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

REPORT OF INVESTIGATION

Surface Nonmetal Mine
(Clay)

Fatal Machinery Accident
December 29, 2014

Zeotech Corporation
Tilden Plant
Tilden, McMullen County, Texas
Mine ID No. 41-03374

Investigators

Wesley L. Hackworth
Supervisory Mine Safety and Health Inspector

Ramiro Jiminez
Mine Safety and Health Inspector

Willie D. Gill
Mine Safety and Health Specialist (Training)

Originating Office
Mine Safety and Health Administration
South Central District
1100 Commerce Street Room 462
Dallas, TX 75242-0499
Michael A. Davis, District Manager

OVERVIEW

On December 29, 2014, Adrian Moreno, Warehouse Bagger, age 21, was killed while operating a forklift carrying a bulk bag of dust. The forklift went out of control and overturned onto its left side. Moreno was a new miner and had only worked at the mine for six days prior to the day of the accident. He had not completed the 24 hours of required new miner training. The day of the accident was his seventh day on the job.

The accident occurred due to management's failure to provide Moreno task training for the safe operation of the forklift. The victim was a new miner and had not received task training in the possible hazards of operating a forklift, a task in which he had no previous experience. As a result, Moreno failed to maintain control of the forklift at all times while he was operating it. Moreno was not wearing a seat belt.

Management also failed to provide Moreno all of the required new miner training. Management did not require Moreno to work where an experienced miner could observe that the work was being performed in a safe and healthful manner.

GENERAL INFORMATION

Tilden Plant, a surface clay mine owned and operated by Zeotech Corporation, is located near Tilden, McMullen County, Texas. The principal operating official is Obie P. Leonard, President. The mine operates one 10 hour shift 4 days a week. Total employment is 18 persons.

The material is mined from a single bench open pit. A dozer with a ripper is used to break up the material. The material is then pushed up by the dozer into a windrow or pile. Front-end loaders load the clay into haul trucks that transport the material to a pole barn at the plant where the material is pushed up into a pile and then fed into the plant for processing. The finished product is sold as an absorbent material used in cat litter.

The Mine Safety and Health Administration (MSHA) completed its last regular inspection at this mine on May 14, 2014.

DESCRIPTION OF THE ACCIDENT

On the day of the accident, December 29, 2014, Adrian Moreno (victim) arrived at the mine and clocked in at 5:51 a.m. to start his work day. Melissa Benavides, Warehouse 1 Supervisor, assigned Moreno to cleanup in the back of Warehouse 1 with Anthony Penuelaz, Miner, who was also a new miner. Following a 9:30 a.m. break, Moreno and Penuelaz were both instructed to dump bulk bags of waste dust stacked on pallets outside of Warehouse 1. Penuelaz was assigned to operate a forklift with Moreno assisting from the ground.

The forklift is used to transport bags, which are on pallets, to a pole barn area. Each bag has four straps, looped onto the forks on the forklift, which are then used to lift the bag off the pallet. Bags are then moved inside the pole barn and emptied. The pallets are stacked and empty bags are folded and stacked. Penuelaz and Moreno continued with this process throughout the morning. When interviewed, Penuelaz stated that Moreno operated the forklift once to move a bulk bag on a pallet to the pole barn area.

After lunch, the task of moving and dumping bulk bags continued. At approximately 3:00 p.m., while at the pole barn area, Penuelaz dismounted the forklift after positioning the forks over a bag. While Penuelaz attached the two closest straps on the forks, Moreno got on the forklift and pulled it forward, allowing Penuelaz to hook the farthest straps on the forks. Moreno lifted the bulk bag off the wooden pallet. Penuelaz reached down to grab the pallet to move it to a stack of pallets while Moreno left with the forklift carrying the suspended bulk bag.

Penuelaz was moving the pallet to the pallet stack when he heard a clanging sound. He turned and saw the forklift had overturned onto its left side. Penuelaz ran to the forklift and saw Moreno lying on the ground within the operator's area of the open canopy forklift. He saw that Moreno was badly injured and started calling for help. Tom Rodriguez, Crew Leader/Foreman, heard the noise and called to Benavides that a forklift had turned over.

Abel Flores, Miner, went to the office and reported the accident to Tom Segura, Operations Supervisor. Segura instructed Maria Gonzalez, Office Manager, to call 911. Gonzalez went to the accident scene and provided first aid to Moreno but he was nonresponsive.

