

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

REPORT OF INVESTIGATION

**Underground Nonmetal Mine
Limestone (crushed and broken)**

**Fatal Fall of Person Accident
February 27, 2014**

**Interstate Power Systems, Inc.
Contractor I.D. No. T02**

at

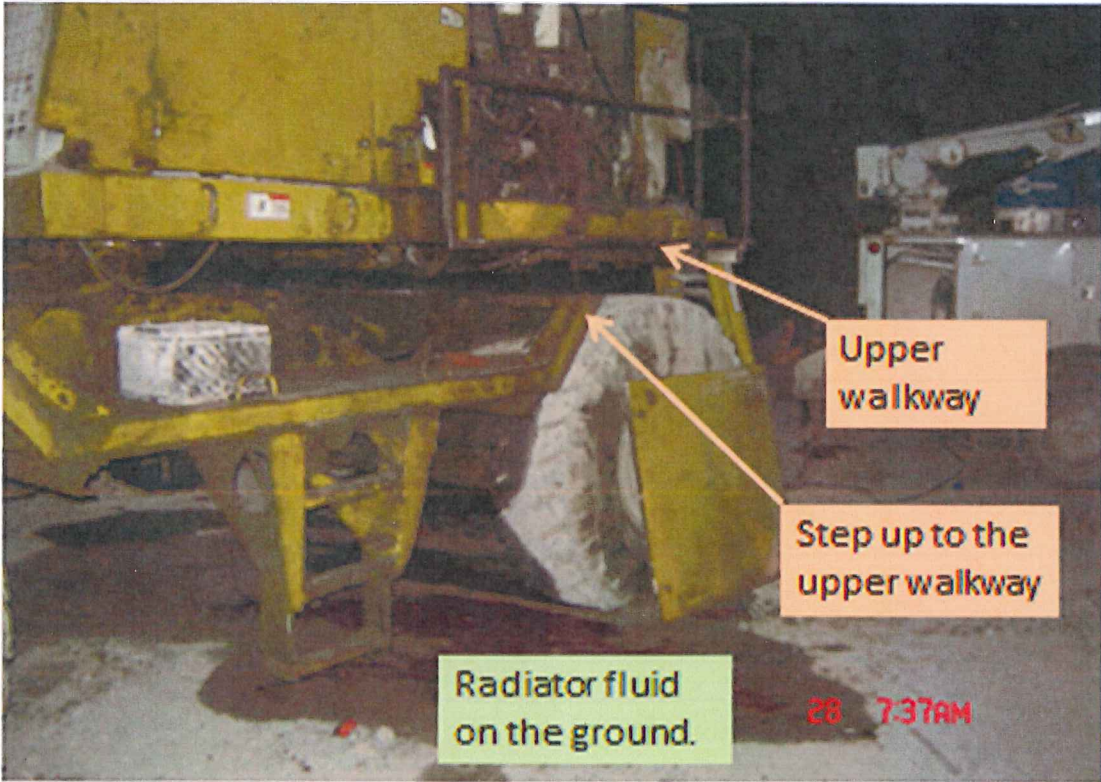
**Martin Marietta Materials, Inc.
Ames Mine
Ames, Story County, Iowa
Mine I.D. No. 13-00014**

Investigators

**Thaddeus J. Sichmeller
Mine Safety and Health Inspector**

**Troy A. Van Wey
Supervisory Mine Safety and Health Inspector**

**Originating Office
Mine Safety and Health Administration
North Central District
515 W. First Street, Room 323
Duluth, MN 55802-1302
Gerald Holeman, Acting District Manager**



Upper walkway

Step up to the upper walkway

Radiator fluid on the ground.

28 7:37AM

OVERVIEW

Courtney J. Johnston, Contract Service Technician, age 27, was seriously injured at this mine on February 27, 2014. Johnston was repairing a hydraulic pump on a scaler when he fell from an attached platform approximately five feet to the ground. He was airlifted to a hospital where he died on February 28, 2014.

