuries



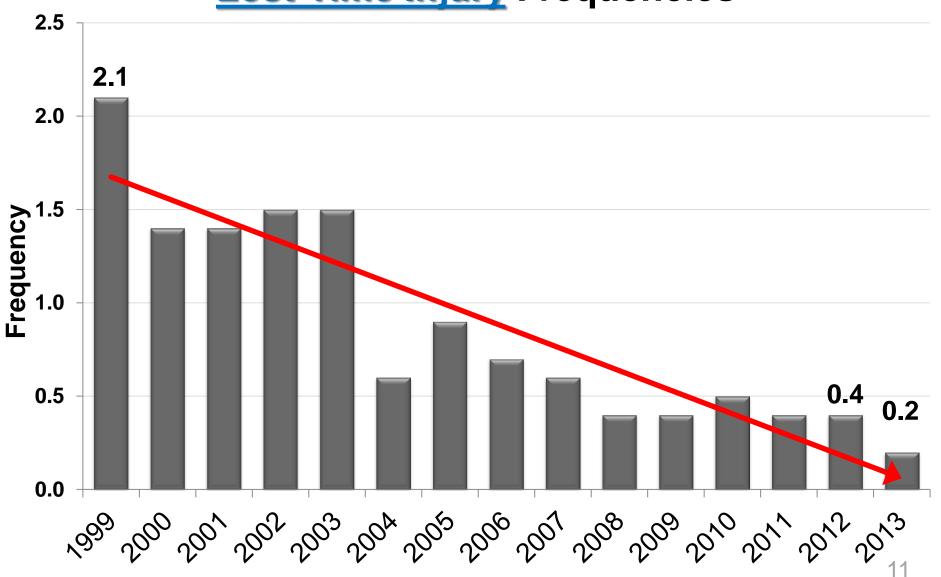
Australian Mining Sector Lost Time Injury Frequencies