At 3:17 p.m., an officer from the McMullen County Sheriff's department arrived at the mine and at 3:34 p.m., McMullen County EMS arrived. Moreno was transported by ambulance to meet a Med Flight helicopter but efforts to save him were not successful. Debra Garza, McMullen County Justice of the Peace, pronounced Moreno dead at 4:05 p.m. at the mine site. The cause of death was attributed to blunt force trauma.

INVESTIGATION OF THE ACCIDENT

On December 29, 2014, MSHA was notified of the accident at 4:11 p.m. by a telephone call from Thomas Segura to MSHA's National Call Center. The National Call Center notified Elwood Burriss, Staff Assistant, and an investigation was started the same day. To ensure the safety of all persons, an order was issued pursuant to Section 103(j) of the Mine Act. This order was later modified to Section 103(k) of the Mine Act when the first Authorized Representative arrived at the mine. A Part 50 citation was issued for untimely reporting.

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

DISCUSSION

Location of the Accident

The accident occurred just northwest of the pole barn material storage area.

Forklift

The forklift involved in the accident is a Caterpillar Model 2P5000 Series Forklift that weighs 8,970 pounds and has a lifting capacity of 4,500 pounds. The maximum height that the machine's forks can reach is 188 inches. The forklift is powered by a propane

fueled engine. The mast is equipped with tilt and side shift feature. The forklift is equipped with Falling Object Protection (FOP) and a seat belt.

The investigators and a representative from Equipment Depot, an equipment field service company, examined the forklift for defects. The side shift cylinder, one rear view mirror, and the overhead guard/FOPS were damaged as a result of the accident.

After the fluids in the machine were topped off, the lift chains put back on the rollers, and the battery replaced, the forklift was functionally tested and inspected. The transmission, braking, steering, mast controls, safety switches, and warning devices were all found to be in a functional operating condition with no defects noted except for the side shift cylinder.

Waste Dust Bulk Bag Dumping Process

There are multiple areas in the plant where dust from the process is carried to bulk bag stands via dust screws. The dust falls through chutes into the bulk bags. Once the bags are full, they are set on pallets and moved near Warehouse 1 and other various storage areas for disposal or recycled back into the plant process. Bulk waste dust bags are transported from the storage areas by forklift to the pole barn area to be emptied.

The bags are removed from the pallets by looping the four bag straps, one on each corner, onto the forks of the forklift. The closest straps are looped on first. The forklift is pulled forward allowing room to loop the farthest straps on. The bag is lifted off the pallet and the pallet is pulled away. A rope closing the bottom of the bag is untied, allowing the dust to empty to the ground. The empty bulk bags and wooden pallets are stacked separately nearby for reuse. The task is typically performed by two miners.

Bulk Bag

The bulk bags used to haul dust are constructed of a canvas-type material and measure 3 feet wide x 4½ feet high. The lifting straps are 21 inches long. Each bag contains approximately 2,000 pounds of waste dust. The bottom of each bag has a rope cinch opening.

The bulk bag being transported when the accident occurred was measured to be approximately 42 inches above the ground and the forks on the machine were approximately 9½ feet above the ground.

Weather

The weather on the day of the accident was clear with a temperature of 60 degrees Fahrenheit. Weather was not considered a factor in the accident.

TRAINING AND EXPERIENCE

Adrian Moreno did not have any previous mining experience prior to beginning work at Zeotech Corporation and had worked at the mine for just six days prior to the day of the accident. A representative of MSHA's Educational Field and Small Mine Services conducted a thorough review of the mine operator's training plan and records. The victim was a new miner who had received 5½ hours of the required 24 hours of new miner training and 16 hours of task training. However, he had not received task training in the possible hazards of operating a forklift, a task in which he had no previous experience.

ROOT CAUSE ANALYSIS

The investigators conducted a root cause analysis and identified the following root causes:

Root Cause: Management failed to establish policies or procedures to protect miners who utilize forklifts in their job assignments. Management failed to provide Moreno task training for the safe operation of the forklift. The victim was a new miner and had not received task training in the health and safety aspects of operating a forklift, a task in which he had no previous experience.

Corrective Action: Management established written standard operating procedures to be used by persons operating forklifts when moving and dumping the bulk bags of waste dust material. The procedures include forklift speed, height of the load being transported, and how to lift the load. The procedures also require that the operator wear a seat belt at all times when operating a fork lift. The operator has trained all miners who utilize forklifts on this new procedure.

The new operating procedures for moving and dumping bulk bags of material were incorporated and implemented into the operator's existing task training program. The operator provided forklift operators with training on these new standard operating procedures for moving and dumping bulk bags of material.

Root Cause: Management failed to ensure that the victim and another new miner, were working where an experienced miner could observe that the new miners were performing their work in a safe and healthful manner. Both miners were using a forklift to transport bulk bags of dust but had not completed the required 24 hours of new miner training.

