UNITED STATES
DEPARTMENT OF LABOR
MINE SFETY AND HEALTH ADMINISTRATION

REPORT OF INVESTIGATION

Surface
(Crushed and Broken Stone)

Fall of Face, Rib, Slide or Highwall Accident
August 22, 2024

Onyx Sterling Pit
Onyx Corporation
Sterling, Worcester County, Massachusetts
ID No. 19-01284

Accident Investigators

Kevin Forgette
Mine Safety and Health Inspector

Kevin Rehbein
Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
Warrendale District
178 Thorn Hill Road, Suite 100
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Peter Montali, District Manager

TABLE OF CONTENTS

OVERVIEW

On August 22, 2024, at 7:59 a.m., Brian Derby, a 67 year-old excavator operator with three years of mining experience, died after the excavator he was operating became engulfed in large rocks from a highwall failure.

The accident occurred because the mine operator did not: 1) take down or support hazardous ground conditions, 2) use mining methods to maintain highwall stability, 3) designate persons experienced in examining and testing for loose ground to conduct ground condition examinations, 4) conduct a workplace examination, and 5) develop and implement a written safety program for surface mobile equipment.

GENERAL INFORMATION

Onyx Corporation owns and operates the Onyx Sterling Pit, a surface mine producing crushed and broken stone located in Sterling, Worcester County, Massachusetts. The mine employs ten miners and operates one eight-hour shift per day, five days per week. The mine drills, blasts, crushes, and processes stone onsite. The crushed and broken stone is sold to various customers.

The principal management officials at Onyx Sterling Pit at the time of the accident were:

John Durkin	Vice President
Stacey Durkin	Treasurer

The Mine Safety and Health Administration (MSHA) completed the last regular safety and health inspection at this mine on June 25, 2024. The 2023 non-fatal days lost incident rate for Onyx Sterling Pit was zero, compared to the national average of 0.92 for mines of this type.

DESCRIPTION OF THE ACCIDENT

On Thursday, August 22, 2024, at 6:00 a.m., Derby arrived at the mine and began conducting a pre-operational examination of his excavator. According to interviews, Derby constructed a pad for the excavator, consisting of blasted rock, that permitted him to reach the toe of the highwall and to load trucks. Michael Elliot, Equipment Operator, was using an excavator with a hydraulic hammer to break large rocks from a blast on July 27, 2024, approximately 30 yards away from Derby at the base of the highwall. At the same time, John Aiello, Equipment Operator, was using an excavator to remove rock and overburden from the top of the highwall; and Steve Mertsiotis, Equipment Operator, was using another excavator with a hydraulic hammer to break rock loose from an outcropping at the top of the highwall. Andrew Grady, Laborer, operated an articulated haul truck to transport material from the bottom of the highwall to the primary plant feeder or the surge pile.

At approximately 7:45 a.m., Grady returned for his third load of material when he saw rock and overburden fall from the top of the highwall and land next to Derby's excavator. At approximately 7:50 a.m., as Grady returned for his fourth load, he began to back up to get loaded when he noticed a large amount of dust in his mirrors and back up camera. Believing the highwall was falling, Grady put his haul truck in drive and quickly pulled forward toward Elliot. Elliot observed Derby's excavator start to move quickly, dropping forward off the pad and tramming away from the highwall. Elliot saw the rock falling near Derby before being blinded by the dust cloud.

At 7:59 a.m., Albert Hamilton, Field Mechanic, called 911. At 8:05 a.m., the Sterling Police Department and Emergency Medical Services (EMS) arrived onsite while miners attempted to remove material from around the excavator. At 8:13 a.m., Sterling Fire Department arrived onsite and requested assistance from Sterling Heavy Rescue. Mark Sadowski, Sterling Fire Chief, called out to Derby with no response. Sterling Heavy Rescue Squad 2 arrived and used a borescope camera and found no signs of life. At 8:40 a.m., Sadowski determined the damage to the excavator's cab was so severe, the highwall failure was deemed not survivable. Rescuers worked throughout the day and into the night to safely remove rocks from around and on top of the excavator in attempt to recover Derby. On August 23, 2024, at approximately 5:00 a.m., rescuers reached the excavator. EMS personnel found no signs of life and removed Derby from the cab.

