

**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  
July 10, 2013**

**Ford Construction Company  
Troy Plant  
Troy, Obion County, Tennessee  
Mine I.D. No 40-02271**

**Investigators**

**Jeffery L. Phillips  
Supervisory Mine Safety and Health Inspector**

**Larry D. Melton  
Mine Safety and Health Inspector**

**Terry G. Lingenfelter  
Mine Safety and Health Specialist (Training)**

**James L. Angel  
Mechanical Engineer**

**Jonathan A. Hall  
Mechanical Engineer**

**Originating Office  
Mine Safety and Health Administration  
Southeastern District  
1030 London Drive, Suite 400  
Birmingham, Alabama 35211  
Samuel K. Pierce, District Manager**



## OVERVIEW

Joe Donald Trevathan, Dozer Operator, age 68, died on July 10, 2013, while operating a dozer. The dozer was pushing overburden in a direction parallel to a pond located 130 feet away. The dozer veered hard to the right and then traveled in a straight line, with the blade raised, toward the pond. The dozer reached the side of the pond and slid sideways to the right approximately 20 feet into the pond.

The Mine Safety and Health Administration (MSHA) conducted an investigation regarding chargeability of the accident as a mine-related fatality. The accident investigators determined the dozer functioned properly and could not determine what caused the dozer to veer off the path of travel and travel in a straight line for approximately 130 feet. Trevathan did not lower the dozer blade or attempt to make an emergency stop before the dozer entered the water.

Information was forwarded to MSHA's Fatality Review Committee (Committee). Based on the results of MSHA's investigation and a review of the available medical documentation, the Committee determined on September 30, 2014, that Trevathan's death should be charged to the mining industry.

The autopsy report and death certificate indicated Trevathan died of a cardiac dysrhythmia due to hypertensive heart disease with submersion in water.

## GENERAL INFORMATION

Troy Plant, a construction sand and gravel operation owned and operated by Ford Construction Company, is located near Hwy 21 in Troy, Obion County, Tennessee. The principal operating official is John H. Ford, President. The mine normally operates one 10-hour shift per day, five days per week. Total employment is 8 persons.

After removal of the overburden, the sand and gravel is loaded into haul trucks, transported to the plant where it is screened, sized and washed. The material is stockpiled and the finished products are sold for use in the construction industry.

Prior to the accident, MSHA completed the last regular inspection at this mine on May 17, 2013.

## DESCRIPTION OF ACCIDENT

On the day of the accident, July 10, 2013, Joe Trevathan (victim) started to work at 6:00 a.m. Trevathan went to his dozer, located in the sand pit, and started stripping by pushing overburden material to create a new pit. At about the same time, Steve Alexander, Equipment Operator, arrived and drove to the gravel pit to get a motor grader. Alexander operated the motor grader for about 45 minutes. He then went to the sand pit stripping area where Trevathan was working. For about five minutes they discussed the work to be done that day and went to the dozers to strip overburden material.

Alexander noticed Trevathan stopped the dozer about 9:30 a.m. After taking a break, Trevathan continued stripping until about 10:45 a.m. when he traveled to get the fuel truck. Trevathan returned with the fuel truck and fueled his and Alexander's dozers. He then drove the fuel truck to refuel the truck's tanks which typically takes about 1½ hours. Trevathan returned and about 12:30 p.m., took a 20 minute lunch break with Alexander. After lunch, he continued stripping with the dozer.

At approximately 2:00 p.m., Alexander moved his dozer to the spoil bank to level it up. He made four passes with his dozer but could not see Trevathan because he was not facing in the direction where Trevathan was working. When Alexander backed up, he did not see Trevathan's dozer. He promptly turned the dozer around and started to travel to the area Trevathan was working. As Alexander approached the area, he saw Trevathan's water cooler floating in the pond. He continued to travel towards Trevathan's work area and noticed a set of dozer tracks leading to the water's edge. Alexander exited his dozer and walked toward the water but could not see Trevathan or the dozer.

At 2:43 p.m., Alexander phoned Jessie Lewis, Leadman, to contact Brian Bartz, Foreman, to tell him to come to the stripping site because it appeared Trevathan had driven his dozer into the water. Bartz arrived at the site and called 911 for Emergency Medical Assistance (EMS).

EMS arrived at 3:08 p.m. and requested a boat and divers to assist in the search for Trevathan. The divers searched the area until dark but could not locate the dozer. Two water pumps were set up on the north end of the pond to pump the water level down.

The next morning, July 11, 2013, the water level in the pond had decreased about three feet but the dozer still was not visible. Search efforts resumed and at 1:24 p.m., the divers located Trevathan. He was removed from the water and transported to a hospital where he was pronounced dead. The cause of death was attributed to cardiac dysrhythmia due to hypertensive heart disease with submersion in water.

