MAI-2015-01

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

# REPORT OF INVESTIGATION

Surface Nonmetal Mine
(Construction Sand and Gravel)

Fatal Machinery Accident
January 8, 2015

Polydeck Screen Corporation
Spartanburg, South Carolina
Contractor ID No. E611

at
Knife River Construction
Knife River Construction Vernalis Plant
Tracy, San Joaquin County, California
Mine ID No. 04-05459

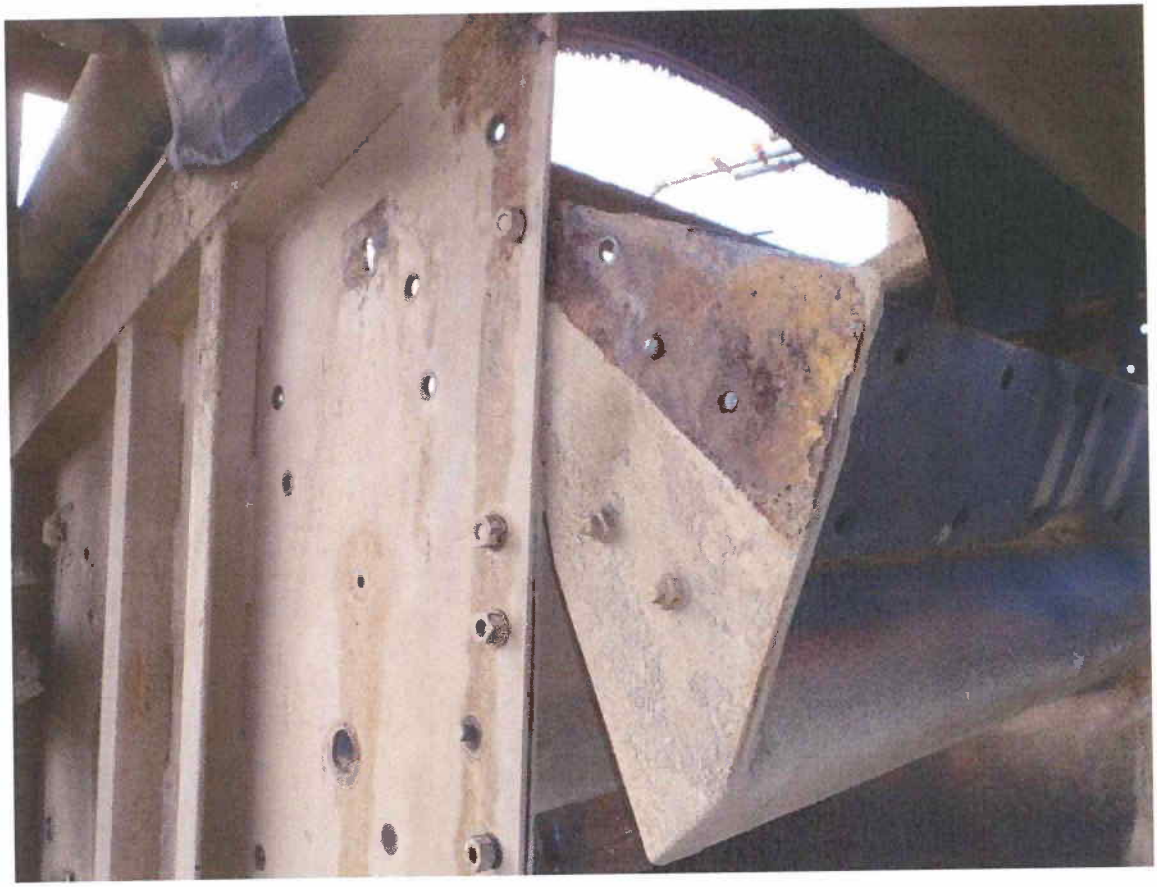
Investigators

Bart T. Wrobel
Supervisory Mine Safety and Health Inspector

Jason Jeno
Mine Safety and Health Inspector

Norman Zeman
Mine Safety and Health Specialist (Training)

Originating Office
Mine Safety and Health Administration
Western District
991 Nut Tree Road
Vacaville, CA 95687
Wyatt S. Andrews, District Manager



## OVERVIEW

On January 8, 2015, Alan Tindall, Contract Sales Manager, age 63, was killed at this mine while working with mine personnel to install new screen panels in a tower screen. A loosened feeder box pivoted down, pinning Tindall between the box and the splash curtain support bracket on the screen.

