

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

REPORT OF INVESTIGATION

**Surface Nonmetal Mine
(Limestone)**

**Fatal Fall of Person Accident
May 22, 2008**

**Greenwade Mine
Conners Crushed Stone
Clifton, Bosque County, Texas
Mine ID No. 41-04402**

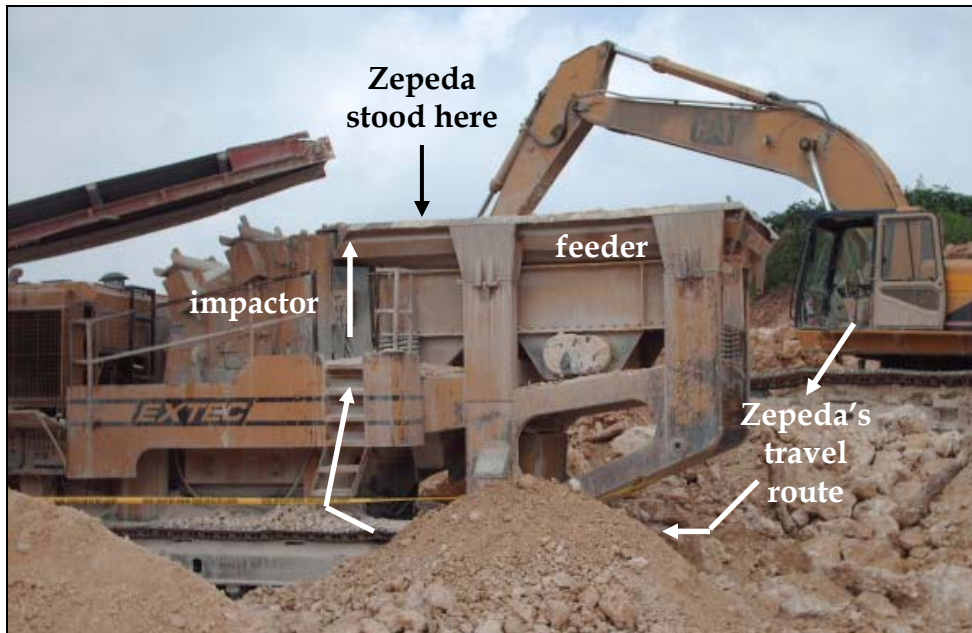
Investigators

**David B. Hamm
Mine Safety and Health Specialist**

**Elwood M. Burris
Mine Safety and Health Specialist**

**Ramiro Jimenez
Mine Safety and Health Inspector**

**Originating Office
Mine Safety and Health Administration
South Central District
1100 Commerce Street, Room 462
Dallas, TX 75242-0499
Edward E. Lopez, District Manager**



OVERVIEW

On May 22, 2008, Adrian Ortiz Zepeda, equipment operator, age 46, was fatally injured when he fell into an energized portable impact crusher. He was standing in a feeder while attempting to unclog material. Zepeda fell into the crusher that was still operating and was ejected from the discharge belt conveyor.

The accident occurred because management policies and work procedures failed to ensure that all components of electrically powered equipment were de-energized and blocked against hazardous motion before maintenance was performed.

GENERAL INFORMATION

Greenwade Mine, a surface crushed limestone operation, owned and operated by Conners Crushed Stone, was located near Clifton, Bosque County, Texas. The principal operating official was Jeffrey Conners, vice president. The mine operated one shift per day, six days per week. Total employment was nine persons.

Limestone was drilled, blasted, and loaded into the feeders of two portable crushers by an excavator and front-end loaders. A front-end loader placed the crushed rock in stockpiles. Finished products were sold for use as road aggregate.

The last regular inspection at this operation was completed on February 5, 2008.

DESCRIPTION OF THE ACCIDENT

On the day of the accident, Adrian Ortiz Zepeda reported for work at 6:30 a.m., his normal starting time. Zepeda, Manuel Cruz, loader operator, and Alejandro Holiguin, loader operator, assumed their duties in the pit.

Zepeda operated an excavator which dumped broken rock into a portable crusher. A remote control located in the excavator allowed Zepeda to de-energize the crusher feeder or shut down the entire crusher.

About 7:00 a.m., Zepeda and Conners repaired a hydraulic leak on the portable crusher then Zepeda began feeding the portable crusher. About 10:30 a.m., the crusher feeder clogged near the mouth of the crusher and Zepeda left the excavator to address the problem. He de-energized the feeder and left the crusher and discharge belt conveyor running.