INVESTIGATION OF THE ACCIDENT

On August 22, 2024, at 8:07 a.m., Amanda Mirfield, Materials General Manager, called the Department of Labor National Contact Center (DOLNCC). The DOLNCC contacted Kevin Honeycutt, Staff Assistant. Honeycutt contacted Thomas Rasmussen, Assistant District Manager. Rasmussen sent Adrian Scallion, Supervisory Mine Safety and Health Inspector, and John Harvey, Mine Safety and Health Inspector, to the mine. Scallion called the mine and issued a verbal order under provisions of Section 103(j) of the Mine Act to ensure the safety of the miners and the preservation of evidence. At 9:52 a.m., Scallion arrived at the mine and modified the 103(j) to a 103(k) order. Rasmussen sent Kevin Forgette, Mine Safety and Health Inspector, and Kevin Rehbein, Mine Safety and Health Inspector, to the mine. Forgette was assigned as the lead accident investigation.

On August 22, 2024, at 3:30 p.m., Forgette arrived at the mine and at 4:30 p.m., Rehbein arrived. MSHA's accident investigation team conducted an examination of the accident scene, interviewed mine management and miners, and reviewed conditions, policies, and work procedures relevant to the accident. See Appendix A for a list of persons who participated in the investigation.

DISCUSSION

Location of the Accident

The accident occurred below the western facing highwall that made up the boundary for the new wash plant (See Appendix B).

Weather

The weather at the time of the accident was 59 degrees Fahrenheit, clear skies, with winds measured at 5.7 miles per hour. The investigators determined that weather did not contribute to the accident.

Equipment Involved

The excavator involved in the accident was a 2017 Caterpillar 374 EX-027 excavator. Due to the severe damage caused by the accident, the investigators were unable to determine if the excavator had any safety defects prior to the accident.

Ground Conditions

Derby was below the 97-foot western facing highwall at the time of the accident. A1 Drilling and Blasting blasted the highwall face, including the section of the highwall failure, on July 27, 2024. The mine operator's intended purpose of the highwall was to be the perimeter wall around the new wash plant. The highwall had been shaped into an arc resembling two 45-degree bends adjoining it to the northern facing wall along the new perimeter road. At the point where the western facing wall and this arc met, a large mud seam and multiple hazards within the rock strata were present, including but not limited to: bedding planes; joints; piping; fractures; and seepage (see Appendix C). Water had been seeping over the edge of the highwall along the large mud seam. As the material was removed from the bottom of the high wall, the bottom portion of the mud seam was exposed. Investigators determined that work on top of the highwall created

vibrations throughout the rock structure. The flow of water over and through the high wall weakened joints. These adverse ground conditions, and the mining method, caused the highwall failure (see Appendix D). The mine operator did not use mining methods to maintain highwall stability, which contributed to the accident.

The 97-foot highwall did not have any benches. Loose rock, over hangs, and disjointed material were present. There was no equipment at the mine capable of either maintaining a highwall this size or correcting hazards created by the adverse conditions. The mine operator did not take down or support hazardous ground conditions, which contributed to the accident.

Examinations

There was no one experienced and properly trained in testing and examining ground conditions prior to work occurring simultaneously on top and at the toe of the highwall. The individuals performing examinations of ground conditions at the highwall were only able to recognize the existence of cracks, loose rock, and back breaks. The strata of the highwall contained several discontinuities that contributed to the highwall failure. A lack of proper training, instruction, and on-the-job experience resulted in the inability to recognize indications of potentially hazardous conditions and initiate the necessary actions to correct these conditions. The mine operator did not designate persons experienced in examining and testing for loose ground to conduct ground condition examinations of the highwall, which contributed to the accident.