On January 7, 2015, the day before the accident, mine personnel cut four of the six retaining nuts and bolts holding the feeder box in place with a torch and the two remaining bolts were loosened to allow the old screens to slide out. This left the feeder box unsecured while the new screen panels were installed.

The accident occurred due to management's failure to establish policies and procedures for persons to safely remove the old screens and install new screens on the screen tower. The feeder box was not secured in place or blocked against hazardous motion because four of the six retaining nuts and bolts were cut off. After the nuts and bolts were cut off, the feeder box was never resecured and the four nuts and bolts were not replaced. The feeder box hung by the loosened bottom two nuts and bolts.

Management also failed to ensure that an examination was conducted of the repairs on the screen. The repairs had been in progress for two days. The unsecured feeder box should have been recognized as a hazard by a work place examiner looking for hazardous conditions. The cut off nuts and bolts allowed the feeder box to move unexpectedly and pin the victim.

## GENERAL INFORMATION

The Knife River Construction Vernalis Plant, owned and operated by Knife River Construction, is located in Tracy, San Joaquin County, California. The principal operating official is Greg Silva, Area Operations/Aggregate Manager. The mine normally operates one, 8 hour shift, five days per week and employs 11 persons.

Sand and gravel is excavated from a single bench. The material is hauled by trucks to a plant where it is crushed, screened, washed, and then conveyed to stockpiles. The finished product is sold for use in construction.

Polydeck Screen Corporation (Polydeck) is a screen supplier located in Spartansburg, South Carolina. Alan Tindall (victim) was employed by Polydeck and was at the mine to provide field and installation support. Tindall regularly visited the mine since Polydeck screens are used there. He came to the mine on January 7, 2015, to help change the screens.

The Mine Safety and Health Administration (MSHA) completed its last regular inspection at this mine on December 17, 2014.

## DESCRIPTION OF ACCIDENT

On the day of the accident, January 8, 2015, Alan Tindall arrived at the mine at 9:40 a.m. Tindall signed in at the scale house and spoke with George Muraoka, Foreman, who provided additional site-specific training to Tindall. Muraoka told Tindall they were not yet ready to install the screen panels. Tindall went to check on some parts that were sent for the retrofit project.

At 11:00 a.m., Tindall went to a trailer where the plant offices are located and spoke with Luis Martinez, Mechanic, and Cesar Mancilla, Crane Operator, to determine if the new screen panels were ready to be installed. They told Tindall the new screen panels would be ready to install after lunch.

At 11:30 a.m., Martinez and Mancilla went to the Tower B area in a service truck and Tindall drove his own vehicle there. Tindall measured some of the screen panels, then all three men assembled both the upper and middle screen panel assemblies. At approximately 1:30 p.m., they completed assembly of the panels and Mancilla connected one of the panels to the crane with a chain. Martinez went up to the screen deck in Tower B to set the panel into the screen. Tindall went up to the screen deck platform as they started to set the middle panel into the screen.

Martinez had to climb in and out of the screen to provide direction to Mancilla who was operating the crane below. After climbing in and out of the screen a few times, Martinez asked Tindall to give signals to Mancilla and Tindall agreed.

When the middle screen deck assembly was set into the screen, it became wedged about half way down and would not go any further. Tindall was standing on the steps, giving direction to Mancilla in the crane below and moved toward the screen's east end where the feeder box was located. Tindall then moved directly under the feeder box and looked over the splash curtain support bracket to determine why the screen panel would not move into place.

Martinez felt and heard a thud but did not know where it came from. Martinez could not see Tindall so he bent down to look under the panel assembly and saw that Tindall was pinned between the feeder box and the curtain support bracket and was severely injured. Martinez climbed out of the screen and told Mancilla to call 911.

Martinez went to Tindall and tried to lift the feeder box to free him but was unsuccessful. Mancilla arrived and he and Martinez lifted the feeder box and freed Tindall. Mancilla, Martinez, and Muraoka attended to Tindall until EMS arrived at 2:18 p.m. At 3:03 p.m., Tindall was air lifted to Memorial Medical Center where he died at 3:41 p.m. The cause of death was attributed to craniocerebral injuries.