Holiguin saw Zepeda get off the excavator. Holiguin left his loader and offered assistance to unclog the feeder. Zepeda asked Holiguin to ensure that no one turned on the feeder while he was on it. Holiguin sat down on a nearby pile of rocks and watched Zepeda use the fixed ladder on the portable crusher to reach the landing midway on the side of the crusher. Zepeda climbed from the landing up the side of the feeder and stood in it to clear clogged material.

A few minutes later, Holiguin heard an unfamiliar noise and saw Zepeda ejected from the portable crusher discharge belt conveyor onto a nearby screen. Holiguin hit the emergency stop button on the portable crusher to de-energize all components and called Cruz, who contacted Conners. Conners came to the portable crusher and called for emergency medical services (EMS). EMS responded to the scene but the victim was non-responsive. Zepeda was pronounced dead at the scene by the justice of the peace. The cause of death was attributed to blunt force trauma.

INVESTIGATION OF THE ACCIDENT

On the day of the accident, the Mine Safety and Health Administration (MSHA), was notified at 10:48 a.m. by a telephone call from Jeffrey Conners to MSHA's emergency hotline. Fred Gatewood, assistant district manager, was notified and an investigation was started the same day. An order was issued pursuant to section 103(k) of the Mine Act to ensure the safety of miners.

MSHA's accident investigation team traveled to the mine, made a physical inspection of the accident scene, interviewed employees, and reviewed documents and work procedures relevant to the accident. MSHA conducted the investigation with the assistance of mine management and employees.

DISCUSSION

Location of the accident

The accident occurred at a portable crusher in the pit. The weather was hot and dry and was not considered to be a factor in the accident.

Description of equipment

The portable crusher involved in the accident was an impact crusher manufactured by EXTEC Screens & Crushers Ltd. The crusher was self-contained, consisting of an open feeder with a vibrating pan, a rotating impactor, and a discharge belt conveyor. A 350-horsepower diesel engine powered the crusher hydraulics which powered all moving components of the crusher. An attached ladder provided access to a small landing about half way up one side of the crusher.

The feeder accepted broken rock that was moved into the mouth of the crusher box by the vibrating pan. The crusher rotated at 500-800 rpm, impacting rock against two metal aprons on either side of it. The aprons were adjustable to allow 1-inch to 6-inch maximum size rock to pass through the crusher. The setting was 4.5 inches at the time of the accident.

Crushed rock passed through the crusher and onto the discharge belt conveyor which dumped the material onto a double-deck screen located near the portable crusher. Over-sized material from the screen was returned to the portable crusher and finished products were moved by loader to a nearby stockpile.

In the event that material clogged the feeder near the mouth of the crusher box, miners used the bucket of the excavator to push the clogged material. If that procedure failed to clear the clogged material, persons shut down the portable crusher and cleared it with hand tools.

Training and Experience

Adrian Ortiz Zepeda (victim) was a new miner with 15 weeks mining experience, all at this operation. He had not received all required training in accordance with 30 CFR, Part 46. A non-contributory citation was issued.

Alejandro Holiguin had 18 months mining experience, all at this operation, and received training in accordance with 30 CFR, Part 46.

Manuel Cruz had two years mining experience, all at this operation, and received training in accordance with 30 CFR, Part 46.

ROOT CAUSE ANALYSIS

A root cause analysis was conducted and the following causal factor was identified:

Causal Factor: Management did not conduct a risk analysis to identify all possible hazards and ensure that controls were in place to protect persons performing work at the portable crusher. All components of the portable crusher were not de-energized and blocked against hazardous motion before the victim performed maintenance.

Corrective Action: Management must establish policies, procedures, and controls to ensure tasks are safely completed. A risk assessment should be performed before performing work. Any potential hazard associated with the task should be identified and appropriate measures taken to ensure the safety of all persons. Persons performing the task should be trained regarding safe work procedures.

CONCLUSION

The accident occurred because management policies and work procedures failed to ensure that all components of electrically powered equipment were de-energized and blocked against hazardous motion before maintenance was performed.

ENFORCEMENT ACTIONS

ORDER No. 7882496 was issued on May 22, 2008, under the provisions of Section 103 (k) of the Mine Act:

A fatal accident occurred at this mine at the EXTEC crusher. This order is issued to ensure the safety of all miners at the mine. The mine operator shall obtain prior approval from an authorized representative for all actions to recover and/or restore operation of the EXTEC crusher.

This order was terminated on May 28, 2008, after conditions that contributed to the accident no longer existed.