The accident occurred due to management's failure to ensure the platform walkway on the scaler was free of slip, trip, and fall hazards. Johnston was not effectively protected from these hazards while working from the upper elevated work platform on the scaler.

The scaler had a multi-level platform system. The lower platform was originally constructed and installed by the manufacturer. The upper platform, constructed by the mine operator in June 2013, was affixed to the scaler at the engine compartment. The upper platform was framed in 2-inch wide angle iron and filled with grating for a walking surface. However, the grating wasn't flush with the top edges of the framing, leaving an approximate 1³/₄-inch high tripping hazard at the access point. This access point was not provided with a railing, barrier, or cover to prevent a person from a slip, trip, or fall hazard.

While outside handrails were provided on both platforms, they were not adequate in preventing a person from falling over the railing where the upper platform transitioned via a step to the lower platform. The handrail height, as a person was positioned at the step, was approximately 32 inches high.

GENERAL INFORMATION

Ames Mine, an underground limestone mine owned and operated by Martin Marietta Materials, Inc., is located in Ames, Story County, Iowa. The principal operating official is Douglas Robey, Plant Manager. The mine operates two 11-hour shifts per day, 5 days per week. An alternating shift works on the weekends. Total employment is 62 full time and 5 part time persons.

Limestone is drilled, blasted, and crushed underground. The material is transported by belt conveyors to the surface where it is crushed again, sized, and stockpiled. Finished products are sold for use in the construction and agriculture trades.

Martin Marietta Materials, Inc. contracted Interstate Power Systems, Inc. to provide maintenance repairs for diesel and electrically powered equipment at the mine. Interstate Power Systems, Inc. is based in Minneapolis, Minnesota. The principal operating official is Robert Woodward, Executive Vice-President. The contractor provided service to the mine on a weekly basis, Monday through Friday, 11 hours each day with two technicians alternating on a weekly basis.

The Mine Safety and Health Administration (MSHA) completed the last regular inspection at this operation on February 5, 2014.

DESCRIPTION OF ACCIDENT

On the day of the accident, Courtney Johnston (victim), reported to the mine at 6:00 a.m., his usual starting time. He attended a morning safety meeting conducted by Ronald Hampton, Leadman. After the meeting, Hampton sent Johnston to module 2, an underground section of the mine, to work on equipment.

At approximately 10:00 a.m., a hydraulic pump was delivered to the mine for a scaler that had been out of service for approximately one week. Johnston traveled to Module 12 to repair the scaler. Hampton directed Michael Harmison, Lube Technician, to assist Johnston. Harmison delivered lube oils to the scaler then left, leaving Johnston to work alone, repairing the scaler.

At approximately 2:00 p.m., the repairs on the scaler were completed. Hampton instructed William Kincheloe, Roof Bolter, to help Johnston reinstall the panel doors on the scaler which were removed in order to install the hydraulic pump. The scaler was started briefly to ensure it was operational.

At approximately 3:35 p.m., Hampton arrived and performed a gas check. He observed Johnston and Kincheloe working and then left for the surface.

At approximately 4:00 p.m., Hampton returned and saw Kincheloe on the operator's cab side of the scaler and Johnston on the opposite side (left side) at the rear of the upper work platform in front of the panel door. Kincheloe left the scaler and approached Hampton to discuss another project. As they talked, Hampton saw Johnston on the upper catwalk and then suddenly fall. Kincheloe was facing Hampton but heard Johnston land on the ground. Hampton and Kincheloe immediately rushed to Johnston's aid but found him unresponsive.

Hampton left to call Robey from the MCC 1 (motor control center) phone while Kincheloe remained with Johnston. Hampton then contacted 911.

Emergency Medical Services arrived and transported Johnston to the surface. Johnston was airlifted to Mercy Medical Center in Des Moines, Iowa, where he died on February 28, 2014, as a result of his injuries. The cause of death was attributed to fatal head trauma.

