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Saskatchewan

Case Study:

Wildfire Risk Management for a Gold Mine in Saskatchewan

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Regina, November 5-8, 2013



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Saskatchewan

Presentation Overview

- Framing the issue in North American Context.
- Case Study of Response to Gold Mine Incident in Sask.
- Incident Command Team Response
- Environmental Protection Assessment Outcomes



ALL OUT CLEAROUT EVENT UP TO \$10,750 IN TOTAL DISCOUNTS ON SELECT MODELS



ARTICLE

ALL OUT CLEAROUT UP TO \$10,750 IN TOTAL DISCOUNTS ON SELECT MODELS. 2013 RAM 1500, 2013 DODGE JOURNEY, 2013 DODGE GRAND CARAVAN.

Idaho wildfire roars through former uranium mine site

Recommend 131 people recommend this. Be the first of your friends.

By Laura Zuckerman SALMON, Idaho | Fri Sep 21, 2012 12:54am EDT

(Reuters) - A wildfire in east-central Idaho has burned through three former mining sites containing traces of radioactive thorium and uranium and was advancing a fourth such site on Thursday, but state officials said they believed the risk to human health

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June 28, 2013

Cliffs Natural Resources Inc. Temporarily Idles its Wabush Scully Mine Due to Forest Fires in the Region

CLEVELAND, June 28, 2013 /PRNewswire/ – Cliffs Natural Resources Inc. (NYSE: CLF) (Paris: CLF) announced today that it has evacuated employees from its Wabush Scully mine and temporarily idled the operation due to the forest fires in the region. The mine and processing plant are located in the town of Wabush in Labrador.

Mineweb UNCOMPROMISING INDEPENDENCE

Home Whats New News Analysis

SEABRIDGE GOLD

Kirkland Lake impacts 2

Kirkland Lake Gold mine put on process the Kirkland Lake

Author: Dorothy Wood

Published: Tuesday, 2

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GOLD ANALYSIS

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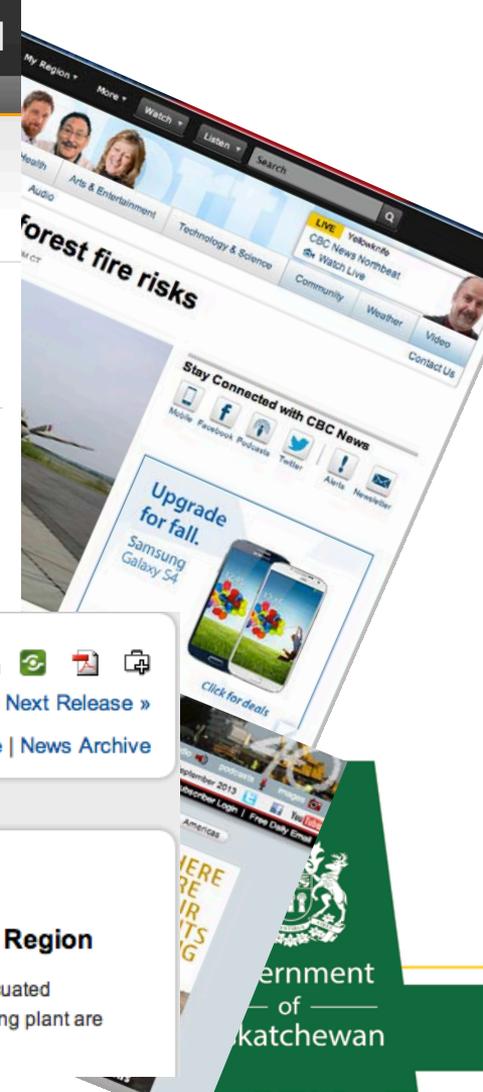
PLATINUM 1474.50 \$/oz

