MAI-2010-08

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
Metal and Nonmetal Mine Safety and Health

REPORT OF INVESTIGATION

Underground Metal Mine
(Uranium)

Fatal Fall of Rib Accident
May 26, 2010

Reliance Resources, LLC.
Contractor ID No. M879
at
Pandora Complex
Denison Mines (USA) Corporation
La Sal, San Juan County, Utah
Mine ID No. 42-00470

Investigators

Melvin M. Lapin
Mine Safety & Health Inspector

James G. Vadnal
Mining Engineer

Kent L. Norton
Mine Safety & Health Specialist

Originating Office

Mine Safety and Health Administration
Rocky Mountain District
PO Box 25367, DFC
Denver, CO 80225-0367
Richard Laufenberg, District Manager

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Jack Leg Drills
Hose, Drill Steel, etc.
Victim's Location
Fallen Rib Material

OVERVIEW

Hunter L. Diehl, Miner 1, age 28, died on May 26, 2010, when a section of rib fell on him. He was manually scaling loose material from the rib when it fell. The material that fell was about 15 feet wide, 11 feet long, and 4 to 30 inches thick.

The accident occurred because management policies, procedures, and controls were inadequate. The area was not examined or tested by an experienced person designated by the mine operator prior to work commencing in the affected area. Additionally, procedures to ensure that persons scale loose ground from a safe location were not adequate.

GENERAL INFORMATION

Pandora Complex, an underground uranium/vanadium mine, operated by Denison Mines (USA) Corporation, is located in La Sal, San Juan County, Utah. The principal operating official wasRandy Marsing, project manager.

Reliance Resources, LLC., located in Moab, Grand County, Utah, was contracted by Denison Mines (USA) Corporation, to operate a portion of the mine. The principal operating official was Michael Shumway, general supervisor.

Uranium/vanadium bearing ore was drilled, blasted, and transported to an off-site mill where it was processed into vanadium and uranium oxide concentrate, commonly referred to as yellow cake uranium. The finished products were sold to commercial industries and utilities.

DESCRIPTION OF THE ACCIDENT

On the day of the accident, Hunter Diehl (victim), reported for work at 6:00 a.m., his normal starting time. He attended a safety meeting with 19 other miners. After the meeting Diehl, Thayn Shumway, leadman, Jessie Wickham, leadman, and Audren Adams, miner, traveled together into the mine in a small utility vehicle.

About 6:35 a.m., they stopped near the water tank area. Wickham directed Diehl to drive a 7-ton haul truck to the left heading of the 4500 left section and begin inspecting and scaling the area as needed. Diehl went to the 4500 left section, parked the truck, and walked into the drift. A short time later a large section of the right rib fell and struck him. There were no witnesses to the accident.

About 6:48 a.m., Chris Lawson, truck driver, was driving by the 4500 left heading when he noticed Diehl signal for help using his cap lamp. Lawson stopped and asked Diehl if he was okay. Diehl stated that he needed help.

Lawson used a telephone in the area to contact the surface and summon for emergency medical services. Several miners arrived at the scene to assist and administer Cardiopulmonary Resuscitation (CPR). Emergency Medical Services arrived at the mine and transported Diehl to a local hospital where he was pronounced dead by the attending physician at 8:48 a.m. The cause of death was blunt force trauma.

INVESTIGATION OF THE ACCIDENT

The Mine Safety and Health Administration (MSHA) learned of the accident through the media. Michael Okuniewicz, supervisory mine safety & health inspector, contacted Jick Taylor, co-owner, at 11:10 a.m., on May 26, 2010, and an investigation was started the same day. A Part 50 order was issued to Reliance Resources, LLC., for untimely reporting. A Part 50 citation was issued

to Denison Mines (USA) Corporation, for untimely reporting. An order was issued under the provisions of Section 103(j) of the Mine Act to ensure the safety of the miners.

MSHA's accident investigation team traveled to the mine, conducted a physical inspection of the accident scene, interviewed employees, and reviewed conditions and procedures relevant to the accident. MSHA conducted the investigation with the assistance of mine and contractor management and employees and the San Juan County Sheriff's Office.

DISCUSSION

Location of the Accident

The accident occurred in the entrance of the drift accessing the left heading of the 4500 left section of the mine. The face of the drift was approximately 51 feet from the victim's location. The drift was approximately 12 feet wide and 12 feet high. Two days before the accident, this area was scaled and cleaned up in preparation for driving a ventilation drift from this area to another section of the mine on the 5000 level. This area had been inactive during the previous 18 months.

