

# INVESTIGATION SUMMARY REPORT

This report is intended to share the results of an investigation and remedial actions taken

## Marigold 2010-007

		CATEGORY		ACTUAL SEVERITY	
<b>REGION</b>	Canada and US	Injury	<input type="checkbox"/>	Fatality	<input type="checkbox"/>
<b>SITE</b>	Marigold Mine	Environmental	<input type="checkbox"/>	Lost Time	<input type="checkbox"/>
<b>LOCATION</b>	Truck Shop Bay 4	Equipment Damage	<input checked="" type="checkbox"/>	Medical Aid	<input type="checkbox"/>
<b>DEPARTMENT</b>	Mine Maintenance	Production Loss	<input checked="" type="checkbox"/>	First Aid	<input type="checkbox"/>
<b>DATE</b>	6/25/2010	Hazard	<input type="checkbox"/>	Near Miss	<input checked="" type="checkbox"/>
<b>TIME</b>	12:30	Other Incident	<input type="checkbox"/>	High Potential	<input checked="" type="checkbox"/>

### ACCIDENT DESCRIPTION

While Mine Maintenance was performing repairs on the 116 Ingersoll Rand DML Drill, the rear (non cab end) jack housing failed. The maintenance crew had removed the mast with the overhead crane and replaced the mast pivot bushings. The mast had just been reinstalled when the rear jack tube failed causing the rear of the drill to collapse to the floor. There were no personnel working in the vicinity of the jacks or under the drill at the time of the incident. The drill jacks were being used in the shop to provide additional stability during maintenance. There were no injuries associated with this incident.

### CAUSAL FACTORS

Substandard Condition: 24/Other Defective Tools/Equipment/Materials/36 Other: Equipment Failure  
The jack failed. All procedures and steps used during this process were followed properly. There was no evidence of misuse.

### BASIC CAUSES

Metal failure of the rear stabilizer jack structural mounting tube on the Ingersoll Rand DML Drill # 116

### ROOT CAUSES

72.1 Inadequate Technical Design. The strength of the jack tube was not sufficient to sustain the wear and tear that the drills are exposed to resulting in premature catastrophic failure. Discussions with Cate Equipment (Dealer) indicated that the jack tubes were upgraded. Subsequent inspection of other DML drills on site also identified similar problem on those units.

77.5 Inadequate Inspection and Monitoring. There was not a program/system in place to complete daily or periodic inspections of these components. The existing daily operator inspections were too generic to ensure that these items were thoroughly inspected before operation.

79 Other. There was a Technical Service Bulletin from Ingersoll Rand recommending that these jacks be upgraded with a redesigned model due to structural issues that was issued in 2003. Marigold Mine was not aware of this recommendation.

## CORRECTIVE ACTIONS

- Inspect all DML Drills on site (Completed)
- Perform NDT on all drill jack tubes (Completed)
- Establish PM System to monitor these components on the drills to include daily visual inspections, scheduled PM inspections on annual NDT tests
- Complete update of Preshift Exam Sheet for Blast Drills
- Provide training update on this incident/issue with the drillers and maintenance personnel
- Revise Drill SOP to ensure that proper visual inspection of these jacks is completed before operation.
- Review Incident With all personnel on mine
- Review incident with other mines and organizations
- Review incident with Cate Equipment (Authorized Dealer). Completed.
- Identify a means of ensuring that Technical Service Bulletins are communicated/reviewed with Marigold Mine.

## PHOTOGRAPHS