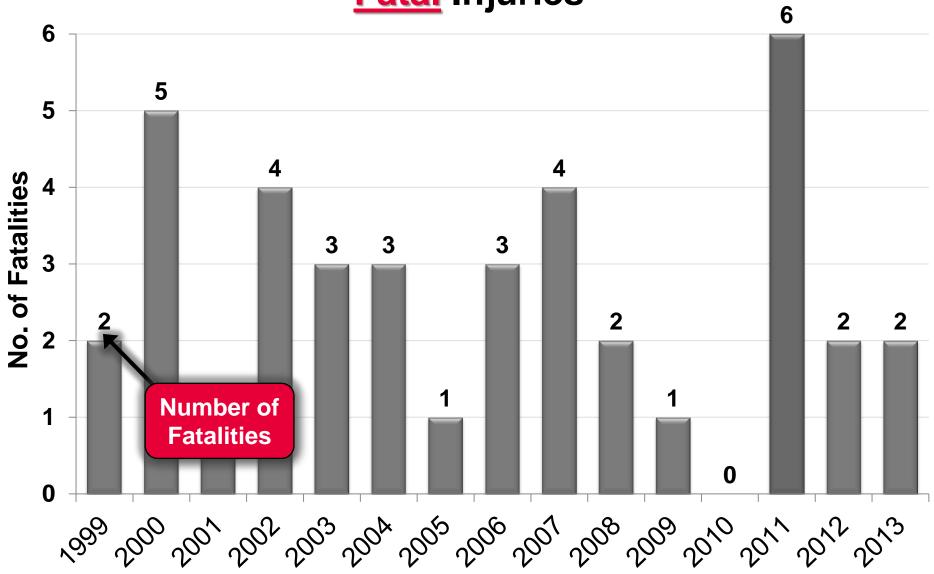
Australian Mining Sector Fatal Injuries



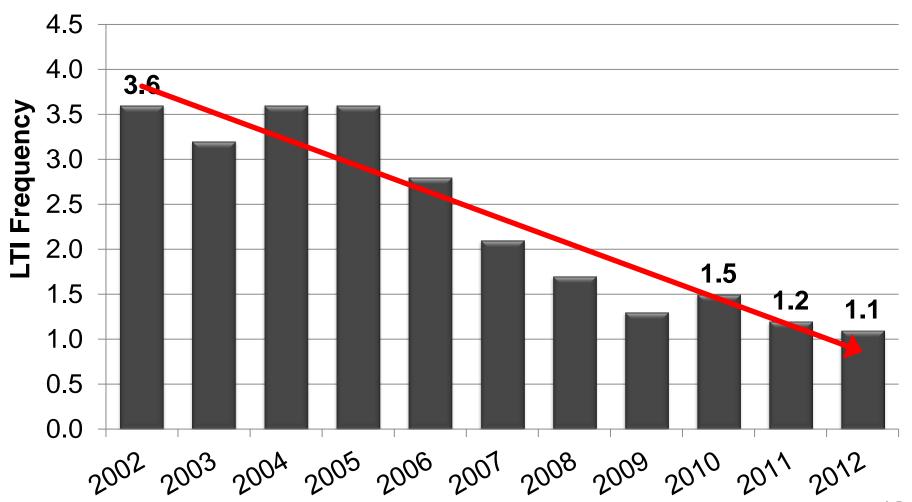
Ontario Mining Contractors Lost-Time Injury Frequencies



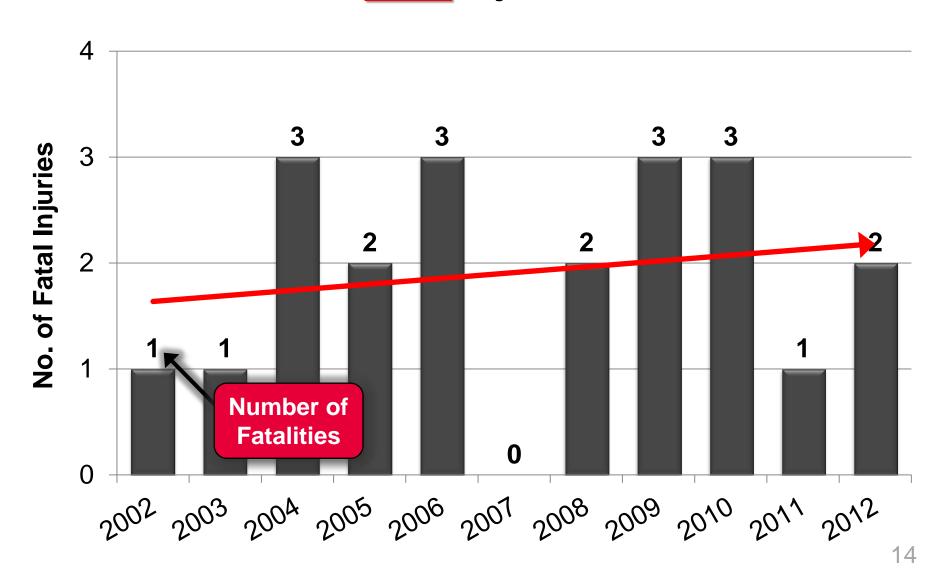
Ontario Mining Sector Fatal Injuries



Quebec Mining Sector <u>Lost Time Injury</u> Frequencies



Quebec Mining Sector Fatal Injuries



Peer Inspiration and Industry Best Practices



- Australian
 - Charter
 - Rules
- Other projects
- South African
 Industrial Theater



Peer Inspiration and Industry Best Practices









Peer Inspiration and Industry Best Practices

















Mining Contractors and Engineers



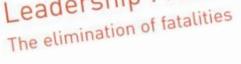






SUMITOMO METAL MINING CO., LTD.







Fatality Prevention Program



Independently, sites began to incorporate new fatality prevention efforts into safety systems Global Safety
Group and
Executives agree
on requirement for
formal program

Planned Marketing strategy

Monthly
Safety Theme
Focus

Implementation in 1st quarter of 2013

2013

2009

2010

Sr. Executives
Fatality
Prevention
discussions
initiated

2011

Development of program content with operations and safety

personnel

2012

Sr. Executives involvement and approval

Annual Refresher

2014

Fatality Prevention Program



Program Goal:

To eliminate fatal risks and fatalities in the workplace.



Program Objectives



- 1. Develop and maintain a **commitment from**<u>all leaders</u> to implement fatality
 prevention program.
- 2. Engage <u>all</u> employees in the process of fatality prevention.
- 3. Ensure universal compliance with Redpath's **Cardinal Rules** and **Fatal Risk Elimination Protocols.**

Fatality Prevention Program



CONTENTS:

- Training Presentation
- New Personal Safety Plan Template
- Cardinal Rules
- Fatal Risk
 Elimination Protocols
- Employee Pamphlet
- Fatality Prevention Charters

- Serious Incidents Register and Review Procedure
- Cardinal Rules added to 5 Point Safety Card
- Promotional Material (stickers/posters, etc.)
- Fatality Prevention Program Manual
- Ongoing initiatives



If not -- stop and correct! Are your workplace and equipment in good condition? If not -- stop and correct!