Corrective Action: Management developed and implemented a revised training plan that requires all training to be provided according to the requirements of the revised

training plan. All new miners that have not completed their training must work where they can be observed by experienced miners.

CONCLUSION

The accident occurred due to management's failure to provide Moreno task training for the safe operation of the forklift. The victim was a new miner and had not received task training in the possible hazards of operating a forklift, a task in which he had no previous experience. Moreno failed to maintain control of the forklift at all times while he was operating it. Moreno was not wearing a seat belt.

Management also failed to provide Moreno all of the required new miner training. Management did not require Moreno to work where an experienced miner could observe that the work being performed was in a safe and healthful manner.

ENFORCEMENT ACTIONS

Issued to Zeotech Corporation

Order No. 885675 –Issued on December 29, 2014, under the provisions of section 103(j) of the Mine Act. This order was modified to Section 103(k) of the Mine Act when the first Authorized Representative arrived on the mine site.

> *An accident occurred at this operation on 12/29/2014 at approximately 15:02 hours. This order is being issued, under Section 103(j) of the Federal Mine Safety and Health 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 pole barn and the area adjacent to where the forklift lays 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 16:35 and has now been reduced to writing.*

This order was terminated on March 12, 2015, after the condition that contributed to the accident no longer existed.

Citation No. 8614171 – Issued under the provisions of Section 104 (a) of the Mine Act for a violation of 30 CFR 56.9101:

> *On December 29, 2014, a fatal accident occurred at this operation when the operator of a Caterpillar Model 2P5000 forklift failed to maintain control of the forklift he was operating. The operator was transporting a bulk bag of waste dust, suspended from the forks of the machine, when the fork lift turned over onto its left side. The inexperienced operator was traveling too fast with the type of material being moved and failed to maintain control of the forklift.*

Citation No. 8614173 - Issued under the provisions of Section 104 (a) of the Mine Act for a violation of 30 CFR 46.7(a):

On December 29, 2014, a fatal accident occurred at this operation when the operator of a Caterpillar Model 2P5000 forklift failed to maintain control of the forklift he was operating. The victim was a new miner and had not received task training in the health and safety aspects of operating a forklift, a task in which he had no previous experience.

Citation No. 8614174- Issued under the provisions of Section 104(a) of the Mine Act for a violation of 30 CFR 46.5(a):

On December 29, 2014, a fatal accident occurred at this operation when the operator of a Caterpillar Model 2P5000 forklift failed to maintain control of the forklift he was operating. The victim and another new miner were using a forklift to transport bulk bags of dust. Both miners were new miners and had not completed the required 24 hours of new miner training. The miners were not working in an area where an experienced miner could observe that the new miners were performing the work in a safe and healthful manner.

Approved: _____ **Date:** 6/8/15

Michael A. Davis
District Manager

Appendix A

Persons Participating in the Investigation

Zeotech Corporation

Thomas Segura	Operations Supervisor
Carlos Gonzalez	Assistant Manager

Equipment Depot

Andy Stuart	Mechanic
Michael Davis	Service Manager

Mine Safety and Health Administration

Ramiro Jiminez	Mine Safety and Health Inspector
Willie Gill	Mine Safety and Health Specialist (Training)
Wesley L. Hackworth	Supervisory Mine Safety and Health Inspector

Appendix B

Accident Investigation Data - Victim Information

Event Number: 6 6 5 8 8 0 5

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:
Adrian A. Moreno	M	21	01 Fatal

5. Date(MM/DD/YY) and Time(24 Hr.) Of Death:	6. Date and Time Started:
a. Date: 12/29/2014 b.Time: 16:05	a. Date: 12/29/2014 b.Time: 6:00

7. Regular Job Title:	8. Work Activity when Injured:	9. Was this work activity part of regular job?
142 bagger / warehouseman	052 Operating forklift	Yes [ ] No [X]

10. Experience	Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days
a. This Work Activity:	0	0	1	b. Regular Job Title:	0	1	0	c: This Mine:	0	1	0	d. Total Mining:	0	1	0

11. What Directly Inflicted Injury or Illness?	12. Nature of Injury or Illness:
105 blunt force trauma by forklift	170 Forklift

13. Training Deficiencies:
Hazard: [ ] New/Newly-Employed Experienced Miner: [X] Annual: [ ] Task: [X]

14. Company of Employment: (If different from production operator)
Operator
Independent Contractor ID: (if applicable)

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

16. Part 50 Document Control Number: (form 7000-1)
17. Union Affiliation of Victim: