

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

REPORT OF INVESTIGATION

Surface Nonmetal Mine  
(Sand and Gravel)

Machinery Accident  
July 10, 2015

Hanson Aggregates Midwest, LLC  
Dry Fork Sand & Gravel  
Cleves, Hamilton County, Ohio  
Mine I.D. No. 33-04460

Investigators

Michael J. Wynkoop  
Mine Safety and Health Inspector

David L. Stimmel  
Mine Safety and Health Inspector

Jonathan A. Hall  
Mechanical Engineer

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Peter J. Montali, Northeast District Manager



## OVERVIEW

On July 10, 2015, William J. Roell, Superintendent, age 50, was killed while operating a dredge at this sand and gravel operation. Roell and another miner were attempting to dislodge the clamshell bucket from the bottom of a lake when the dredge capsized. The miner was injured when he was thrown from the dredge as it capsized, but was able to swim to shore. Divers recovered Roell from the motor control center (MCC) room in the submerged dredge eight days later.

The accident occurred due to management's failure to consult with the manufacturer or follow its recommended safe procedures when attempting to dislodge the dredge bucket from the lake bottom. As a result, the dredge was used beyond the design capacity intended by the manufacturer. In addition, mine management participated in the removal of the dredge's pontoon overload sensors, knew about its unfastened pontoon hatches and did not correct these conditions before continuing to operate the dredge. These modifications directly impacted the stability of the dredge and contributed to the cause of the accident. Finally, mine management failed to provide task training to miners in accordance with the manufacturer's recommended safe procedures for dislodging or recovering a dredge bucket.

## GENERAL INFORMATION

The Dry Fork Sand & Gravel mine, owned and operated by Hanson Aggregates Midwest, LLC, is located in Cleves, Hamilton County, Ohio. The principal operating official is Denis Dolan, Regional President. William J. Roell, Superintendent, was the person in charge of health and safety at the mine. The mine operates one, 10-hour shift, 5 days per week and employs 6 persons.

Material is dredged from the bottom of a man-made lake, screened, and then conveyed from the dredge to the shore via an attached floating belt conveyor system. The material is then transported by truck to a plant for additional sizing and stock piled. The finished product is sold in bulk as construction aggregates, primarily for the ready mix concrete industry.

The Mine Safety and Health Administration (MSHA) completed the last regular inspection at this operation on November 19, 2014.

## SIGNIFICANT EVENTS PRIOR TO THE ACCIDENT

From witness statements, the dredge involved in the accident had been used previously to mine material at the James Bunnell Inc.'s Bunnell Gravel Pit #2 (Mine I.D. No. 33-01414). In 1999, a manufacturer's representative provided two-weeks of hands-on task training for operating the dredge to the dredge operator, Garry L. Dowd. Later that year, Dowd provided a one-week hands-on task training session in dredge operations to William J. Roell. At that time, Todd J. Ernst was the plant manager and Roell was a mechanic. In late 1999, the dredge's clamshell bucket became stuck at the bottom of the lake. The mine operator detached the bucket, installed a new bucket on shore and used it to dig out the buried bucket. This method followed the manufacturer's recommended procedures. Ernst, Dowd, and Roell all participated in the recovery of the dredge bucket.

In 2000, the dredge was moved to Dry Fork Sand & Gravel, its current location. At that time, James Bunnell Inc. owned and operated the mine. Dowd and Roell were moved to the new operation. Dowd continued to operate the dredge and Roell filled in during his absences. In January 2003, Hanson Aggregates Midwest, LLC bought the mine. In 2007, Roell was promoted to the superintendent position.

On June 29, 2015, Dowd was placed on extended leave. On the next day, Roell operated the dredge and the clamshell bucket became stuck at the bottom of the lake. According to Dowd, Roell called him on the telephone and discussed the incident. Roell stated that the bucket was stuck at an approximate depth of 65 feet and the hoisting breakers had tripped. Roell asked Dowd if the breakers could be reset. Dowd answered that it was too difficult to explain from his hospital bed and suggested that Roell call Busy Bee Electric, the mine's electrical contractor.