The day before the accident, the heading was drilled, blasted, manually scaled, and mucked out. The heading was then drilled and blasted again at end of the shift. A 92-inch long hand scaling bar was found near the victim. By the position of his scaling bar, it appeared that Diehl was located near the center of the section of rib that fell.

Geology

Mining at the Pandora Mine Complex began in the early 1970's. The underground portion of the complex was extensive, measuring approximately 1½ miles long by ¾ mile wide, and trended in an east-west direction. The mine was accessed through the Pandora decline slope. Mining was not systematic and mine headings were driven in various directions and followed the trends of the uranium/vanadium ore.

The ore at the mine was composed of minerals deposited through secondary mineralization within sandstone units of the lower salt wash member of the Morrison formation. The ore appeared as dark bands and zones within the sandstone and was a well sorted medium to coarse grained sandstone that had been classified as a tabular fluvial deposit. Mining took place in the lower portion of the sandstone unit. Cover above the 4500 left section of the mine was about 400 to 450 feet.

The mined sandstone had a distinct vertical joint set. Joints were naturally occurring fractures where there had been no lateral movement in the plane of the

fracture of one side relative to the other. Joints generally occurred as sets, with each set consisting of joints roughly parallel to each other. Joint sets were formed when the rock layers were compressed and stretched as they were being uplifted. The mine's dominate joint set had a direction of approximately North 110 degrees East. The joints at the mine had a random spacing of several inches to several feet. Numerous closely spaced joints, between 3 and 8 inches apart, over a distance of 12 feet, were observed in the right rib at the intersection of 4500 left, center heading and 4500 left section, left heading (See Appendix D).

These closely spaced joints were observed in the roof crossing the intersection and intersecting the mine rib between the left and center headings at what is commonly referred to as the point (or nose) of the intersection. These joints at the point of the intersection ran parallel to the left rib in the 4500 left section, left heading. The orientation of both the left heading and the closely spaced joint set contributed directly to the rib failure.

Ground Support

At the time of the accident, the existing ground support plan stated that ground support would be installed randomly, on an as needed basis, as determined by each worksite inspection. The types of ground support used included: steel sets, timbers, split set bolts, resin grouted bolts, steel mats, and reel lock fencing. The typical type of ground support used in the mine was 5 foot long split set bolts installed with 6-inch square plates. Ground support was not installed on the section of rib that fell.

Training and Experience

Hunter L. Diehl had 10 weeks of mining experience, all at this mine, and had been trained in accordance with 30 CFR Part 48.

ROOT CAUSE ANALYSIS

A root cause analysis was conducted and the following root causes were identified.

Root Cause: Management policies, procedures, and controls failed to ensure that experienced persons, examined and tested for loose ground in areas prior to work commencing.

Corrective Action: Management amended the written work procedures to ensure that experienced persons test for loose ground in areas prior to work commencing. The miners received additional training regarding examining and testing for loose ground.

Root Cause: Management policies, procedures, and controls failed to ensure that scaling of loose ground was performed from a safe location.

Corrective Action: Management amended the written work procedures to ensure that persons engaged in the scaling of loose ground perform the task from a safe location. The miners have received additional training regarding proper manual scaling methods.

CONCLUSION

The accident occurred because management, policies, procedures, and controls were inadequate. The area was not examined or tested by an experienced person designated by the mine operator prior to work commencing in the affected area. Additionally, procedures to ensure that persons scale loose ground from a safe location were not adequate.

ENFORCEMENT ACTIONS

Issued to Reliance Resources, LLC.

Order No. 6580467 was issued on May 26, 2010, under the provisions of Section 103(j) of the Mine Act:

A fatal accident occurred at this operation on May 26, 2010, at about 6:30 a.m. As rescue and recovery work is necessary, this order is being issued, under Section 103(j) of the Federal Mine Safety and Health Act of 1977, to ensure the safety of all persons at this operation. This order is also being issued to prevent the destruction of any evidence which would assist in investigating the cause or causes of the accident. It prohibits all activity at Reliance Resource's portion of the Pandora Complex mine, except to the extent necessary to rescue an individual or prevent or eliminate an imminent danger, until MSHA has determined that it is safe to resume normal mining operations in this area. This order applies to all persons engaged in the rescue and recovery operation and any other persons onsite. This order was initially issued orally to the mine operator at 11:10 a.m.

This order was subsequently modified to Section 103(k) and was terminated on July 13, 2010. Conditions that contributed to the accident no longer exist.

Citation No. 6459286 was issued on June 30, 2010, under the provisions of Section 104(d)(1) of the Mine Act for a violation of 30 CFR 57.3401:

A fatal accident occurred at this operation on May 26, 2010, when a miner with 10 weeks total mining experience was struck by falling debris from a rib near the entrance of the left heading of the 4500 left section. A person experienced in examining and testing for loose ground designated by the mine operator had not made an examination of the area before the miner entered the area. The lead man engaged in aggravated conduct constituting more that ordinary negligence, in that, he had instructed the miner to enter the area before he made his

examination of the area. This is an unwarrantable failure to comply with a mandatory standard.