The mine operator designated Mark Franks, Foreman (Mining), as the competent person to conduct workplace examinations. The last record of a workplace examination was for August 16, 2024, which was also the last day Franks was at the mine prior to the accident. In Franks' absence, the mine operator designated Mirfield to conduct workplace examinations. However, from August 19, 2024, through the day of the accident, no workplace examinations were conducted prior to work beginning and no examinations were recorded by the end of each shift. The mine operator did not conduct a workplace examination on the day of the accident, which contributed to the accident.

Safety Program for Surface Mobile Equipment

The mine operator made no attempt to develop a written safety program for surface mobile equipment (program), which is intended to reduce serious accidents and injuries related to the operation and maintenance of mobile equipment. During a regular inspection on June 25, 2024, an MSHA inspector discussed the need for a program with the mine operator. The mine operator did not develop and implement a written safety program for surface mobile equipment, which contributed to the accident.

Training and Experience

Derby had 15 years of experience operating an excavator with three years of experience in the mining industry. Derby worked at the Onyx Sterling Pit for one year and ten months, operating an excavator for the duration of his employment. Investigators determined Derby received all training in accordance with MSHA Part 46 training regulations.

ROOT CAUSE ANALYSIS

The accident investigation team conducted an analysis to identify the underlying causes of the accident. The team identified the following root causes, and the mine operator implemented the corresponding corrective actions to prevent a recurrence.

1. Root Cause: The mine operator did not take down or support hazardous ground conditions.

   Corrective Action: The mine operator developed and implemented a new written procedure to ensure hazardous ground conditions are taken down or supported. This plan includes training miners on recognizing, testing, and correcting adverse ground conditions. The mine operator trained all miners on this procedure.

2. Root Cause: The mine operator did not use mining methods to maintain highwall stability.

   Corrective Action: The mine operator developed and implemented a new mining plan that establishes benches of a safe height and width. This plan requires continuous maintenance of benching for all future mining development and preparation. The stripping of overburden and implementation of berms along each bench must be designed to allow inspections of the top of each bench. Additionally, the mine operator will evaluate and implement mining methods in future site developments to ensure highwall stability.

3. Root Cause: The mine operator did not designate persons experienced in examining and testing for loose ground to conduct ground condition examinations.

   Corrective Action: The mine operator developed and implemented new written procedures for ground condition examinations. The examination records must clearly and completely indicate that the hazards observed have been corrected and no longer pose a danger to miners working around the highwall. Examinations must be conducted and recorded by a competent person. Additionally, the mine operator developed and implemented a new written procedure requiring mine management review examination records to ensure examinations are conducted at the required intervals. The mine operator trained mine management and miners designated to conduct ground condition examinations on these procedures.

4. Root Cause: The mine operator did not conduct a workplace examination.

   Corrective Action: The mine operator developed and implemented a new written procedure for conducting adequate workplace examinations. This includes training miners on recognizing hazardous conditions associated with highwalls during their examinations. The mine operator trained all miners on this procedure.

5. Root Cause: The mine operator did not develop and implement a written safety program for surface mobile equipment.

Corrective Action: The mine operator developed and implemented a written safety program for surface mobile equipment that sets clear expectations for work practices including hazards related to highwalls and dedicated training on best practices and hazard recognition.

CONCLUSION

On August 22, 2024, at 7:59 a.m., Brian Derby, a 67 year-old excavator operator with three years of mining experience, died after the excavator he was operating became engulfed in large rocks from a highwall failure.

The accident occurred because the mine operator did not: 1) take down or support hazardous ground conditions, 2) use mining methods to maintain highwall stability, 3) designate persons experienced in examining and testing for loose ground to conduct ground condition examinations, 4) conduct a workplace examination, and 5) develop and implement a written safety program for surface mobile equipment.