On July 1, 2015, Roell called James Oehlschlaeger, President of Busy Bee Electric. As a result, Oehlschlaeger visited the mine and checked the circuits on the hoist. He found the CR10 and CR11 breakers open, so he reset them. While Oehlschlaeger was still onsite, Roell attempted to hoist the bucket from the lake bottom in manual mode and again tripped the breakers.

Afterward, Oehlschlaeger showed Roell how to reset the breakers and discussed ways to recover the stuck bucket, including the manufacturer's recommended method.

On the same day, Roell called Ernst, now the Area Manager, and informed him that the dredge bucket was stuck. They also discussed the method that Roell proposed to use to dislodge it from the lake bottom. In his interview, Ernst stated that Roell was going to fill the pontoons with water, tension the hoist rope, clamp the hoist brakes and then pump the water from the pontoons.

On July 2, 2015, Roell stopped at F&M Mafco, a nearby heavy equipment supplier, and purchased two industrial strength C-clamps. When Roell arrived at the mine, he assigned Kelly J. Raver, Equipment Operator, and Craig H. Hornberger Sr., Truck Driver, to assist on the dredge. After they boarded the dredge, they proceeded to implement the procedure that Roell had outlined to Ernst on the previous day. Roell cautioned Raver and Hornberger that if they heard anything or felt anything unusual to jump off the dredge. Afterward, they removed the five overload sensors from their associated housings and opened a portion of the pontoon hatches. Then, water was pumped into the pontoons. As the pontoons filled with water, they put the hatch covers back in place but did not secure them. This process lowered the dredge in the water. From witness statements, the "free board" measured 10 inches (distance from the dredge deck to the water level). At that point, Roell operated the dredge hoist to tension the hoist rope, lowering the dredge further to 4 inches of free board. Then, as Roell had instructed, Raver and Hornberger installed the C-clamps on the hoist brakes to keep the hoist rope from back-spooling. Next, Raver and Hornberger began to pump water from the flooded pontoons. Roell marked the water level in the "moon pool" (opening through the middle of the dredge) and they left the dredge.

The dredge sat idle in this position for the extended holiday weekend (July 3 through July 5, 2015). On July 6, 2015, Roell called Ernst and reported that the attempt to dislodge the bucket did not work and that he was going to let the dredge sit for a few days before attempting the same procedure again. Ernst agreed with the plan.

## **DESCRIPTION OF ACCIDENT**

On the day of the accident, July 10, 2015, William J. Roell, Superintendent (victim), and Robert E. Cooley, Truck Driver, reported to work at 7:00 a.m., their normal starting time. Roell assigned Cooley to assist on the dredge. Cooley had no experience at working on the dredge and had no knowledge of the previous attempt to recover the bucket.

In order to repeat the process, Roell disconnected the C-clamps from the hoist brakes. Next, Cooley assisted Roell in flooding the pontoons with water, lowering the free board to 6 ½ inches. Afterward, Roell instructed Cooley to reinstall the C-clamps on the hoist brakes as he tensioned the hoist cable from the operator's compartment. Then, Cooley and Roell began to pump water from the flooded pontoons. At 11:15 a.m., they stopped for lunch.

When they returned to the dredge, Cooley noticed water coming up over the deck. Roell asked Cooley to take the C-clamps off the hoist brakes as he ascended the stairs to the operator's compartment. Cooley went to the storage room (located in the bottom blue conex) to look for a wrench to loosen the C-clamps. At that time, the dredge was already listing to one side and the

tool box had fallen over and the tools were spread out across the floor. When Cooley finally located a crescent wrench, he left the storage room and started up the stairs toward the hoist. As he climbed the stairs, Roell ran down past him. Roell stopped momentarily to tell him that he had already taken the clamps off of the hoist brakes. As Cooley continued to climb the stairs, he heard a very loud bang and the dredge capsized. Cooley was thrown from the stairs and landed in the water. Although injured during the fall, Cooley, wearing his life jacket, managed to stay afloat on the water for some time. During that time, Cooley called Roell repeatedly but did not get a response, so he swam to shore. When Cooley reached the shore, he got in Roell's pickup truck and drove to the scale house. When Cooley entered, he informed David A. Thierauf, Scale Clerk/Inside Sales, and Thomas R. Roudebush, Office Manager, that the dredge had capsized and Roell was missing. Thierauf immediately called 9-1-1 for emergency assistance. At that time, Todd J. Ernst, Area Manager, entered the scale house and asked them what had happened. As they informed him of the accident, Roudebush left the scale house and went to the mine's rear entrance to wait for the emergency crews in order to direct them to the accident scene. Ernst proceeded to the lake and traveled along the floating conveyor to the overturned dredge to look for Roell. Ernst called for Roell repeatedly but did not get a response. So, he waited at the dredge for emergency crews to arrive.

