

**UNITED STATES**  
**DEPARTMENT OF LABOR**  
**MINE SAFETY AND HEALTH ADMINISTRATION**

**REPORT OF INVESTIGATION**

Surface Nonmetal Mine  
(Sand & Gravel)  
Fatal Machinery Accident

September 16, 2004

Drowning Creek Dredge & Plant  
Southern Products & Silica Company, Inc  
Hoffman, Richmond County, North Carolina

Mine I.D. No. 31-00718

Accident Investigators

Donald L. Collier  
Supervisory Mine Safety and Health Inspector

Thomas Clarkson  
Mine Safety and Health Inspector

James Hackworth  
Mine Safety and Health Specialist

Dale Ingold  
General Engineer

Originating Office  
Southeast District  
135 Gemini Circle, Suit 212; Birmingham AL 35209  
Michael A. Davis, District Manager

## **OVERVIEW**

Jose P. Garcia, mechanic, age 35, was fatally injured on September 16, 2004, when the forklift he was repairing fell on him. The victim had positioned himself under the forklift to change a starter.

The accident occurred because the forklift had not been blocked or mechanically secured to prevent it from falling. The hydraulic jack used to raise the forklift shifted, causing the forklift to fall.

A risk assessment was not conducted before starting this task. No steps were taken to identify possible hazards. Controls were not implemented to eliminate the risks involved with working underneath the raised forklift.

## **GENERAL INFORMATION**

Drowning Creek Dredge & Plant, a dredge operation, owned and operated by Southern Products & Silica Co, Inc., was located adjacent to US Highway 1, four miles south of Aberdeen, Richmond County, North Carolina. The principal operating official was Charles K. Smith, general manager.

Sand and gravel was dredged from the lake and pumped to the processing plant where it was screened, sized, and then stockpiled by conveyor. The finished products were sold for use in the construction industry.

The mine normally operated one eight-hour shift per day, five days a week. Total employment was 25 persons.

The last regular inspection at the operation was completed July 1, 2004.

## **DESCRIPTION OF ACCIDENT**

On the day of the accident, Jose P. Garcia (victim) reported for work at 6:10 a.m., his regular starting time. William Price, superintendent, told Garcia and Gary Duty, mechanic, to repair the pipeline on the dredge. About 11:30 a.m., when the repairs to the pipeline had been completed, Price told Garcia and Duty to repair the stand for the dust suppression system in the plant area.

After lunch, rather than working on the assigned task, Garcia began replacing the starter on a forklift that was parked in the warehouse while Duty started to repair the tail lights on a dump truck outside the shop area. Garcia placed a ten ton floor jack under the counter weight at the rear of the forklift to raise the machine in order to replace the starter.

At approximately 12:30 p.m. George Gibson Jr. and Brandon Gibson, mill operators, walked into the warehouse. They discovered the jack had kicked out from under the counter weight, causing the forklift to fall on Garcia. They reinstalled the jack under the counter weight to raise the forklift so Garcia could be freed. Emergency medical personnel were summoned. The victim was transported to a local hospital where he was pronounced dead. Death was attributed to crushing injuries.

## INVESTIGATION OF THE ACCIDENT

MSHA was notified of the accident at 2:45 p.m. on September 16, 2004, by a telephone call from William Price, superintendent, to Walter E. Turner, supervisory mine safety and health inspector. An investigation was started the same day. An order was issued under the provisions of Section 103(k) of the Mine Act to ensure the safety of the miners. MSHA's accident investigators traveled to the mine, made a physical inspection of the accident scene, interviewed employees, and reviewed conditions and work procedures relevant to the accident. MSHA conducted the investigation with the assistance of mine management and the employees.

### Discussion

#### Location of the Accident:

The accident occurred in the back of a warehouse that was adjacent to and connected to the maintenance shop by a 75-inch wide doorway. The concrete floor in the building was smooth and level.

One 10 inch diameter, 3/8 inch wall, piece of steel pipe measuring 7 ¾ to 8 inches long was located seven feet from the left side of the lift truck. A 6 ½ inch X 9 ½ inch X 29 inch wooden timber was located about five feet from the right side of the forklift. These two items were normally used to block the forklift frame when maintenance was performed. Hand tools and a drop light were found on and near the machine.

#### Forklift:

The forklift involved in the accident was leased by the mining company from a local equipment distributor. The forklift, a 2003 Hyster, model H50XM, had a rated capacity of 5000 pounds with a 24 inch load center. A warning on the dashboard stated: "WARNING!----Trained Operators and Mechanics Only---- Read Operating Manual located on or near seat." The manual was found in a compartment on the outside back of the operator's seat, it listed the following steps for raising the steering tires :

- 1) Apply the parking brake. Put blocks on both sides (front and back) of the drive tires to prevent movement of the lift truck.
- 2) Use a hydraulic jack to raise the steering tires. Make sure that the jack has a capacity of at least 2/3 of the total weight of the

lift truck as shown on the Nameplate.

- 3) Put the jack under the steering axel or frame to raise the lift truck. Put blocks under the frame to support the lift truck.