## **INVESTIGATION OF THE ACCIDENT**

On July 10, 2013, MSHA was notified of the accident at 3:08 p.m. by a phone call from Vicki Greer, Scale House Clerk, to Jim Croft, Supervisory Mine Safety and Health Inspector. Croft notified Doniece Schlick, Assistant District Manager. Greer also called MSHA's National Call Center. 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.

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 employees.

## **DISCUSSION**

### **Location of the Accident**

The accident occurred at the sand pit stripping area adjacent to the pond.

### **Dozer**

The dozer involved in the accident is a Caterpillar model D8N track-type tractor that was manufactured in 1994. It is not equipped with a ripper. It is powered by a Caterpillar 3406C six cylinder turbocharged and aftercooled diesel engine with a net 285 horsepower rating. The engine is connected to an automatic transmission with 3 forward and 3 reverse gears.

The dozer was recovered from the pond approximately seven weeks after the accident. The blade and the axle shafts were removed to transport the dozer from the accident site to the Ford Construction Company shop for inspection. The axle shafts were reinstalled to perform the brake test described below.

The accident investigators examined the dozer for any defects. The dozer was washed to remove the mud. No significant impact or rollover damage was observed. Rust was present in numerous places. Water was present inside the fuel tank, hydraulic oil tank, and engine. Mud was present under the operator's compartment floor panels that were removed to inspect steering and braking linkages. The dozer's engine could not be started for the investigation.

### **Service Brake Test**

Since the dozer could not be operated, the functional test provided in the dozer's operation and maintenance manual could not be performed. The holding ability of the brakes was tested by pulling on the dozer with a rubber-tired front end loader and measuring the holding force of the brakes. Note that with the engine not running, the brake hydraulic release pressure was not available; therefore, the brakes were fully applied. Without hydraulic pressure the transmission was also in neutral.

When pulled, the dozer tracks slid on the dirt covered pavement. No slippage of the brakes occurred at a force of approximately 42,400 lbs. At the dozer's test weight of approximately 61,600 lbs. (no blade), the brakes would be capable of holding on at least a 43° grade. At the estimated full machine weight (with the blade), the brakes are estimated to hold on at least a 35° grade. Since the dozer slid on the pavement rather than the brakes slipping, this test did not determine the full capability of the brakes. However, the test confirmed that a substantial braking force could be developed by the brakes.

### **Brake Inspection**

The parking brake control cable and the service brake linkage were inspected. No damage or loose connections were observed. Dimensional checks of the parking brake control cable and service brake linkage did not show any significant deviations from Caterpillar specifications. The parking brake lever was found in the released position at the time of the inspection. The parking brake cable was difficult to manually operate however it could be moved across its expected range of motion. The difficulty in moving the parking brake lever was attributed to the effects of the dozer being submerged in the water after the accident. The service brake pedal and linkages could be moved manually without difficulty.

### **Governor and Decelerator Controls**

The dozer was equipped with a hand-operated governor control lever that was connected to the engine governor through linkages. This lever allowed the

operator to set the engine's speed. Pulling the lever toward the operator increased the engine speed and pushing it forward decreased the engine speed. By pushing the lever to its furthest position from the operator, the operator was also able to move the governor to shut off fuel and stop the engine. A decelerator pedal was located next to the service brake pedal. The decelerator pedal was connected to the governor control lever linkage and was used to reduce engine speed when making directional changes.

### **Governor and Decelerator Inspection and Testing**

The linkages for the governor control lever and decelerator pedal were inspected. Both the governor control lever and decelerator pedal could be moved manually without difficulty. No damage or loose connections were observed with the governor control lever. The decelerator pedal's connection to its shaft was worn and loose. When pushed down, the decelerator pedal did not rotate the shaft to the governor. No functional test of the governor control lever or decelerator pedal could be performed since the engine could not be started.

### **Steering, Transmission, and Blade Systems Inspection**

Functional tests of the steering, transmission, and blade systems could not be performed since the engine could not be started. The steering and blade control levers could be moved manually without difficulty. The steering control would return to neutral when released and the blade control would return to the hold position when released. The directional control selector and the transmission gear selector, both connected to cables, could not be moved by hand. This was attributed to the effects of the dozer being submerged in the water after the accident. In discussions with Caterpillar, it appeared the directional control selector was in the forward position and the transmission gear selector was either in 1st or 2nd gear.

The accident investigators determined no equipment related defects or factors contributed to the accident.