When the emergency crews arrived, EMT's treated Cooley for his injuries and transported him to a local hospital for follow-up evaluation and subsequent surgery. The remaining crews requested dive teams be dispatched to the mine. For the next several hours, dive teams searched the wreckage but could not locate Roell. When it became too dark to continue, the search was postponed until the next day.

Over the next seven days, divers attempted to find Roell. Because of limited visibility, twisted wreckage under the water and the unexpected movements of the dredge, the dive teams had to proceed with extreme caution. In order to ensure the safety of the divers and the recovery teams on the water, additional time was needed to detach the floating conveyor, cut away cables and dredge components and let the debris settle to the bottom. Inclement weather also caused several delays in the recovery process.

On July 18, 2015, divers located the victim (Roell) inside the MCC room (located in the top blue conex). After cutting away the side of the conex, they brought him to the surface. The coroner pronounced him dead at 7:07 p.m. The death certificate listed the cause of death as drowning.

## **INVESTIGATION OF ACCIDENT**

Robert Olinick, Safety Manager North Region Materials Midwest Central notified MSHA of the accident at 1:37 p.m. on July 10, 2015, by a telephone call to the Department of Labor's National Contact Center (DOLNCC). The DOLNCC notified Joseph M. Denk, Acting District Manager, and an investigation was started the same day. An order was issued under provisions of Section 103(j) of the Mine Act. This order was later modified to Section 103(k) of the Mine Act after the arrival of an Authorized Representative at the mine site.

MSHA's accident investigation team traveled to the mine and conducted 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, State and Local law enforcement, and the State of Ohio Department of Natural Resources.

## **DISCUSSION**

### **Location of the Accident**

The accident occurred in the artificial lake created by dredge mining at the site. The dredge capsized in approximately 40 feet of water.

### **Dredge**

The Rohr Model RS 6.0 200 Bfg floating sand dredge was built in 1993. It is used to mine sand and gravel from a flooded artificial pit. It is equipped with an electrohydraulic clamshell bucket operated by a gantry crane that lifts material from the pit floor and dumps it onto a grizzly screen to separate out rocks, then the material is screened for size (fines return to the lake) and sent to shore via a floating conveyor system. Figure 1 shows the dredge approximately two months before the accident.

The dredge hull is comprised of five metal pontoons bolted together. Each pontoon has multiple compartments, giving it a total of 20 separate watertight compartments when the associated hatches are properly secured in place. The hull is approximately 40 feet 11 inches wide and 80 feet long. The total height of the pontoons is 90 inches from their bottom to the deck of the dredge. Existing algae growth showed that the dredge typically had about 36 inches of freeboard.

The dredge moves around the flooded pit by adjusting four anchor winches located at the corners of the dredge. Each of the associated winch cables connects to a weight on shore.

The winches for the gantry crane are located in the trolley house on top of the elevated rails seen at the top of the dredge. Two motors power two winch drums through a single gearbox to raise and lower the clamshell bucket. The company and the manufacturer refer to this bucket as the "grab." The trolley house moves on the rails of the gantry crane between the three digging positions in the moon pool of the dredge and the grizzly screen stack visible on the right side of the dredge in Figure 1. Note that the wide flat plate in Figure 1 is a rock chute that can direct rocks from the grizzly screen to an attached but separate rock barge. Since this location has very few rocks, a rock barge is not used and when encountered, they were dumped back into the lake. The trolley house also controls the two counterweights that move opposite to the clamshell bucket to provide balance. Through the use of sheaves and a small set of extra winches, movement of the counterweights could be adjusted to compensate for changes in digging depth.