The citation was terminated on July 14, 2010. Management amended the written work procedures to ensure that only experienced persons test for loose ground in areas prior to work commencing. All miners received additional training regarding examining and testing for loose ground.

Citation No. 6459287 was issued on June 30, 2010, under the provisions of Section 104(a) of the Mine Act for a violation of 30 CFR 57.3201:

A fatal accident occurred at this operation on May 26, 2010, when a new miner with 10 weeks of total mining experience was struck by falling material when a section of the right rib fell while he was hand scaling the roof and rib in the entrance of the left heading of the 4500 left section of the mine. The scaling was not performed from a location which would not expose him to injury from falling material as required, nor was other protection from falling material provided.

The citation was terminated on July 14, 2010. Management amended the written work procedures to ensure that persons engaged in the scaling of loose ground perform the task from a safe location. All miners received additional training regarding proper manual scaling methods.

Approved by, Date: September 7, 2010

Richard Laufenberg
District Manager

LIST OF APPENDICES

APPENDIX A

Persons Participating in the Investigation

Denison Mines (USA) Corp.
Phillip Buck..... Vice President, Mining

Reliance Resources, LLC
Jeff Mogensen..... Mine Manager/Co-Owner
Jick Taylor..... Co-Owner
Jerry Cowan..... Co-Owner
Michael Shumway..... Co-Owner/General Supervisor

San Juan County Sheriff's Office
Adam Young .....Deputy Coroner

Mine Safety and Health Administration
Melvin M. Lapin.....Mine Safety & Health Inspector
James G. Vadnal.....Mining Engineer
Kent L. Norton.....Mine Safety & Health Specialist

APPENDIX B

Accident Investigation Data - Victim Information

Event Number: 6 5 5 1 6 0 3

U.S. Department of Labor
Mine Safety and Health Administration

Victim Information: 1

1. Name of Injured/Ill Employee:	2. Sex	3. Victim's Age	4. Degree of Injury:
Hunter L. Diehl	*M*	*28*	*01 Fatal*

5. Date(MM/DD/YY) and Time(24 Hr.) Of Death:	6. Date and Time Started:
a. Date: 05/26/2010 b.Time: 8:58	*a. Date: 05/26/2010 b.Time: 6:00*

7. Regular Job Title:	8. Work Activity when Injured:	9. Was this work activity part of regular job?
076 7-ton Young Buggy Driver	*006 Barring down loose rib material*	Yes X No

10. Experience	Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days
a. This Work Activity:	*0*	*10*	*0*	b. Regular Job Title:	*0*	*10*	*0*	c: This Mine:	*0*	*10*	*0*	*d. Total* Mining:	*0*	*10*	*0*

11. What Directly Inflicted Injury or Illness?	12. Nature of Injury or Illness:
122 Loose ground	*370 Blunt force trauma to back*

13. Training Deficiencies:
Hazard: | New/Newly-Employed Experienced Miner: | Annual: | Task:

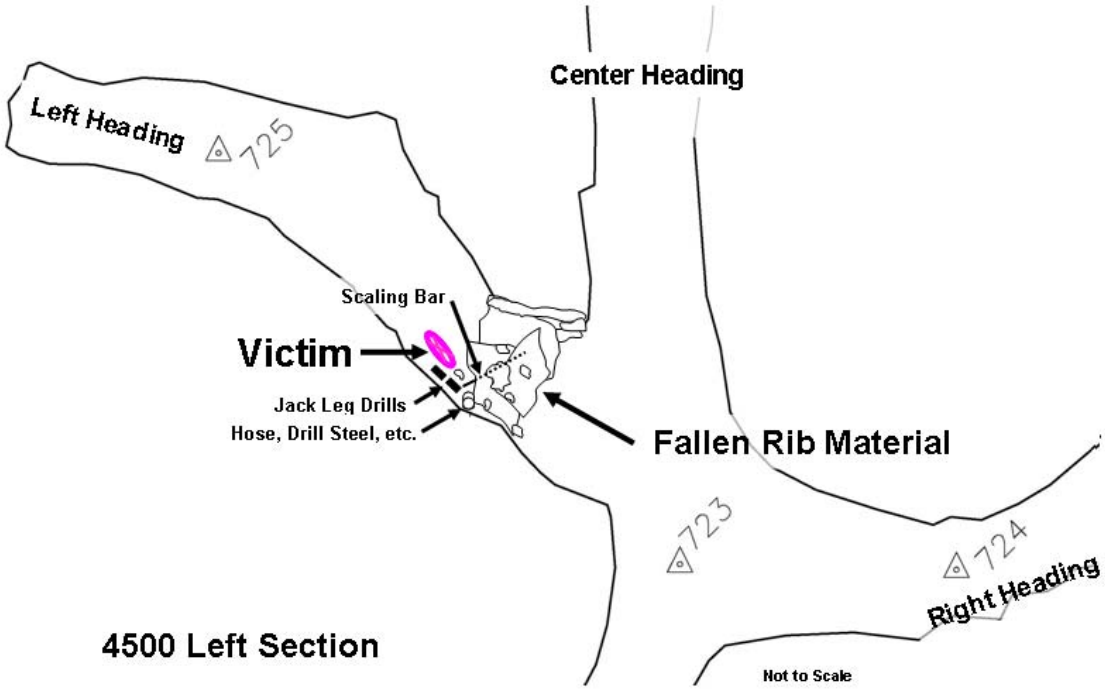
14. Company of Employment: (If different from production operator)
Reliance Resources LLC
Independent Contractor ID: (if applicable) *M879*

