

September 12, 2011

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Northern Contaminated Sites, Western Region
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Dear Doug Townson:

Project No: 60162477

Document Number: 305-Demo Debris-15-LET-0002-Rev0_20110913

Regarding: Giant Mine – Structural Condition of Main Conveyor Gallery

Introduction

The purpose of this letter is to present a structural evaluation of the wood constructed Main Conveyor Gallery located between Building 102 (Screen House) and Building 106 (Mill). This evaluation was limited to reviewing PWGSC provided information showing the condition of the structure, as well as reviewing information presented in a 2009 Risk Management Report. It should be noted that AECOM has not completed an in-person field inspection of the structure.

Background Information

It is understood that the Main Conveyor Gallery was constructed in the late 1940's and would have been in service until milling operations ceased at the site (approx. 1999). Since the conveyor is no longer in service, it is anticipated that the structure has been unmaintained since the mine closed. It is further understood that a mine access road travels beneath the elevated portion of the conveyor gallery.

The reference information that was reviewed in this evaluation was limited to:

- PWGSC prepared "Giant Mine Mill Conveyor" – PowerPoint document, September 2011.
- Indian and Northern Affairs Canada – 2009 Risk Registry, November 17, 2009.

A copy of the reference information is attached for reference.

Summary of Observations

The photographs in the PowerPoint presentation show that various structural elements have moved or have deteriorated since the gallery was originally constructed. The following bullets present the observations that were made by reviewing the available information:

- Evidence of settlement of the roof line is visible in an area approximately 30m north of Building 102 (Photo 1).
- Exterior tar paper siding is damaged and is being wind blown off the structure leaving the underlying bare wood structure to be exposed to the weather (Photo 1).
- Movement of the A-frame support legs is visible. Some of the legs have twisted or moved perpendicular to the plane of deflection (Photos 2, 4, 7).
- Several wooden grade level ties located between the A-frame legs have been damaged or have moved from their original position (Photo 3).
- Concrete foundation supporting legs have cracked (Photos 5, 8) which has decreased their ability to support a vertical load.
- Photos 6 and 9 shows there has been lateral movement of the elevated gallery. This indicates there is a lack of longitudinal stability of the overall structure.
- The supports are very close to an active service road, there are no means of traffic protection (vehicles, snowplough) for the A-frame legs.

The November 2009 Risk Registry reported that there would be a High Community/Media Reputation Risk and a Moderate Environmental Risk in the event there was a fire in the elevated conveyor gallery and that the wooden gallery would act as a fire conduit between Buildings 102 and Building 106. There is currently no fire break between the adjacent buildings and the conveyor gallery.

Discussion

The photographs indicate that there has been structural degradation of the conveyor gallery since it was originally constructed. Additional movement and degradation would be expected in the event that the structure is not properly inspected and maintained. Based on the deteriorated state it is difficult to determine the loads the structure is capable of withstanding. However, based on its current condition, in the event there was additional damage or failure to one or more of the A-frame legs it is anticipated that there could be a progressive failure in the remaining supporting members resulting in a collapse of the elevated gallery.

Recommendation

Since the structure is no longer used or maintained for its original use, and it represents a potential risk to site users, it is recommended that this structure be demolished. Due to the potential for one or more of the supporting legs to be moved/damaged during routine care and maintenance activities, it is recommended that the demolition of this structure be planned as a near term action item (within 1 year).

Closing

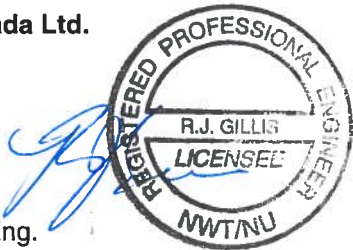
Engineering judgment has been used in the preparation of this report and the conclusions and recommendations are based solely on the information made available. If further information germane to issues discussed in this report become available, AECOM reserves the right to revise the contents and conclusions outlined herein.

The above report has been prepared for the exclusive use of the Government of Canada in determining a course of action with respect to the issues outlined in this report. There are no representations of any kind made by AECOM to any party other than the Government of Canada.

Should you wish to discuss this matter any further, please contact me at (780) 486-7000.

Sincerely,


AECOM Canada Ltd.



Bob Gillis, P.Eng.
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Sept 15, 2011

Encl.: Appendix A: Reference Documents

PERMIT TO PRACTICE AECOM Canada Ltd.	
Signature	
Date	<i>Sept 15/11</i>
PERMIT NUMBER: P639	
NWT/NU Association of Professional Engineers and Geoscientists	



RISK MANAGEMENT REPORT - DETAILED

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UNPROTECTED

SM221 GIANT MINE (GIANT YELLOWKNIFE MINES; ROYAL OAK MINES; A, B & C SHAFTS)

Mine Sites

NORTHWEST TERRITORIES

9.14 Screenhouse and conveyor gallery and pipe gallery to roaster

NAME: Screenhouse and conveyor gallery and pipe gallery to roaster

NUMBER: 9.14

ABBREVIATION:

CLASSIFICATION:

LOCATION:

DESCRIPTION:

KEY ISSUE:

CONCERNS:

KEY INDIVIDUAL:

KEY INFORMATION:

9.14.1 Fire in galleries causes fire in other buildings.

Consequence	Severity	Likelihood	Risk
Environmental Impact	Minor	Possible	Moderate
Consequence Costs	Moderate	Possible	Moderately High
Community/Media/Reputation	Major	Possible	High
Human Health & Safety	Moderate	Possible	Moderately High

Comment: Acts as fire conduit between buildings including mill, roaster and headframe/crusher building. Cost are linked to other buildings. Gallery between Mill and Roaster has been severed, gallery between C-shaft to Mill is still intact.

Control: Gallery between Mill and Roaster has been severed, gallery between C-shaft to Mill is still intact but is planned for partial demolition in 07/08.
22/10/09 - gallery between C shaft and Mill still intact. Need to create break (some asbestos management involved).

CONVOC
FIRE LEADS
TO OTHER
BLDGs

A