### **Dredge Operation**

Operations of the dredge are controlled from the raised, enclosed, operator's compartment. It is visible in Figure 1 on top of the two conex (blue shipping containers). Once in position, the dredge can be run manually or in a fully automated mode controlled by the onboard Programmable Logic Controller (PLC). The lower conex was used for equipment storage and also contained a hydraulic power unit. The upper conex contained four cabinets of electronic

equipment and a free standing transformer as well as storage of spare parts. The cabinets include circuit breakers, relays, motor controllers, and the PLC.

After the grab opens to dump material onto the grizzly screen and the fines pass through the screen, the remaining material is transported to shore via a 5-section floating conveyor system. The first section of conveyor is attached to the front of the dredge with a rotating kingpin similar to a fifth wheel trailer connection. There are two cables attached from the front of the dredge to either side of the conveyor to limit the swing of the conveyor to prevent damage to the dredge. These cables can be adjusted by turnbuckles.

### **Safety Features on Dredge**

#### **Overload Sensors:**

There are five sensors (Warrick Controls, Model 3E1A) located on the dredge to monitor water levels. The manual refers to these as overload sensors. There is one sensor located at each of the back corners of the dredge, three sensors on the front of the dredge, one sensor to the right of the conveyor and two sensors to the left. Each sensor is mounted on a section of pipe attached to the deck that extends through the bottom of the dredge so that it can measure freeboard. Three of the sensors had a 36 3/8 inch rod attached to a pipe about 10 inches above the deck of the dredge. The dredge operators would start measuring water levels when the dredge freeboard dropped to about 26 inches. A fourth sensor had a shorter 31 3/4 inch rod attached; it would only measure freeboard of 21 inches or less. Additionally, this rod was wrapped for about 5 inches with electrical tape. The fifth sensor was missing its rod. The readings from both the fourth and fifth sensors would have been impaired. It is unknown how the readings from these overload sensors was processed by the PLC. There is an overload light in the operator's compartment and it was known by the crew that if the sensors were triggered, power to the dredge would be interrupted. The overload sensors were mounted to pipe sections mounted to the deck with a bolt that acted as a set screw to hold the sensors in place. Figure 2 shows the two overload sensors located to the left side of the conveyor, including their mounting pipes.

The operations manual states the following for the dredge before start up: "all signaling and warning devices (bells, horns, etc.) are in place, in working order, and effective."

#### **Watertight Compartments:**

The dredge floats on five pontoons bolted together. These pontoons are divided into a total of 20 separate compartments. Each compartment is accessed through a single rectangular hatch 16 inches by 22 inches. The hatch covers are equipped with a gasket and have 4 tabs, one on each side that fit over threaded bolts welded to the deck enabling nuts to be used to secure the hatch covers in place.

The operations manual states the following for the hatchway covers: "Each transverse wall can be accessed for inspection through a screwable hatchway cover. These hatchways must always be tightly closed."

#### **Personal Flotation Devices:**

Automatically inflating life preservers were available for each crew member on the dredge. At the time of the accident, both miners were wearing their life jackets. Wearing a life jacket

potentially saved the life of the second miner who was thrown from the deck as the dredge capsized.

### **Events at the Time of Accident:**

From witness statements, the clamshell bucket got stuck on June 30, 2015. This was likely due to the sides of the excavated hole sloughing off onto and over the bucket. The method that they were using during the attempts on July 2 and July 10, 2015, to recover the bucket was to remove the hatch covers from the pontoon compartments and flood the compartments with water. A remote pump and hoses were brought to the dredge. The dredge was lowered and the freeboard was reduced to approximately 10 inches. This allowed slack in the winch cables attached to the bucket. Then the winch cables were tightened to put tension on the bucket, further reducing freeboard to between 4 and 6 inches. Bridge clamps (heavy duty C-clamps that require a wrench to apply) were used to increase the holding force of the winch's brakes. Their intent was to pump out the water from the compartments, using the dredge's buoyancy to pull on the stuck bucket with more force than the winch could exert. According to Robert E. Cooley, accident survivor, after returning to the dredge after a lunch break, one corner of the dredge was under water and a loud bang was heard.