INVESTIGATION OF THE ACCIDENT

On February 27, 2014, MSHA was notified of the accident, at 4:31 p.m. by a telephone call from Douglas Robey, Plant Manager, to MSHA's National Call Center. The Call Center notified Gerald D. Holeman, Assistant District Manager, and an investigation began the same day. An order was issued pursuant to Section 103(j) of the Mine Act to ensure the safety of the miners. This order was later modified to Section 103(k) of the Mine Act when the first Authorized Representative arrived at the mine.

MSHA's accident investigation team traveled to the mine, conducted a physical examination of the accident site, interviewed employees, and reviewed documents, equipment and work procedures relevant to the accident. MSHA conducted the investigation with the assistance of mine management and employees and contractor personnel.

DISCUSSION

Location of the Accident

The accident occurred in the Lime Creek area of the underground portion of the mine at Module 12 Road 16. There was no visible loose rock material in the area of the accident. Lighting was determined to be adequate. The victim's service truck was positioned so its flood lights could be used as repairs were made. Additionally, a flashlight and trouble light were also used.

Scaler

The scaler involved in the accident is a Gradall Mechanical Scaler, Model XL-5110. It is used to trim loose material from the mine roof and ribs. Access to the operator's cab is located on the right side of the machine via an access ladder. Both sides of the scaler have elevated platforms provided by the manufacturer, measuring approximately 60 inches long and 24 inches wide. They are positioned approximately 46 inches above the ground. Each lower platform is accessed via vertical, manufactured ladders, positioned approximately center to the platforms and between the scaler's front and rear tires.

Structurally, each lower platform is a component of the unit's main chassis so the upper cab and turret components can swing or turn freely above the lower chassis. Consequently, the lower platforms do not have handrails that could possibly obstruct the unit from swinging freely around on its frame.

The ends of the existing upper work platforms are provided with a single manufactured step that provides persons access to the engine compartments located near the rear of the scaler.

In June 2013, mine management designed and installed the upper work platforms with handrails to help miners readily access the engine compartment areas.

The upper platforms are accessed from the lower access platform via the existing step. The left side upper platform, where the victim fell, measured approximately 40 inches long, 12 inches wide, and approximately 65 inches above the ground. The upper left platform's frame is constructed of 2-inch angle iron stock. The surface of the upper left platform is clad with ¼-inch expanded metal decking, positioned so it is recessed inside the angle iron frame.

A double railing for the upper left platform, constructed from 1-inch square metal tubing and attached to the platform frame, created a top handrail height of approximately 40 inches and a mid-rail height of 24 inches above the walking surface.

The hand rail system for the upper left platform also extended out and over the lower platform at the mid-rail height, to serve as an upper hand rail to persons positioned on the lower platform. The upper platform's mid-rail extension was 42 inches above the lower platform and 32 inches above the access step. Additionally, the upper platform's hand rail system extension had a lower mid-rail positioned 18 inches above the lower platform and 7 inches above the step.

TRAINING AND EXPERIENCE

Courtney Johnston (victim) had 3 years of experience with the contractor, including approximately 1 year of experience at the mine. The investigators reviewed Johnston's training records and found that he had been provided only 32 hours of the required 40 hours of new miner training. A non-contributory citation was issued. Johnston had been working at the mine every other week since June 2013. He had received 8 hours of annual refresher training, both in April 2012, and April 2013, applicable to both surface and underground mining. Johnston also received hazard training at the mine.

ROOT CAUSE ANALYSIS

The investigators conducted a root cause analysis of this accident. The investigators identified the following root cause and the corresponding corrective action implemented to prevent a recurrence of the accident:

ROOT CAUSE: Mine management failed to ensure that persons could safely work on the upper platform on the scaler. When the upper platform was constructed, mine management did not ensure that the grating was flush with the top edges of the framing, leaving an approximate 1 $\frac{3}{4}$ -inch high tripping hazard at the access point that was not provided with a railing, barrier, or cover to prevent a person from a slip, trip, or fall hazard.

Additionally, outside handrails were provided on both platforms but were not adequate in preventing a person from falling where the upper platform

transitioned via a step to the lower platform. The handrail height, as a person was positioned at the step, was approximately 32 inches high.