15. On-site Emergency Medical Treatment:
Not Applicable: | First-Aid: | CPR: | EMT: X | Medical Professional: | None:

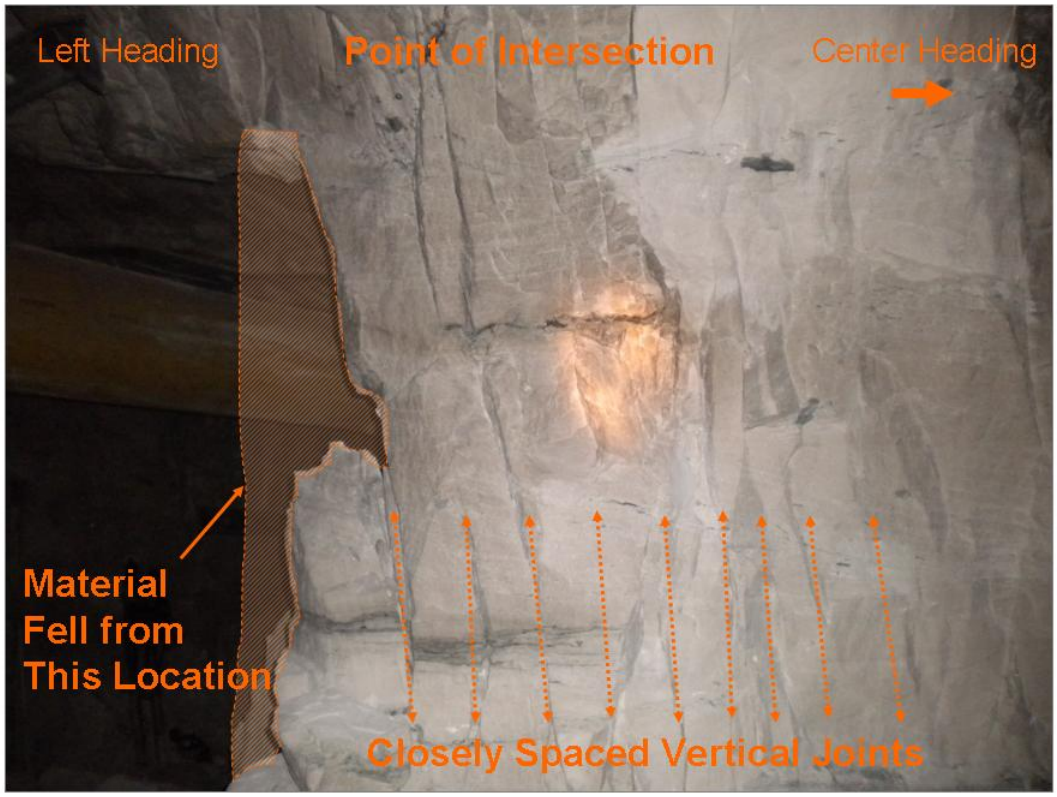
16. Part 50 Document Control Number: (form 7000-1)

17. Union Affiliation of Victim: *9999* *None (No Union Affiliation)*

APPENDIX C


Center Heading
Left Heading
725
Scaling Bar
Victim
Jack Leg Drills
Hose, Drill Steel, etc.
Fallen Rib Material
723
724
Right Heading
4500 Left Section
Not to Scale

APPENDIX D


Left Heading
Point of Intersection
Center Heading
Material
Fell from
This Location
Closely Spaced Vertical Joints