During the recovery of the dredge, it was noted by the dive teams that the cable between the back right side of the dredge and the conveyor had broken and unraveled. This cable was in the vicinity of where the surviving miner reported hearing a bang.

The operations manual states the following for flooding the pontoon compartments: "Partial flooding of a compartment is allowed, but only under specific guidance of the Rohr Corporation."

The operations manual states the following for a stuck bucket and overloading the winch: "Breaking loose of a stuck grab is not allowed. No hoisting above the permitted lifting capacity of the equipment is allowed." Note that the manufacturer refers to the bucket as a grab. In addition, "**Pulling loose a stuck bucket with the hoist is not permitted.**" Note that the bolded emphasis is included in the manual.

### **Aftermath of the Accident**

After the accident, the dredge was on its side in the lake with the rear left corner still above water. Figure 3 shows the dredge on July 11, 2015, one day after the accident. Note that the dredge settled further into the water that night.

According to divers who examined the wreckage, the conveyor system was still attached to the dredge. The cable to the bucket was also attached to the dredge and was under tension. The trolley house fell off the dredge during the accident and was recovered separately. Figure 4 is a closer picture showing one of the missing hatch covers and a hanging overload sensor.

From witness statements, the overload switches were removed from their mountings and laid on deck to avoid shutting down electrical power to the dredge when the freeboard was reduced while flooding the compartments. When water started coming over the deck, the overload switches likely tripped the main winch (hoist) circuit breaker. This breaker was located in the



upper conex and during the investigation was found in the off or tripped position. The victim was found in this conex.

### **Summary of Dredge Operating Condition at the Time of the Accident**

1. The overload switches that prevent excessive submersion or tipping had been disabled.
2. The access covers into the pontoons did not have watertight gaskets and were not fastened down as required.
3. At the time of the accident, the dredge crew was not following manufacturer's procedure for retrieving a stuck bucket.
4. Both crew members were wearing life jackets. Wearing a life jacket potentially saved the life of the second crew member.

### **TRAINING AND EXPERIENCE**

William J. Roell (victim) had approximately 27 years of mining experience, with 15 years and 17 weeks at this mine. Roell spent the past 5 years as the superintendent of this mine. A representative of MSHA's Educational Field and Small Mines Services reviewed the mine operator's Part 46 training records for Roell. The reviewer concluded that Roell had received all required training. Although the mine operator's records show that Roell had received task training for operating the dredge in January 1999, the training did not include the manufacturer's recommended safe procedures to be used when attempting to dislodge or recover a dredge bucket.

Robert E. Cooley (injured miner) had approximately 27 years of mining experience, with 11 years and 49 weeks as a truck driver at this mine. A representative of MSHA's Educational Field and Small Mines Services reviewed the mine operator's Part 46 training records for Cooley. The reviewer concluded that Cooley had received all required training, including task training for the various haul trucks that he normally operated. However, on the day of the accident, Cooley was assigned by Roell to assist on the dredge and had never received any task training for this occupation.

### **ROOT CAUSE ANALYSIS**

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

**Root Cause:** Management policies and controls were inadequate. Mine management participated in the removal of the dredge's pontoon overload sensors and knew about its unfastened hatches and did not correct these conditions before continuing to operate the dredge.

**Corrective Action:** Management is working with Rohr representatives to possibly refurbish and use the dredge. If the dredge is salvageable or a replacement dredge is to be used, the mine operator will establish and implement written safe operating procedures to ensure that all of the dredge safety devices are in place and maintained according to the manufacturer's specifications at all times while the dredge is operating. The dredge operators and crews will be trained in these safe operating procedures.

**Root Cause:** Management policies and controls were inadequate. The dredge had been modified and used beyond the design capacity intended by the manufacturer. Mine management failed to consult with the manufacturer or follow its recommended safe procedures when attempting to dislodge the dredge bucket from the lake bottom.

**Corrective Action:** If the dredge is salvageable or a replacement dredge is to be used, the mine operator will establish and implement written safe operating procedures to ensure that the manufacturer's recommended methods are used to dislodge or recover the dredge bucket from the lake bottom. The dredge operators and crews will be trained in these safe operating procedures.