Approved by:

_____ _____

Peter Montali Date
District Manager

ENFORCEMENT ACTIONS

1. A 103(k) order was issued to Onyx Corporation.

   A fatal accident occurred on August 22, 2024, at 7:59 a.m. This order is being issued under the authority of the Federal Mine Safety and Health Act of 1977, under Section 103(k) to insure the safety of all persons at the mine and requires the operator to obtain the approval of an authorized representative of MSHA of any plan to recover any person in the mine or to recover the mine or affected area. This order prohibits any activity in the affected area. The operator is reminded of the obligation to preserve all evidence that would aid in investigating the cause or causes of the accident in accordance with 30 CFR 50.12.

2. A 104(d)(1) citation was issued to Onyx Corporation for a violation of 30 CFR 56.3200.

   On August 22, 2024, an excavator operator died after the excavator he was operating became engulfed in large rocks from a highwall failure. The mine operator did not take down or support hazardous ground conditions before the excavator operator worked at the toe of the highwall. Loose rock, over hangs, and disjointed material were present in several areas of the 97-foot highwall.

   The mine operator engaged in aggravated conduct constituting more than ordinary negligence. The hazardous ground conditions were open and obvious while agents of the operator were present at the mine. This is an unwarrantable failure to comply with a mandatory standard.

3. A 104(d)(1) order was issued to Onyx Corporation for a violation of 30 CFR 56.3130.

   On August 22, 2024, an excavator operator died after the excavator he was operating became engulfed in large rocks from a highwall failure. The mine operator did not use a mining method that maintained wall stability where persons work or travel and did not establish benches of an appropriate width and height based on the type of equipment available for maintaining the highwalls. The wash plant perimeter highwall consisted of a single face reaching heights of 97 feet. There were hazards within the rock strata including, but not limited to, bedding planes, mud seams, joints, piping, fractures, and seepage.

   The mine operator engaged in aggravated conduct constituting more than ordinary negligence by not having equipment capable of maintaining this size of a highwall, or correcting conditions created by these discontinuities. This is an unwarrantable failure to comply with a mandatory standard.

4. A 104(d)(1) order was issued to Onyx Corporation for a violation of 30 CFR 56.3401.

   On August 22, 2024, an excavator operator died after the excavator he was operating became engulfed in large rocks from a highwall failure. The mine operator did not designate persons experienced in examining and testing for loose ground to conduct ground condition

examinations. The strata of the 97-foot highwall contained numerous hazards that contributed to the highwall failure.

The mine operator engaged in aggravated conduct constituting more than ordinary negligence. There was no one experienced and properly trained in testing and examining ground conditions prior to work commencing below the 97-foot highwall. This is an unwarrantable failure to comply with a mandatory standard.

5. A 104(d)(1) order was issued Onyx Corporation for a violation of 30 CFR 56.18002(a).

   On August 22, 2024, an excavator operator died after the excavator he was operating became engulfed in large rocks from a highwall failure. The mine operator did not a conduct a workplace examination prior to miners beginning work.

   The mine operator engaged in aggravated conduct constituting more than ordinary negligence. Workplace examinations were not conducted from August 19, 2024, through the day of the accident. This is an unwarrantable failure to comply with a mandatory standard.

6. A 104(d)(1) order was to issued Onyx Corporation for a violation of 30 CFR 56.23002(a).

   On August 22, 2024, an excavator operator died after the excavator he was operating became engulfed in large rocks from a highwall failure. The mine operator did not develop and implement a written safety program for surface mobile equipment.

   The mine operator engaged in aggravated conduct constituting more than ordinary negligence. This program is intended to reduce serious accidents and injuries related to the operation and maintenance of mobile equipment and was discussed with the mine operator during an inspection prior to the accident. This is an unwarrantable failure to comply with a mandatory standard.