Are you and your co-workers working safely? (Proper tools, standards,

procedures, etc.)

CARDINAL RULES:

Which lifesaving Cardinal Rule(s) apply to the work I am doing today?

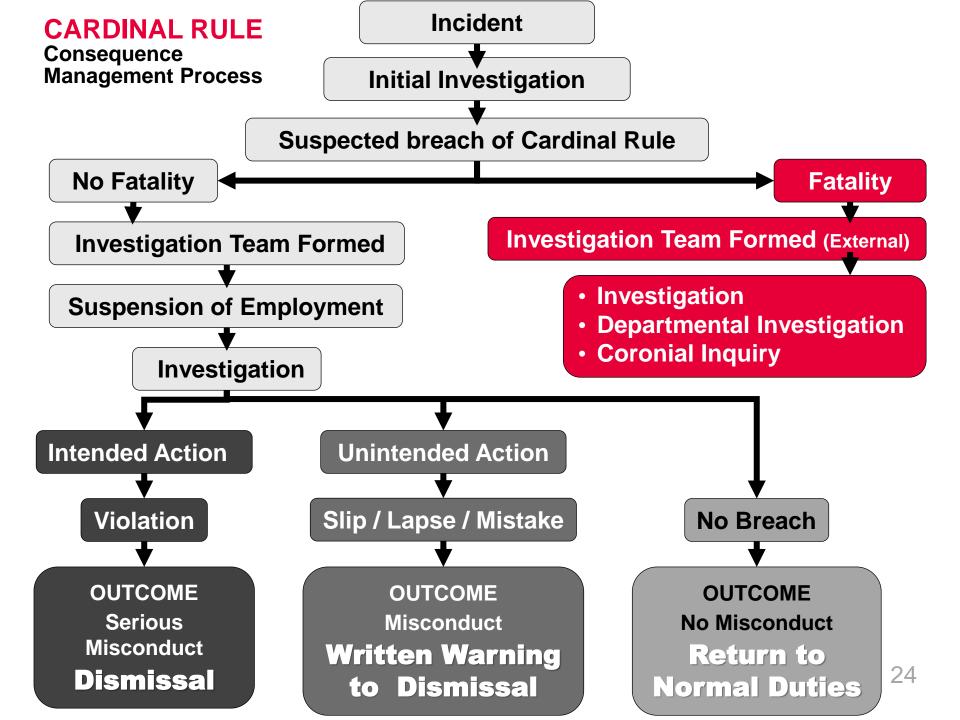
ACTION TAKEN BELOW:	
2nd LINE SUPERVISOR:	OTHER: (Management, Safety, etc.) TIME:

Fatality Prevention Program

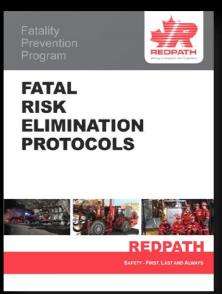
CARDINAL RULES

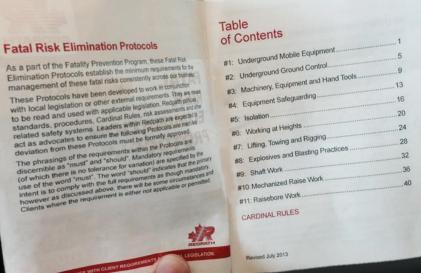
- NEVER move or operate machinery or equipment without the appropriate training and authorization.
- 2. **NEVER** tamper with or make a safety device inoperable.
- ALWAYS correctly isolate equipment from all energy sources before working on it.
- NEVER remove another person's personal underground access tag or personal lock.
- NEVER enter an area that has access prohibiting barricades or signs without authorization.
- NEVER work or travel under unsupported ground or suspended loads (excluding shaft operations; refer to Fatal Risk Elimination Protocols for Underground Ground Control and Shaft Work).
- NEVER work at height above the site's prescribed distance or within the site's prescribed distance from open holes without suitable fall protection.
- 8. ALWAYS comply with explosives, blasting and re-entry procedures.
- NEVER operate heavy equipment within 10 metres of any pedestrian without first establishing and then maintaining positive contact.
- ALWAYS park equipment securely so that it cannot move in an uncontrolled way.

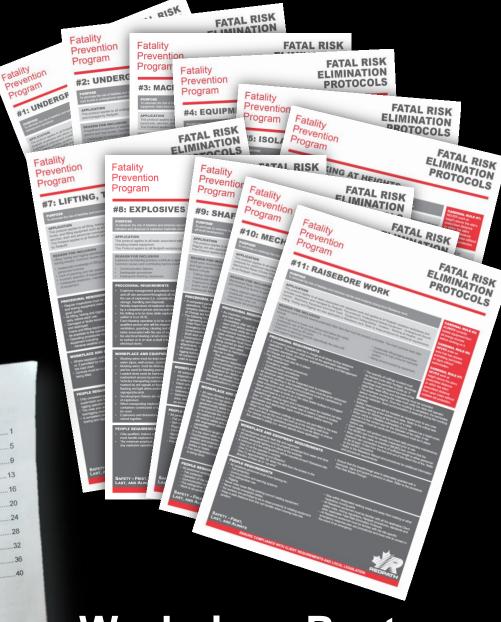




Employee Booklets







Workplace Posters

Fatal Risk Elimination Protocols

REDPATH

Mining Contractors and Engineers

- 1. Underground Mobile Equipment
- 2. Underground Ground Control
- 3. Machinery, Equipment and Hand Tools
- 4. Equipment Safeguarding
- 5. Isolation
- 6. Working at Heights
- 7. Lifting, Towing and Rigging
- 8. Explosives and Blasting Practices
- 9. Shaft Work
- 10. Mechanized Raise Work
- 11. Raisebore Work



PERSONAL SAFETY PLAN (PSP) - YEAR

I commit to doing the following to improve Redpath's safety performance this year:

Specifically, to prevent workplace fatalities, I am committed to do the following:		

PSP prepared by:

Name:

Signature:

Date:

PSP reviewed by:	<u>Name</u>	<u>Date</u>
Superintendent		
Area/Project Manager		
General Manager		

*See attached for examples





Programme de prévention des











SAFETY - FIRST, LAST AND ALWAYS

Fatality Prevention Program

Enter Mine/Site Name Here

Fatality Prevention Charter

As a Redpath employee at this mine, I embrace the belief that with a strong safety culture, the required resources and safety systems, all work can be performed without have.

Tunderstand and commit to abide by the Carolinal Rules and Fatal Risk Elimination Protocols and to participate in fatality prevention efforts. Ignoraise to be vigilant in identifying potentially fatal risks, bringing them to the attention of my supervisor and to get the required resources and/or exemite to trackly them.

Turnderstand that I play a significant role in maintaining Radpath's high standards in safety, production and senice which create a desire for our continuing services in the mining industry and help keep myself and fellow workers alive and safe.

Funderstand the possible total implications of failing to abide by the Cardinal Rules and Patal Risk Elimination Protocols in addition to the potential for immediate termination of employment.

Incognize my role in setting a safe example for others and maintaining my integrity and that of the Company. In the event that I am at any time unsure about the application of a particular rule or protocol I commit to STCP-PNG the job and asking for assistance.

Signatures:



SAFETY - FIRST, LAST, AND ALWAYS



2014

Fatality Prevention Program

Enter Mine / Site Name Here

Fatality Prevention Charter

As a Record employee, I embrace the boilef that with a strong safety culture, the required resources and safety systems, all work can be restronged without soon.

I understand and commit to stille by the Cardinal Rules and Fatel Raw Illimination Protocate and to participate in fatelity prevention efforts. I promise to be righter in intensifying potentially fatel risks, tringing them to the attention of my supervisor and to get the required resources and/or executive. In reserve them.

I understand that I play a significant role in maintaining Redgatris high standards in safety production and service which create a destre. for our certificating services in the mining industry and help keep repetit and fellow workers while and safe.

Euroderstand the possible fatal implications of fating to abide by the Continual Rules and Fatal Risk Elimination Protocors in addition to the patential for immediate termination of employment.

I recognize my role in setting a safe oceração for others and resentativing my integrity and their of the Company. In the event that I am at any time unsure about the application of a particular rule or probobil I commit to 01/CPP-910 the lyst and opening for essetamos.

Signatures:

Beauge Fluoreful Transfer Land Officer

Transfer Land Officer

On of Financial Officer

Rob Hallands
Rob Hallands
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Devel September Bross Vice President Benefit Vice President Benefit Vice President A D AFLAS

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Danak Stodge Director of Health, Safety and Systematers

SAFETY - FRONT, LAST, AND ALMSON



2014



Implementation Challenges





- Languages
- Cultures
- Various Clients
- Document Control
- Roll-Out/Training

Planning for Sustainability





Safety Strategic Planning

Perception Survey

Protocols Booklets

Table of Contents Fatal Risk Elimination Protocols #1: Underground Mobile Equipment As a part of the Fatality Prevention Program, these First No. #2 Underground Ground Control Elimination Protocols establish the minimum requirement forte #3: Machinery, Equipment and Hand Tools 13 84 Equipment Saleguarding 15 20 #6: Working at Heights 24 87: Lifting, Towing and Rigging 28 #8: Explosives and Bassing Practices 32 #10 Mechanized Rame Work #11: Raisebore Work CARDINAL RULES. Revised July 2015

Hire package

Safety Program

- documentation
- activities

Fatality Prevention Program

Sign Off Sheet

Employee Name Redpath Supervisors Name	Signature Signature	Date	7		
	Signature	Date			
riease print name clearry.					
Please print name clearly:					
In the event that I am at any time Rule or Protocol I commit to STG					
I understand the possible fatal ir Rules and Fatal Risk Eliminati immediate termination of employ	on Protocols in addition				
promise to be vigilant in identify the attention of others and to pa					
understand them, and commit Elimination Protocols and bes					
I confirm that the training presentation on the Fatality Prevention Program has been presented to me along with the employee pamphlet, Cardinal Rules and Fatal Risk Elimination Protocols.					





NATURE OF THE HAZARD

Detonating cord should be handled with the same care and respect as other explosive materials. Proper tools are required to cut detonating cord. Use of tools which could cause sparking, friction or cutting devices which have a shearing action (i.e. scissors or cutting shears) must not be used to cut detonating cord as it can cause accidental detonation. CAUSAL FACTORS

- Using the wrong tool for the job
- Inadequate tools

PREVENTION AND PRECAUTIONS

- Always cut detonating cord with the specialized tool specifically designed and Specialized tools for cutting detonating cord include:
- Anvil-type cutters (single bladed cutter that uses guillotine action against non-sparking surface; one side is plastic).
- Sharp single hooked blade cutting tool.
- Never cut detonating cord with devices that produce metal-to-metal contact. such as scissors, wire cutters, crimpers or similar instruments.
- Never attempt to cut detonating cord by abrasion or with a blow from a sharp
- Never use a hacksaw that may result in abrasive fiction from the
- Never apply excessive force, intense impact, friction or heat that could
- Read the product's technical data sheet for other safety precautions

5 POINT SAFETY SYSTEM

- Are you and your co-workers working safely? (Proper tools, standards,
- #5 Can you and your co-workers continue to work safely? Do they have the equipment, motivation and desire to work safely?

CARDINAL RULE #8: ALWAYS comply with explosives, blasting and re-entry procedures. FATAL RISK ELIMINATION PROTOCOL #8: Explosives and Blasting Practices





September 10, 2013



FLASH REPORT

This report is intended to provide initial internal notification that an injury or incident has occurred. The report is to be completed on the day of the occurrence and sent to the North Bay Head Office Safety & Training Department for review and approval prior to

North Bay Head Office Salety of circulation. REGION: PROJECT: LOCATION: DEPT:	CATEGORY INJURY ENVIRONMENTAL EQUIPMENT DAMAGE PRODUCTION LOSS HAZARD OTHER	SEVERITY FATALITY LOST TIME MEDICAL AID FIRST AID SLOSE SALL POTENTIAL FATAL EVENT	
DATE: TIME: SUPERVISOR'S NAME:	SUPERINTE		
NATURE OF THE OCCURR	RENCE:		
TREATMENT PROVIDED:			

Potential Fatal Event

RETAIN COPY IN SITE SAFETY FILE

DESCRIPTION OF THE OCCURRENCE:

IMMEDIATE ACTION TAKEN:

October 2013

Page __ of __

WHERE DID THE 5 POINT SAFETY SYSTEM FAILURE OCCUR? WHICH POINT(S)?

REDPATH	& PERF	ORMANCE DEMO (Please print)			
Project name and no.:			Date of obse	ervation (dd/mm/yyyy) :	
Reason for observation: Job Procedure/ Practice Update	Recent Injury Associ	ated Training Follow-Up	Experienced Worker Check	Other:	
Type of observation: performance Fo	flow-up	Job/task observed:	*Is there a procedure for this job/task?	Procedure name and no.:	
Has the procedure and/or *This form and the proced Please consider the items	standard(s) been revie lure for the job/task mus listed on the second po	wed with the worker(s) ? st be available in the workpla age of this document while m	Yes No ce at the time of the observat	ion for reference.	
Pictures and/or drawings	are recommended.	WORKER(S) TO BE OBSE	ERVED		
Name of worker:	Occupation:	Experience at present job/task:	Is worker trained and qualif (training records varified?)	☐Yes ☐No ☐ In Training	
Name of worker:	Occupation:	Experience at present job/task: OBSERVATIONS	Is worker trained and qualifi (training records varified?)		
 Could any of the practifyes, please explain: 	tices or conditions obse	erved result in personal injury	ora nearmiss? ☐Yes ☐]No	
P 11					
ain:			Cardinal Rules		ng the obse
3. Were all the applicabl	ie procedures, standar	andards and Cardinal Rules follower	ed during the observation?	followed durin	ng the obse
3. Were all the applicable of the second of	e procedures, standar ognition given to the wo	s and Cardinal Rules follows	ed during the observation?		ng the obse

	INVESTIGATION REPORT		
	Mine: Project Number: Division: Type of Mishap: (multiple selections possible)		
l	INJURY PROPERTY DAMAGE OR INCIDENT (Potential Loss)		
	INCIDENT (Potential Loss)		
	Injury		
	Equipment/property damage		
	Loss to process		
	Environment		
	Potentially Fatal Event (PFE)		
	Describe Potential Loss:		
	Basic/underlying causes of mishaps are the result of la		
U,	Lack of control in this mishap was the result of: (multiple	selections p	ossible; provid
CONTROL	Inadequate program	Yes 🗌	No 🗌
Шμ	Inadequate work standards or procedure	Yes	No 🗆
ΠŽ	Inadequate compliance to standards or procedure	Yes	No 🗆
٦	Inadequate compliance to Cardinal Rule(s)	Yes 🗌	No 🗌
	Inadequate compliance to Fatal Risk Elimination Protocols	Yes	No 🗆
	Supervisor: Investigator: Date:		4

Online Resources



REDPOINT Redpath Global Communications

Safety, Health & Environment > All Regions-Fatality Prevention

Email Safety Group: safety.group@redpathmining.com

Safety, Health & Environment

Corporate Sites

Redpoint

Redpoint

Safety, Health & Environment

Search

All Regions

Africa

Asia

Australia

Europe

North America

South America

Discussion Board

Tell us what you think



All Site Content

Fatality Prevention Program

Fatality Prevention is everyone's responsibility.

The primary goal of the Redpath Fatality Prevention Program is to eliminate fatal risks and fatalities in the workplace. The program includes:

- Cardinal Rules
- Fatal Risk Elimination Protocols
- · Fatality Prevention Information and Training

SAFETY - FIRST, LAST, AND ALWAYS





Cardinal Rules

Fatal Risk Elimination Protocols

Workplace Posters

Training Presentation

Additional Resources

Notes

A generic version of the roll out presentation

Posters relating to the 10 Cardinal Rules available in several sizes and formats.

11 Fatal Risk Elimination Protocols available here as a booklet and workplace posters.

Workplace posters related to Fatality Prevention in a variety of sizes and formats.

Additional resources that can be used to promote Fatality Prevention on site (emple



Click here to submit your ideas and comments on Fatality Prevention.

Planning for Sustainability



- Monthly Themes
 - Cardinal Rules 2013
 - Fatal Risk Elimination Protocols 2014
- Posters/Promotional Items
- Focus on Leading Indicators