**Root Cause:** Mine management failed to provide task training to miners in accordance with the manufacturer's recommended safe procedures for dislodging or recovering a dredge bucket.

**Corrective Action:** If the dredge is salvageable or a replacement dredge is to be used, the mine operator will train the dredge operators and crews in the manufacturer's safe procedures for dislodging or recovering the dredge bucket from the lake bottom.

## CONCLUSION

The accident occurred due to management's failure to consult with the manufacturer or follow its recommended safe procedures when attempting to dislodge the dredge bucket from the lake bottom. As a result, the dredge was used beyond the design capacity intended by the manufacturer. In addition, mine management participated in the removal of the dredge's pontoon overload sensors and knew about its unfastened pontoon hatches and did not correct these conditions before continuing to operate the dredge. These modifications directly impacted the stability of the dredge and contributed to the cause of the accident. Finally, mine management failed to provide task training to miners in accordance with the manufacturer's recommended safe procedures for dislodging or recovering a dredge bucket.

## ENFORCEMENT ACTIONS

### **Hanson Aggregates Midwest, LLC**

**Order No. 4548169** - Issued on July 10, 2015, under the provisions of 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:

*An accident occurred at this operation on 07/10/15 at 1330 hrs. This order is being issued under section 103 (J) of the Federal Mine Safety and health act of 1977, to prevent destruction of any evidence which would assist in investigating the cause or causes of the accident. It prohibits all activity at dredge where accident occurred until MSHA deems that it is safe to resume normal mining operations. This order was initially issued orally to the mine operator at 1420 hours and has now been reduced to writing.*

*The initial order is modified to reflect that MSHA is now proceeding under the authority of section 103(K) of the Federal Mine Safety and Health Act of 1977. This section 103(K) order is intended to protect the safety of all persons including those involved in rescue and recovery operation or investigations of the accident. The Mine operator shall obtain prior approval from an authorized representative of the Secretary for all actions to recover and/or restore operations in the affected area. Additionally, the mine operator is reminded of its existing obligation to prevent the destruction of evidence that would help in investigating the cause or causes of the accident.*

This order was terminated on August 24, 2015, after conditions that contributed to the accident no longer existed.

**Citation No. 8921202** - Issued under the provisions of 104(d)(1) of the Mine Act for violation of 30 CFR § 56.14100(c):

*On July 10, 2015, a fatal accident occurred at this mine when a dredge capsized and the victim was recovered from the submerged MCC room eight days later. Another miner was injured when he was thrown from the dredge as it capsized but was able to swim to shore. The miners were attempting to dislodge the "clamshell" bucket that had become stuck on June 30, 2015. In trying to free the bucket, the pontoon overload sensors were removed and water pumped into the pontoons to lower the dredge in the water. In addition, the pontoon access hatches were not closed or secured to prevent an uncontrolled flow of water into the pontoons. Superintendent William J. Roell engaged in aggravated conduct constituting more than ordinary negligence in that he participated in the removal of the pontoon overload sensors and knew about the unfastened hatches and did not correct these conditions before continuing to operate the dredge. By doing this, he intentionally caused the dredge to become unstable and subsequently capsize. In addition, Area Manager Todd Ernst engaged in aggravated conduct constituting more than ordinary negligence in that he discussed and agreed with the plan to recover the dredge bucket on July 1, 2015, and, after an unsuccessful attempt on July 2, 2015, he again agreed to go forward with the attempt that resulted in the fatal accident. This violation is an unwarrantable failure to comply with a mandatory standard.*

**Order No. 8921203** - Issued under the provisions of 104(d)(1) of the Mine Act for violation of 30 CFR § 56.14205:

*On July 10, 2015, a fatal accident occurred at this mine when a dredge capsized and the victim was recovered from the submerged MCC room eight days later. Another miner was injured when he was thrown from the dredge as it capsized but was able to swim to shore. The miners were attempting to dislodge the "clamshell" bucket that had become stuck on June 30, 2015. In trying to free the bucket, the miners did not consult with the manufacturer or follow its recommended procedures. Instead, they attempted to use the buoyancy of the dredge pontoons and the hoist cable to dislodge the bucket from the pond floor by initially flooding the pontoons with water, tensioning the hoist rope, clamping the hoist brakes, and then pumping water from the pontoons. In doing so, the dredge which was not designed to be used in this manner became unstable and capsized.*