APPENDIX A – Persons Participating in the Investigation

Onyx Corporation

John Durkin	Vice President
Jim Farese	Division Manager
Amanda Mirfield	Materials General Manager
William Shea	Operations Manager (Excavation)
Robert Hernon	Project Manager
Mark Franks	Foreman (Mining)
Bradley Price	Foreman (Construction)
Zachary Green	Supervisor (Construction)
Albert Hamilton	Field Mechanic
John Aiello	Equipment Operator
Michael Elliot	Equipment Operator
Steven Mertsiotis	Equipment Operator
Andrew Grady	Laborer

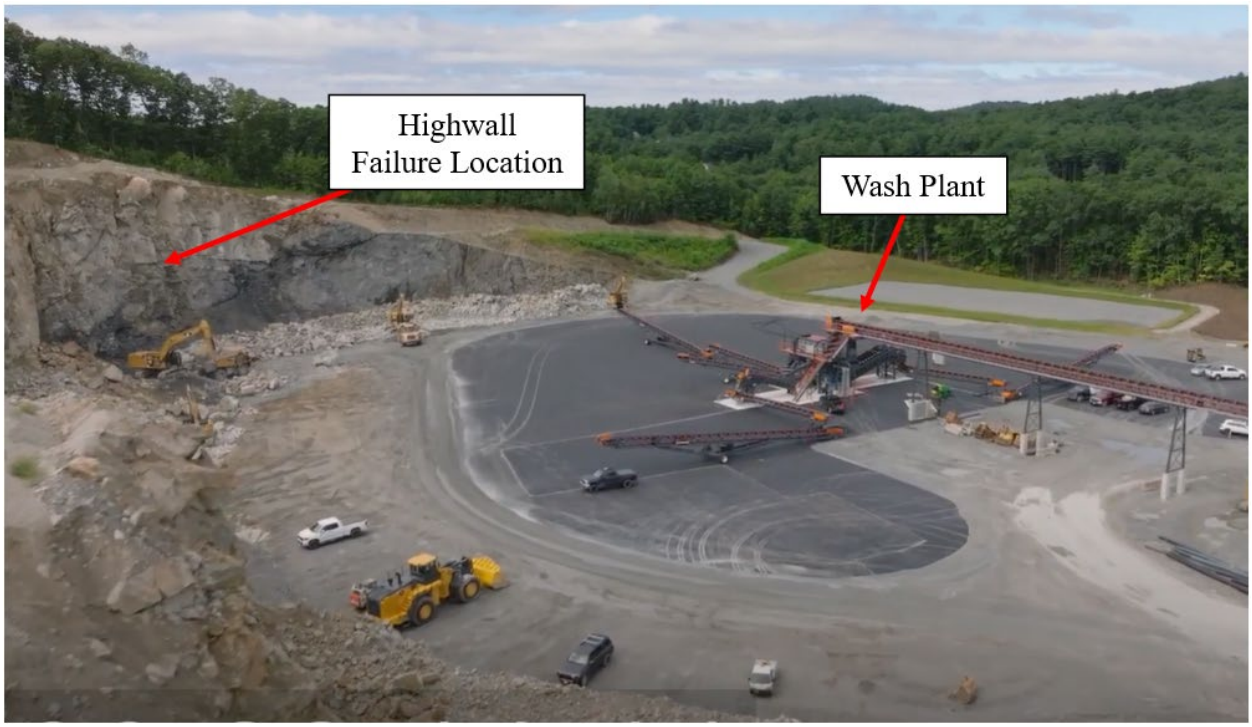
A1 Drilling and Blasting

Kevin Falvey	Field Operations Manager

Mine Safety and Health Administration

Adrian Scallion	Supervisory Mine Safety and Health Inspector
Kevin Forgette	Mine Safety and Health Inspector
John Harvey	Mine Safety and Health Inspector
Kevin Rehbein	Mine Safety and Health Inspector
Blane Shrewsberry	Mine Safety and Health Training Specialist

APPENDIX B – Wash Plant and Highwall Prior to the Accident



APPENDIX C – Highwall Prior to the Accident

APPENDIX D – Highwall After the Accident