The counter weight was hung and secured to the rear of the machine's frame by a large bolt. The underside of the counter weight was tapered at 11.5 degrees upward from the rear wheels to the rear edge of the forklift.

Measurements of the rear ground clearance showed that the counter weight was approximately 6  $\frac{3}{4}$  inches from the ground at the rear of the forklift and eventually tapered down to 5 inches of clearance at the point nearest the steering tires.

The underside of the counter weight was painted and covered with a light layer of dust. Three shiny scratches, cutting through the paint, were found on the underside of the counterweight. The position of the scratches on the counterweight indicated that the jack had slipped out.

The machine was found with the parking brake set. The parking brake was tested and found to be operative.

### Jack

The jack used to raise the forklift was a 10 ton Westward, model 3W928, hydraulic service jack. The jack was tested and found to be in good condition. The jack was equipped with industrial steel roller bearing casters that allowed it to maneuver easily. The front casters on the jack were approximately 5  $\frac{7}{8}$  inches in diameter. The jack's saddle contained four 1  $\frac{1}{4}$  inch X  $\frac{3}{8}$  inch X  $\frac{3}{8}$  inch contact lugs placed evenly in a 7  $\frac{1}{4}$  inch diameter circle. The outside points of adjacent lugs were about 4  $\frac{1}{4}$  inches apart. When the jack was fully collapsed, the saddle was approximately 6  $\frac{1}{2}$  inches above the floor.

A decal on the jack stated, "Study, understand, and follow all instructions before use. Lifting device only. Immediately after lifting, support vehicle with appropriate means."

The Westward hydraulic jack's low lift point was too high to fit under the steering axel or frame which were mandated lift points referenced in the Operating Manual. There was no hydraulic jack on the mine site that would fit under the forklift at the designated lift points.

## Training and Experience

Garcia had 12 years mining experience as a plant operator and mechanic. He had received training in accordance with 30 CFR, Part 46.

## **ROOT CAUSE ANALYSIS**

A root cause analysis was conducted and the following causal factors were identified:

Causal Factor: Policies, standards and controls were inadequate and failed to implement safe work procedures to ensure miners were protected from hazards when performing maintenance on forklifts. Personnel performing this work were not monitored periodically to ensure the task was completed according to manufacturer's guidelines.

Corrective Action: Procedures, including those established by the equipment manufacturer, should be implemented to require risk assessments that identify all hazards associated with maintenance and repair of mobile equipment.

Causal Factor: Maintenance policies and standards were deficient and failed to ensure the appropriate tools or equipment were provided and used to complete the repair task. The jack available at the mine site was not compatible with the equipment being lifted. Blocking material had not been used to support the raised frame of the forklift.

Corrective Action: Risk analysis should be conducted to discuss the job steps and ensure the proper tools and equipment are provided. Manufacturer's guidelines should be followed when performing maintenance tasks. Employees should be monitored periodically to ensure safe procedures are being followed.

## **CONCLUSION**

The accident occurred because the procedures used to replace the starter were inadequate. A jack of the correct size to access the mandated lift points on the forklift was not provided. The procedures for raising the forklift, listed in the Operating Manual were not followed, in that, neither side of the drive tires had been blocked and blocks had not been placed under the frame to support the forklift.

## VIOLATIONS

Order No. 6129009 was issued on September 16, 2004 under the provisions of Section 103 (k) of the Mine Act:

A fatal accident occurred at this operation on September 16, 2004, when an employee was attempting to repair a starter on a Hyster-50 forklift. This order is issued to assure that safety of all persons at this operation. It prohibits all activity at the warehouse/maintenance area until MSHA has determined that is safe to resume normal mining operation in this area. The mine operator shall obtain prior approval from an authorized representative for all action and/or restore operation to the affected area.

This order was terminated on September 20, 2004. Conditions that contributed to the accident have been corrected and normal mining operation can resume.

Citation No. 6129010 was issued on October 12, 2004, under the provisions of Section 104(a) of the Mine Act for violation of 30 CFR 56.14211(a):

A fatal accident occurred at this operation on September 16, 2004, when a miner was caught beneath a forklift that fell when the jack apparently shifted. The victim used the jack to raise the forklift in order to change the starter. The forklift had not been blocked or mechanically secured to prevent it from moving before the victim position himself underneath to perform repairs.

This citation was terminated on October 12, 2004. The operator has purchased a jack and blocking stands recommended by the manufacturer of the forklift to be used when lifting the forklift. A video detailing procedures has been shown to the employees. The employees have been trained to properly raise and block the forklift.

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

**Michael A. Davis**  
**District Manager**

Date: \_\_\_\_\_

## APPENDIX A

### **Persons Participating in the Investigation**

#### **Southern Products & Silica Company, Inc.**

Charles K. Smith	plant manager
William Price	superintendent

#### **North Carolina Department of Labor**

James M. Springer	North Carolina Department of Labor
Mike Wortham	North Carolina Department of Labor

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

Donald L. Collier	supervisory mine safety and health inspector
Thomas P. Clarkson	mine safety and health inspector
James Hackworth	mine safety and health specialist
Dale Ingold	general engineer