CORRECTIVE ACTION: Mine management modified the angle iron to eliminate the tripping hazard at the access point to the upper platform. Additionally, a chain was placed across the opening access as a barrier to prevent persons from falling from the upper platform. The railing on the platform was also modified by adding an additional section at the transition points between the upper and lower platforms.

CONCLUSION

The victim was not effectively protected while working from the upper elevated work platform on the scaler. The accident occurred due to management's failure to ensure the walkway on the platform on the scaler was free of slip, trip, and fall hazards.

The scaler had a multi-level platform system. The lower platform was originally constructed by the manufacturer. The upper platform, constructed by the mine operator in June 2013, was affixed to the scaler at the engine compartment. The upper platform was framed in 2-inch wide angle iron and filled with grating for a walking surface. However, the grating wasn't flush with the top edges of the framing, leaving an approximate 1³/₄-inch high tripping hazard at the access point that was not provided with a railing, barrier, or cover to prevent a person from a slip, trip, or fall hazard.

Outside handrails were provided on both platforms but were not adequate in preventing a person from falling where the upper platform transitioned via a step to the lower platform. The handrail height, as a person was positioned at the step, was approximately 32 inches high.

ENFORCEMENT ACTIONS

Issued to Martin Marietta Materials, Inc.

Order No. 6550469 - Issued on February 27, 2014, under the provisions of Section 103(j) of the Mine Act:

An accident occurred at this operation on 02/27/2014 at approximately 4:25 pm. This order is being issued, under Section 103(j) of the Federal Mine Safety and Healthy Act of 1977, to prevent the destruction of any evidence which would assist in investigating the cause or causes of the accident. It prohibits all activity at the mine scaler until MSHA has determined that it is safe to resume normal mining operations in this area. This order was initially issued orally to the mine operator at 6:00 pm and has now been reduced to writing.

This order was terminated on March 17, 2014, after conditions that contributed to the accident no longer existed.

Citation No. 8847061 – issued under the provisions of 104(a) of the Mine Act for a violation of 30 CFR Part 57.11001:

A contractor was fatally injured at this mine on February 27, 2014, when he fell from the upper work platform on a scaler. The scaler had a multi-level platform system. The lower platform was original construction by the manufacturer. The upper platform, constructed by the mine operator in June 2013, was affixed to the scaler at the engine compartment. The upper platform measured approximately 12 inches wide, 40 inches long, and 65 inches in height above the ground. Outside handrails were provided on both platforms. The upper platform was framed in two inch wide angle iron and filled with grating for a walking surface. The grating wasn't flush with the top edges of the upper platform framing, leaving an approximate 1 and $\frac{3}{4}$ inches high tripping hazard, at the access point.

Citation No. 8847062 -- issued under the provisions of 104(a) of the Mine Act for a violation of 30 CFR Part 57.11012:

A contractor was fatally injured at this mine on February 27, 2014, when he fell from the upper work platform on a scaler. The scaler had a multi-level platform system. The lower platform was original construction by the manufacturer. The upper platform, constructed by the mine operator in June 2013, was affixed to the scaler at the engine compartment. The upper platform measured approximately 12 inches wide, 40 inches long, and 65 inches in height above the ground. Outside handrails were provided on both platforms. The upper platform was framed in two inch wide angle iron and filled with grating for a walking surface. The grating wasn't flush with the top edges of the framing, leaving an approximate 1 and $\frac{3}{4}$ inches high tripping hazard, at the access point. The end of the walkway, the access point, was not provided with a railing, barrier, or cover to prevent a person from a slip, trip, or falling hazard.