## INVESTIGATION OF THE ACCIDENT

MSHA was notified of the accident at 2:13 p.m., by a telephone call from Kevin Smudrick, Safety and Health Manager, to the National Call Center. The Call Center notified James Fitch, Safety Specialist, 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 after an Authorized Representative arrived on site.

MSHA's accident investigation team traveled to the mine, conducted a physical examination of the accident scene, interviewed employees, and reviewed conditions and work procedures relevant to the accident. MSHA conducted the investigation with the assistance of management and employees and the California Division of Occupational Safety and Health Mining and Tunneling Unit.

## DISCUSSION

### Location of Accident

The accident occurred on the Tower B screening deck. The screen deck is located approximately 40 feet above the ground. A scrubber, located above and to the east of the screen deck, feeds rock to it.

### Retrofitting the Screen

The plant was retrofitting this screen because the panels were wearing out and obsolete. The plant had already retrofitted two other screens with this system. Approximately two days were needed to prepare the screen for the new panels.

On the first day of the retrofit project, January 7, 2015, several items had to be removed to gain access to the old panels. Spray bars, curtains, feeder pans, feed and discharge chutes, doors, etc. had to be removed from Tower B. When these components were removed, only the splash curtain support bracket and the lower panel were left to support the outer walls of the screen box. The bolts and nuts holding the splash curtain bracket in place were loosened. The top four of the six nuts and bolts securing the feeder box were cut off with a torch, leaving the bottom two nuts and bolts in place.

The two bottom bolts were then loosened to allow the side walls of the screen box spread, easing the removal of the old panels and installation of the new panels.

On January 7, 2015, Tindall checked all of the components that were ordered and delivered to the mine for the retrofit project. Tindall cross-referenced each item and called his warehouse to order items that were not shipped or missing from the original order. He did not work on the Tower B section the first day that he was at the mine.

On the day of the accident, January 8, 2015, the old screen panels were removed and the new panels were being installed for the retrofit project. The walls were spread and pried to get the old panels out and the new panels in. This movement and vibration caused the cut off bolts, that were still in place holding the feeder box in the upright position, to vibrate out of the side wall holes of the screen. When these bolts came out of the outer screen walls, the feeder box was free to swing out and down. When the accident occurred, most of the weight of the feeder box was above the remaining bottom two bolts, causing the feeder box to swing down quickly.

### Feeder Box

The feeder box involved in the accident is approximately 8 feet wide, 18 inches high, and 13 inches deep, with a center shelf running along its full length. The feeder box is constructed of ⅜-inch steel and fitted with six 2-inch thick wear plates. Two of the plates are on the base, two plates are on the back, and two plates are on the sides of the shelf. The weight of the assembled feeder box ranges from 800 to 1,000 pounds depending upon the condition and wear on the plates.

### Weather

The weather on the day of the accident was clear skies with a temperature of 61 degrees Fahrenheit. Weather was not considered a contributing factor in the accident.

## TRAINING AND EXPERIENCE

Alan Tindall had over 11 years of experience working at mine sites. A representative of MSHA's Educational Field and Small Mine Services conducted an in-depth review of the training records for Tindall. The records documented that he received all required training, including annual refresher training and site-specific hazard awareness training according to 30 CFR Part 46.

## ROOT CAUSE ANALYSIS

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

Root Cause: Management failed to establish policies and procedures for persons to safely replace the old screens and install new screens on Tower B. The feeder box was not secured in place nor blocked against hazardous motion after four of the six retaining nuts and bolts were torched off. The feeder box was never secured and the four bolts and nuts were not replaced to keep it secured. The feeder box hung by the remaining bottom two nuts and bolts, which were loosened.

Corrective Action: Management has developed a new standard operating procedure for retrofitting screen decks. The miners were trained in these new procedures.

## CONCLUSION

The accident occurred due to management's failure to establish policies and procedures for persons to safely remove old screens and install new screens on the screen tower. The feeder box was not secured in place or blocked against hazardous motion after four of the six retaining nuts and bolts were torched off. The feeder box was never secured and the four bolts and nuts were not replaced to keep it secured. The feeder box hung by the remaining bottom two bolts, which were loosened.

Additionally, management failed to conduct an examination of the repairs on the screen, that had been in progress for two days. The torched off nuts and bolts should have been recognized as a hazard by a work place examiner looking for hazardous conditions. The cut off nuts and bolts allowed the feeder box to move unexpectedly and pin the victim.

## ENFORCEMENT ACTIONS

**Issued to Knife River Construction**

**Order No. 8703250** - issued on January 8, 2015, under Section 103(j) of the Mine Act. An Authorized Representative modified this order to Section 103(k) of the Mine Act upon arrival at the mine site:

> *A severe accident occurred during the changing of the screen box located on the Scrubber Tower Screen B. A miner has received a possible fatal injury during routine maintenance operation. All work and activity is to stop at the Scrubber Tower Screen B and no equipment or material is to be operated and moved from the area. All rescue operation are allowed to care and transport the injured miner. A verbal 103j order was issued by Jim Fitch to George Muraoka at 14:21 hours on January 08, 2015.*

The Screening Tower B remains locked out and closed off to all miners until released by an Authorized Representative.

**Citation No. 8694555** - issued under the provisions of Section 104(a) of the Mine Act for a violation of 30 CFR 56.18002(a):

> *A fatal accident occurred at this operation on January 8, 2015, when a sales representative (victim) was pinned between the feeder box and the splash curtain support bracket on the screen located on the company wash plant Tower B. An examination was not conducted of the repairs that had been in progress for two (2) days on the screen located on company wash plant Tower B. The hazard involved the top four (4) feeder box retaining nuts and bolts which had been cut off with a torch while the lower two (2) nuts with bolts were loosened leaving the feeder box unsecured. The torched off nuts and bolts should have been recognized as a hazard by the work place examiner looking for hazardous conditions. The cut off bolts allowed the feeder box to move unexpectedly, fatally pinning the sales representative.*

**Citation No. 8694556** - issued under the provisions of Section 104(a) of the Mine Act for a violation of 30 CFR 56.14105:

> *A fatal accident occurred at this operation on January 8, 2015, when a sales representative (victim) was caught between the feeder box and the splash curtain support bracket for the screen located on the company wash plant Tower B. The Feeder box that fatally injured the sales representative was not secured in place nor blocked against hazardous motion after having four (4) of the six (6) retaining nuts and bolts torched off. After the nuts and bolts were torched off the feeder box was never secured or the cut off nuts and bolts replaced to keep it secured as it hug by the remaining bottom two (2) nuts and bolts, which had been loosened.*

Approved By: Wyatt Andrews Date: 5/11/15

Wyatt Andrews
District Manager

## APPENDIX A

### Person Participating in the Investigation

**Knife River Construction**

| | |
|---|---|
| Kevin Smudrick | Health and Safety Manager |
| George Muraoka | Foreman |
| Greg Silva | Area Operations / Aggregate Manager |

**California Occupational Safety and Health, Mining and Tunneling Unit**

| | |
|---|---|
| Richard L. Brockman, Jr. | Associate Engineer Mining and Tunneling Unit |

**Mine Safety and Health Administration**

| | |
|---|---|
| Bart T. Wrobel | Supervisory Mine Health and Safety Inspector |
| Jason Jeno | Mine Safety and Health Inspector |
| Norman Zeman | Mine Safety and Health Specialist (Training) |

Accident Investigation Data - Victim Information

Event Number: 6 6 6 3 5 2 1

**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: |
|---|---|---|---|
| Alan M. Tindall | M | 63 | 01 Fatal |

| 5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: | 6. Date and Time Started: |
|---|---|
| a. Date: 01/08/2015 b.Time: 15:51 | a. Date: 01/08/2015 b.Time: 9:40 |

| 7. Regular Job Title: | 8. Work Activity when Injured: | 9. Was this work activity part of regular job? |
|---|---|---|
| 199 Sales Manager | 039 Retrofit of screen deck | Yes \| \| No \| X \| |

| 10. Experience | a. This Work Activity: | b. Regular Job Title: | c: This Mine: | d. Total Mining: |
|---|---|---|---|---|
| Years | 11 | 11 | 8 | 11 |
| Weeks | 39 | 39 | 0 | 39 |
| Days | 6 | 6 | 0 | 6 |

| 11. What Directly Inflicted Injury or Illness? | 12. Nature of Injury or Illness: |
|---|---|
| 076 Feeder Box of Screen Deck | 170 Craniocerebral Injuries |

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

14. Company of Employment: (If different from production operator)
Polydeck Screen Corporation
Independent Contractor ID: (if applicable) E611

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

16. Part 50 Document Control Number: (form 7000-1)
17. Union Affiliation of Victim: 9999 None (No Union Affiliation)