OLD 1986.70 \$/oz

HOME Breaking News

Picture by: Re

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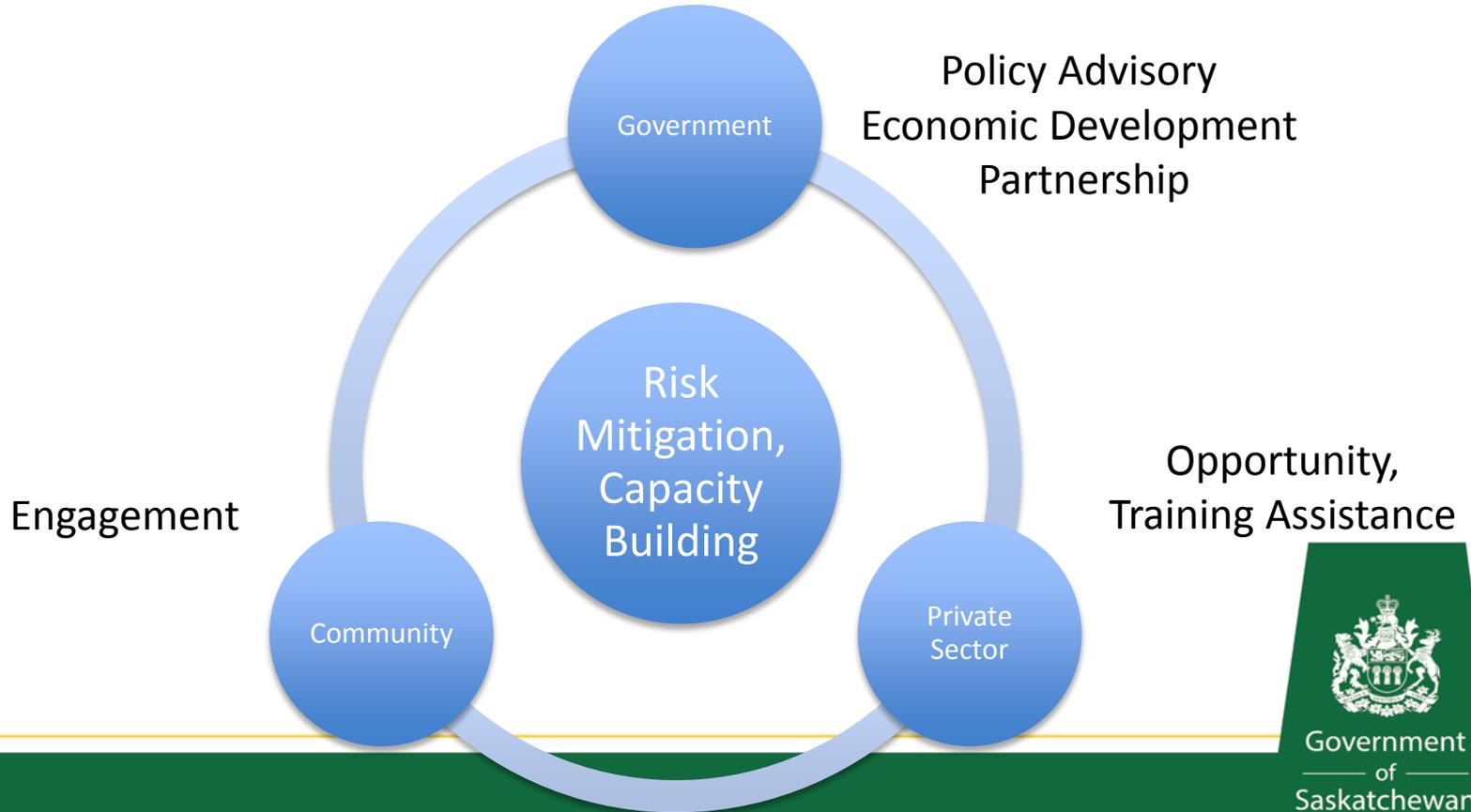






RESTRICTED
ROAD ACCESS
NO HAUL
TRUCKS, SCOPS
OR LOADERS

Community Capacity Building



Situation Overview

- Partial evacuation in place – 4 fires threatening mine site
- Losing \$149 K per day
 - Transportation
 - Food and lodging
 - Wages
 - Lost production

Team: Incident Management

- Assessment of situation
 - Met with mine management
 - Flew fires/values with them
 - Listened to concerns
 - Continued good communications
- Assigned On Site Expert Assistance
 - Wildland Urban Interface Specialist
 - Experienced Suppression Manager

Mine Assessment

- Mine & Fire Suppression Staff not prepared to deal with wildfire threat
 - Minimal on site fire fighting equipment
 - Pre-plan insufficient & not practiced
 - Mine staff untrained in wildfire
 - Forest Protection Staff poorly trained to work with hazardous materials on site
 - Hazardous material storage very poor

Team Response

- EP Officers called in to assist
- Mine Environmental Officer toured our group

Chemical “Short List”

Commodity

Quantity

Diesel

2.3 M liters

Gasoline

45 K liters

Hydrochloric Acid

30 K kg

Sodium Cyanide

300 K kg

Sodium Hydroxide

35 K kg

Propane

128 K lb

Hydrogen Peroxide

200 K kg (50%)

Sodium Cyanide Storage







One of the Diesel Farms





1011
1000



RESTRICTED
ROAD ACCESS
NO HAUL

SPEED
LIMIT
15 km/hr



SAFETY INFORMATION
SEE THE BACK OF THE LABEL

SAFETY DATA SHEET
MSDS 001







20 Be
PR NO
UN 1700



On Site Tour Observations

Potential to be a “World Class” Catastrophe

Potential Wildfire Impact

- Type of Chemicals Present
- Poor storage Practices
- Not a FireSmart Site
- Many infractions & hazards identified

Hazardous Goods Storage

VERY POOR

- Liquid chemicals uphill from solids
- Stored on unstable wooden pallets
- Standing diesel in containment facilities

Air Dispersal Model Developed

- Based on chemicals present
- Four models run
- Three threat zones
 - Life threatening
 - Severe health risks
 - Mild discomfort

Air Dispersal Model

- 1.5, 5, 10 & 20 mile/hr wind projections
- Threat Zones of:
 - Red: 150 ppm = ERPG-3 life threatening
 - Orange: 20 ppm = ERPG-2 Severe Health Effects
 - Yellow: 3 ppm = ERPG-1 mild discomfort

Model Conclusions

If The Site Burns Over

- 5 Km evacuation zone
 - 10 Km exclusion zone
 - All cellular life destroyed within “red Zone”
- Years of clean up required

Some E. A. Concerns

- SCBA's only good for 60 minutes
 - **No fly zone: 5 km radius, 3000' above**
 - Have to walk into site to assess
 - SCBA's require 1/3 reservoir
 - Logistically impossible to manage
- Evacuate underground (Emergency Plan)
 - 3 days supplies
 - Recommended a full week

In The Event of A Burnover

Do not add water – prior to or after it catches on fire

- Oxidizes – toxic fume
- Incomplete burn is worse
- Toxic sludge and runoff
- Let burn – hotter the better
- **Evacuate**

Incident Debrief

- Fire staff receive 1st Response Training
 - 12 hour NFPA 471 & 472
- E P Officer Liaison position
- MOU's be developed with private Hazmat companies (major cities)
- Hazardous Sites identified on our Values at Risk website
- Fire staff access to industry emergency & Pre-incident plans

End Results - Environment

Fires Never Did Reach Mine Site

- Awareness of potential danger
- Importance of visiting sites
- Wildfire Pre-Plans
- Training Required
 - Wildfire
 - First Response

End Results - Mine

- Mine received significant amount of “Free” consultation work
- Mine forced to bring in consultants at their expense
 - Chemical storage
 - Emergency and Incident Preplanning
- Interested in receiving some WUI training

Questions?





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