Summary



Industry wide injury trends show a need to do more for fatality prevention

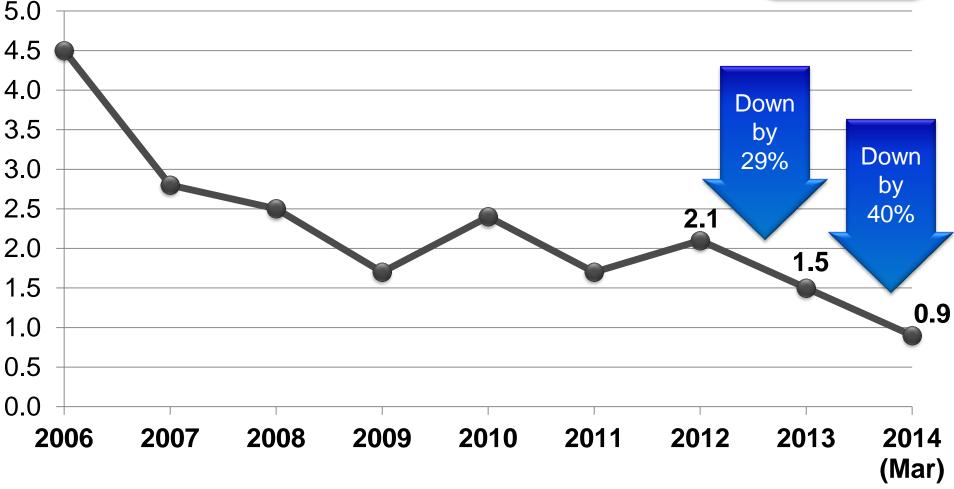
We believe there is more benefit than just preventing fatalities

- Employee engagement
- Senior management buy in
- Enhanced safety culture

	Period	Hours Worked	LTI	LTI Frequency	MA	TMI Frequency	TMI % Improvement
	2012	2,184,147	14	1.3	2	1.5	53%
Africa	2013	1,492,418	4	0.5	1	0.7	33%
	March 2014	453,514	0	0.0	0	0.0	
	2012	9,284,601	18	0.4	88	2.3	22%
Americas	2013	8,384,496	18	0.4	58	1.8	ZZ /0
	March 2014	1,475,544	0	0.0	7	0.9	
	2012	1,452,252	3	0.4	12	2.1	33%
Australia	2013	1,585,209	0	0.0	11	1.4	33 /0
	March 2014	337,972	1	0.6	2	1.8	
	2012	554,295	4	1.4	1	1.8	78%
Europe	2013	987,694	0	0.0	2	0.4	
	March 2014	288,815	1	0.7	0	0.7	
	2012	13,475,295	39	0.6	103	2.1	29%
The Redpath Group	2013	12,449,817	22	0.4	72	1.5	29/0
	March 2014	2,555,845	2	0.2	9	0.9	
AMC Company	2012	695,572	0	0.0	3	0.9	78%
AMC Company Total*	2013	880,070	0	0.0	1	0.2	
Total	March 2014	246,715	2	1.6	0	1.6	
					k	Includes S	ub Contractors
							45

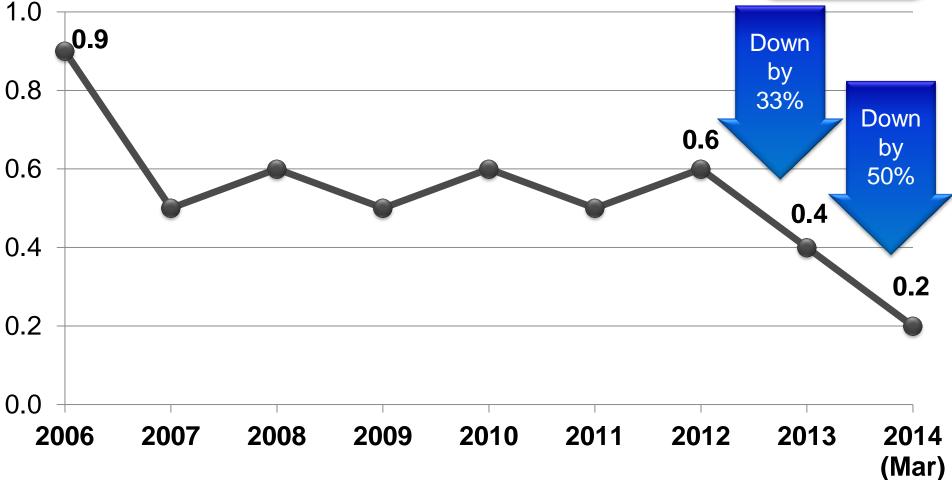
TMI Frequencies 2006 – 2014 (1st Q) The Redpath Group





LTI Frequencies 2006 – 2014 (1st Q) The Redpath Group





Conclusion



We may never know how many fatalities we prevent.



Thank you.



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