Citation No. 8847063 -- issued under the provisions of 104(a) of the Mine Act for a violation of 30 CFR Part 57.11002:

A contractor was fatally injured at this mine on February 27, 2014, when he fell from the upper work platform on a scaler. The scaler had a multi-level platform system. The lower platform was original construction by the manufacturer. The upper platform, constructed by the mine operator in June 2013, was affixed to the scaler at the engine compartment. The upper platform measured approximately 12 inches wide, 40 inches long, and 65 inches in height above the ground. The upper platform was framed in two inch wide angle iron and filled with grating for a walking surface. The grating wasn't flush with the top edges of the framing, leaving an approximate 1 and $\frac{3}{4}$ inches high tripping hazard, at the access point. Outside handrails were provided on both platforms but were not adequate in preventing a person from falling over where it transitioned to a step, located between the upper and the lower platforms. The handrail height, as a person was positioned at the step, was approximately 32 inches high.

Approved by:

Date: August 25, 2014



Gerald D. Holeman
Acting District Manager
North Central District

APPENDIX A

Persons Participating in the Investigation

Martin Marietta Minerals, Inc.

Douglas Robey	Plant Manager
Malinda Feola	Division HR Director
Ronald Hampton	Leadman
William Kincheloe	Roof Bolter
David Norman	Foreman
Michael Harmison	Lube Technician
Phyllip Bowers	Assistant Plant Manager

Interstate Power Systems, Inc.

William Boyle	Safety Manager
Mick Swolley	Branch Manager
Matt Finch	Service Manager

Mary Greely Medical Center

Chris Perrin	EMT – Paramedic
Samuel Boyer, Groff	EMT – Paramedic

Polk County Medical Examiners

Amy Williamson	Medicolegal Death Investigator
Gregory A. Schmunk	Chief Medical Examiner

Mine Safety and Health Administration

Thaddeus J. Sichmeller	Mine Safety and Health Inspector
Troy A. Van Wey	Supervisory Mine Safety and Health Inspector

APPENDIX B

Accident Investigation Data - Victim Information

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



Event Number:

6	5	1	8	2	3	8
---	---	---	---	---	---	---

Victim Information: **1**

1. Name of Injured/Ill Employee: <i>Courtney J. Johnson</i>		2. Sex <i>M</i>	3. Victim's Age <i>27</i>	4. Degree of Injury: <i>01 Fatal</i>											
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: <i>a. Date: 02/28/2014 b. Time: 9:37</i>				6. Date and Time Started: <i>a. Date: 02/27/2014 b. Time: 6:00</i>											
7. Regular Job Title: <i>104 Mechanic</i>		8. Work Activity when Injured: <i>039 Maintenance/Repair</i>			9. Was this work activity part of regular job? <table style="margin-left: auto; margin-right: auto;"><tr><td>Yes</td><td><input checked="" type="checkbox"/></td><td>No</td><td><input type="checkbox"/></td></tr></table>		Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>					
Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>												
10. Experience a. This	Years	Weeks	Days	b. Regular Job Title:	Years	Weeks	Days	c. This Mine:	Years	Weeks	Days	d. Total Mining:	Years	Weeks	Days
Work Activity:	<i>3</i>	<i>5</i>	<i>4</i>	Job Title:	<i>3</i>	<i>5</i>	<i>4</i>	Mine:	<i>0</i>	<i>18</i>	<i>5</i>	Mining:	<i>3</i>	<i>5</i>	<i>4</i>
11. What Directly Inflicted Injury or Illness? <i>016 elevated work platform</i>				12. Nature of Injury or Illness: <i>140 head injury</i>											
13. Training Deficiencies: Hazard: <input type="checkbox"/> New/Newly-Employed <input type="checkbox"/> Experienced Miner: <input checked="" type="checkbox"/> Annual: <input type="checkbox"/> Task: <input type="checkbox"/>															
14. Company of Employment: (If different from production operator) <i>Interstate Power System Inc.</i>					Independent Contractor ID: (if applicable) <i>T02</i>										
15. On-site Emergency Medical Treatment: Not Applicable: <input type="checkbox"/> First-Aid: <input checked="" type="checkbox"/> CPR: <input type="checkbox"/> EMT: <input type="checkbox"/> Medical Professional: <input type="checkbox"/> None: <input type="checkbox"/>															
16. Part 50 Document Control Number: (form 7000-1) <i>220140700017</i>				17. Union Affiliation of Victim: <i>9999 None (No Union Affiliation)</i>											