## **TRAINING AND EXPERIENCE**

Joe D. Trevathan had 23 years of mining experience. The accident investigators reviewed Trevathan's training records. They were found to be up-to-date and in compliance with MSHA requirements.

## CONCLUSION

The accident investigators determined the dozer functioned properly and could not determine what caused the dozer to veer hard to the right off the path of travel and then travel in a straight line for approximately 130 feet toward the pond. Trevathan did not lower the dozer blade or attempt to make an emergency stop before the dozer entered the water.

Based on the results of MSHA's investigation and a review of the available medical documentation, the Committee determined on September 30, 2014, that Trevathan's death should be charged to the mining industry.

The autopsy report and death certificate indicated Trevathan died of a cardiac dysrhythmia due to hypertensive heart disease with submersion in water.

## ENFORCEMENT ACTIONS

**Order Number 8730026** -- issued on July 10, 2013, under the provisions of Section 103(j) of the Mine Act:

*An accident occurred at this operation on July 10, 2013 at approximately 3:00 p.m. As rescue and recovery work is necessary, this order is being issued under section 103(j) of the Federal Mine Safety and Health Act of 1977, to assure the safety of all persons at this operation. This order is also being issued to prevent the destruction of any evidence which would assist in the investigating the cause or causes of the accident. It prohibits all activity at the area of the impoundment, the D6 Caterpillar bulldozer, the D8 Caterpillar bulldozer and the area approximately 255 feet south (marked by pink flags, where the operator of the D6 Caterpillar dozer first noticed that the D8N Caterpillar dozer was missing). An area road where there are tracks of the D8N Caterpillar bulldozer, until MSHA has determined that it is safe to resume normal operations in the affective area. This order applies to all persons engaged in the rescue and recovery operation and any other persons on site. This order was initially issued orally to the mine operator at 3:13 p.m. and now has been reduced to writing.*

The order was terminated on September 23, 2013, after the accident investigation was completed.

Approved by: Samuel K Pierce Date: 11/9/15

Samuel K. Pierce  
Southeast District Manager

## Appendix A

### Persons Participating in the Investigation

#### Ford Construction Company

Mike Harrison	Plant Superintendent
Brian Bartz	Foreman
Collie Berry	Safety Director

#### Obion County Sheriff's Department

Jerry Vastbinder	Sheriff
Kent Treece	Chief Deputy
Angie Taylor	Investigator

#### Shelby County Sheriff's Office Dive Team

Chuck Mayes	Diver
Mike Deathridge	Sonar Operator

#### Tennessee Department of Health Office of the Chief Medical Examiner

Dr. Erica R. Curry, MD	Pathologist
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#### Mine Safety and Health Administration

Jeffrey L. Phillips	Supervisory Mine Safety & Health Inspector
Larry D. Melton	Mine Safety and Health Inspector
Terry G. Lingenfelter	Mine Safety and Health Specialist (Training)
James L. Angel	Mechanical Engineer
Jonathan A. Hall	Mechanical Engineer

# Appendix B

## Victim Information

### Accident Investigation Data - Victim Information

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



Event Number: 07643089

Victim Information: 1																											
1. Name of Employer: Employed				2. Sex		3. Victim's Age		4. Degree of Injury																			
Job ID: 11111111				M		68		CF Fatal																			
5. Date (MM/DD/YYYY) and Time (M:SS) Of Event										6. Date and Time Started																	
a. Date: 07/19/2013										b. Time: 15:00		c. Date: 07/19/2013				Time: 0:00											
7. Regular Job Title				8. Work Activity when injured:								9. Was this work activity part of regular job?															
100 Caterpillar D8V Dozer				047 Operating Dozer								Yes		X No													
10. Experience																											
a. This			b. Regular			c. This			d. Total			e. Total															
Years	Weeks	Days	Years	Weeks	Days	Years	Weeks	Days	Years	Weeks	Days	Years	Weeks	Days													
Work Activity	23	0	0	Job Title	23	0	0	Mine	23	0	0	Mining	23	0	0												
11. What Directly Inflicted Injury or Illness?								12. Nature of Injury or Illness:																			
127 Heart Attack dozer operator in water								340 hypertension disease/heart attack																			
13. Training Deficiencies																											
Hazard				Newly-Employed				Experienced Miner				Annual				Task											
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				CPR				EaT				Medical Professional				None				X			
16. Part 50 Document Control Number (form 7000-1)																											
17. Union Affiliation of Victim								9999								None (No Union Affiliation)											
Victim Information:																											

## Appendix C

### Additional Photos



Dozer as it was being uncovered from the pond



Shows the water that was pumped from the pond to recover the dozer



Dozer transferred to the shop for examination