*Superintendent William J. Roell engaged in aggravated conduct constituting more than ordinary negligence in that he devised and authorized the plan, directed miners' actions, and participated in the procedure. In addition, Area Manager Todd Ernst engaged in aggravated conduct constituting more than ordinary negligence in that he discussed and agreed with the plan to recover the dredge bucket on July 1, 2015, and, after an unsuccessful attempt on July 2, 2015, he again agreed to go forward with the attempt that resulted in the fatal accident. This violation is an unwarrantable failure to comply with a mandatory standard.*

**Order No. 8921204** - Issued under the provisions of 104(g)(1) of the Mine Act for violation of 30 CFR § 46.7(b):

*On June 30, 2015, Superintendent William J. Roell was operating the dredge at this mine and the "clamshell" bucket became stuck in the sand and gravel at the bottom of the lake. Prior to attempting to free the bucket, Roell informed Area Manager Todd Ernst on July 1, 2015, that the dredge bucket was stuck and they discussed the plan to recover it from the pond floor. On July 2, 2015, Roell and two miners (Kelly J. Raver and Craig H. Hornberger Sr.) boarded the dredge and attempted to dislodge the bucket. During this attempt, Roell instructed the miners that, if they heard or felt anything unusual, to jump from the dredge. The attempt was unsuccessful and Roell decided to try again. On July 10, 2015, Roell and one miner (Robert E. Cooley) repeated the same procedure and the dredge capsized. Roell was recovered from the submerged MCC room eight days later. The other miner was injured when he was thrown from the dredge as it capsized but was able to swim to shore. None of the miners involved in these two attempts had been task trained in the manufacturer's recommended procedure for dislodging the dredge bucket or its prohibition against using the hoist to pull the bucket free. Instead, on each attempt they flooded the pontoons with water, tensioned the hoist rope, clamped the hoist brakes, and then pumped water from the pontoons. In doing so, the dredge became unstable and capsized. Both Roell and Ernst were aware of the manufacturer's recommended procedure and that it had been followed previously to recover a stuck bucket. However, Roell assigned and directed employees who were not trained in the manufacturer's safe procedures while attempting to recover the dredge bucket. Ernst failed to ensure that the manufacturer's recommended procedures were followed and that the miners were provided with task training in accordance with these procedures. The Federal Mine Safety and Health Act states that "an untrained miner is a hazard to himself and others."*

Approved: \_\_\_\_\_



Peter J. Montali  
District Manager

Date: 11/04/2015

## **LIST OF APPENDICES**

Appendix A: Persons Participating in the Investigation

Appendix B: Victim Information

Appendix C: Accident Scene Photos (Figure 1 through Figure 4)

## APPENDIX A

### PERSONS PARTICIPATING IN THE INVESTIGATION

#### **Hanson Aggregates Midwest, LLC (Heidelberg Cement Group)**

Robert E. Cooley Sr.	Truck Driver
Gary L. Dowd	Dredge Operator
Todd J. Ernst	Area Manager
Craig H. Hornberger Sr.	Truck Driver
James C. Morgan	Vice President and General Manager
Randall Mucha	Corporate Safety and Health Director
Robert Olinick	Safety Manager North Region Materials Midwest Central
Kelly J. Raver	Equipment Operator
Thomas R. Roudebush	Office Manager
David A. Thierauf	Scale Clerk/Inside Sales
Steven Tobias	Operations Manager

#### **Ogletree Deakins**

Margaret S. Lopez	Attorney, Council for Hanson Aggregates Midwest, LLC
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#### **Ohio Department of Natural Resources**

Matthew J. Kruse	Southern Region Investigator
Becky Newberry	Mine Safety Inspector

#### **Mine Safety and Health Administration**

Michael J. Wynkoop	Mine Safety & Health Inspector
David L. Stimmel	Mine Safety & Health Inspector
Jonathan A. Hall	Mechanical Engineer
Jeffrey A. Hoblick	Mine Safety & Health Specialist (Training)