CITATION No. 6265226 was issued on June 9, 2008, under the provisions of Section 104(a) of the Mine Act for a violation of 56.14105:

A fatal accident occurred at this operation on May 22, 2008, when a miner fell into a rock crusher that had not been de-energized and blocked against hazardous motion.

This citation was terminated on June 9, 2008, after management established procedures to ensure that persons could safely unclog portable crushers. All persons were trained in these safe operating procedures.

Approved: _____
Edward E. Lopez
District Manager

Date: _____

APPENDIX A

PERSONS PARTICIPATING IN THE INVESTIGATION

Conners Crushed Stone

Jeffrey L. Conners	vice-president
Scott A. Conners	vice-president

Mine Safety and Health Administration

Elwood M. Burriss	mine safety and health specialist
David B. Hamm	mine safety and health specialist
Ramiro Jimenez	mine safety and health inspector

APPENDIX B

Accident Investigation Data - Victim Information												U.S. Department of Labor	
Event Number: 1 0 4 9 8 5 4												Mine Safety and Health Administration	
Victim Information: 1													
1. Name of Injured/Ill Employee: <i>Adrian O. Zepeda</i>			2. Sex <i>M</i>		3. Victim's Age <i>46</i>		4. Degree of Injury: <i>01 Fatal</i>						
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: <i>a. Date: 05/22/2008 b. Time: 10:31</i>						6. Date and Time Started: <i>a. Date: 05/22/2008 b. Time: 6:30</i>							
7. Regular Job Title: <i>181 Crusher operator</i>				8. Work Activity when Injured: <i>072 Clearing crusher feed</i>				9. Was this work activity part of regular job? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
10. Experience a. This			b. Regular			c. This			d. Total				
Years	Weeks	Days	Years	Weeks	Days	Years	Weeks	Days	Years	Weeks	Days		
Work Activity:	<i>0</i>	<i>15</i>	<i>2</i>	Job Title:		Mine:	<i>0</i>	<i>15</i>	<i>2</i>	Mining:	<i>0</i>	<i>15</i>	<i>2</i>
11. What Directly Inflicted Injury or Illness? <i>075 Impact Crusher</i>						12. Nature of Injury or Illness: <i>370 Blunt force trauma to entire body.</i>							
13. Training Deficiencies: Hazard: <input type="checkbox"/> New/Newly-Employed Experienced Miner: <input checked="" type="checkbox"/> Annual: <input type="checkbox"/> Task: <input checked="" type="checkbox"/>													
14. Company of Employment: (If different from production operator) <i>Operator</i> Independent Contractor ID: (if applicable)													
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)						17. Union Affiliation of Victim: <i>9999</i>						<i>None (No Union Affiliation)</i>	
Victim Information:													
1. Name of Injured/Ill Employee:			2. Sex		3. Victim's Age		4. Degree of Injury:						
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death:						6. Date and Time Started:							
7. Regular Job Title:				8. Work Activity when Injured:				9. Was this work activity part of regular job? <input type="checkbox"/> Yes <input type="checkbox"/> No					
10. Experience: a. This			b. Regular			c. This			d. Total				
Years	Weeks	Days	Years	Weeks	Days	Years	Week	Days	Years	Weeks	Days		
Work Activity:			Job Title:			Mine:			Mining:				
11. What Directly Inflicted Injury or Illness?						12. Nature of Injury or Illness:							
13. Training Deficiencies: Hazard: <input type="checkbox"/> New/Newly-Employed Experienced Miner: <input type="checkbox"/> Annual: <input type="checkbox"/> Task: <input type="checkbox"/>													
14. Company of Employment: (If different from production operator) <i>Operator</i> Independent Contractor ID: (if applicable)													
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5. Date(MM/DD/YY) and Time(24 Hr.) Of Death:						6. Date and Time Started:							
7. Regular Job Title:				8. Work Activity when Injured:				9. Was this work activity part of regular job? <input type="checkbox"/> Yes <input type="checkbox"/> No					
10. Experience: a. This			b. Regular			c. This			d. Total				
Years	Weeks	Days	Years	Weeks	Days	Years	Week	Days	Years	Weeks	Days		
Work Activity:			Job Title:			Mine:			Mining:				
11. What Directly Inflicted Injury or Illness?						12. Nature of Injury or Illness:							
13. Training Deficiencies: Hazard: <input type="checkbox"/> New/Newly-Employed Experienced Miner: <input type="checkbox"/> Annual: <input type="checkbox"/> Task: <input type="checkbox"/>													
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16. Part 50 Document Control Number: (form 7000-1)						17. Union Affiliation of Victim:							