## APPENDIX B

### VICTIM INFORMATION

Accident Investigation Data - Victim Information  
 Event Number: 6 6 3 0 3 6 9

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



<b>Victim Information: 1</b>																	
1. Name of Injured/Ill Employee: <i>William J. Roell</i>				2. Sex: <i>M</i>		3. Victim's Age: <i>50</i>		4. Degree of Injury: <i>01 Fatal</i>									
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: <i>a. Date: 07/18/2015 b. Time: 19:07</i>							6. Date and Time Started: <i>a. Date: 07/10/2015 b. Time: 13:30</i>										
7. Regular Job Title: <i>049 Superintendent</i>					8. Work Activity when Injured: <i>046 Dredge operator.</i>					9. Was this work activity part of regular job? Yes No X							
10. Experience		Years	Weeks	Days	b. Regular			Years	Weeks	Days	c. This		Years	Weeks	Days	d. Total	
a. This					Job Title:						Mining:					Mining:	
Work Activity:		<i>15</i>	<i>17</i>	<i>0</i>				<i>5</i>	<i>0</i>	<i>0</i>			<i>15</i>	<i>17</i>	<i>0</i>	<i>26 51 0</i>	
11. What Directly Inflicted Injury or Illness? <i>126 Dredge capsized into the water.</i>							12. Nature of Injury or Illness: <i>110 Drowning</i>										
13. Training Deficiencies: Hazard: _____ New/Newly-Employed Experienced Miner: _____ Annual: _____ 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 checked="" type="checkbox"/> First-Aid: _____ CPR: _____ EMT: _____ Medical Professional: _____ None: _____																	
16. Part 50 Document Control Number: (form 7000-1) <i>220152010019</i> 17. Union Affiliation of Victim: <i>9999 None (No Union Affiliation)</i>																	
<b>Victim Information: 2</b>																	
1. Name of Injured/Ill Employee: <i>Robert E. Cooley</i>				2. Sex: <i>M</i>		3. Victim's Age: <i>63</i>		4. Degree of Injury: <i>04 Days away from work &amp; days restrict acty</i>									
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death:							6. Date and Time Started: <i>a. Date: 07/10/2015 b. Time: 13:30</i>										
7. Regular Job Title: <i>076 Truck driver</i>					8. Work Activity when Injured: <i>046 Dredge operator helper.</i>					9. Was this work activity part of regular job? Yes No X							
10. Experience		Years	Weeks	Days	b. Regular			Years	Weeks	Days	c. This		Years	Weeks	Days	d. Total	
a. This					Job Title:						Mining:					Mining:	
Work Activity:		<i>0</i>	<i>0</i>	<i>1</i>				<i>11</i>	<i>49</i>	<i>0</i>			<i>11</i>	<i>49</i>	<i>0</i>	<i>11 49 0</i>	
11. What Directly Inflicted Injury or Illness? <i>126 Water.</i>							12. Nature of Injury or Illness: <i>220 Broken collar bone.</i>										
13. Training Deficiencies: Hazard: _____ New/Newly-Employed Experienced Miner: _____ Annual: _____ 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: _____ First-Aid: <input checked="" type="checkbox"/> CPR: _____ EMT: <input checked="" type="checkbox"/> Medical Professional: _____ None: _____																	
16. Part 50 Document Control Number: (form 7000-1) <i>220152010028</i> 17. Union Affiliation of Victim: <i>9999 None (No Union Affiliation)</i>																	

**APPENDIX C**  
**ACCIDENT SCENE PHOTOS**



**Figure 1 - Dredge prior to the accident in Spring 2015.  
(Photo provided by the Ohio Department of Natural Resources)**



**Figure 2 - Overload sensors and mounting pipes. Note the missing rod on one sensor and the electrical tape on the other sensor. The fastening bolt is visible at the base of the left hand mounting pipe section.**





**Figure 3 - Dredge in the water at the beginning of the investigation.**



**Figure 4 - Dredge in water. Note missing hatch cover and hanging overload sensor.**