

NM

**Aztec Well Servicing Co.**  
*(Fatality Investigation)*

**Shannon Mascarenas**  
*(Floor Hand)*

**October 7, 2003**

## Investigation Report

Definitions applicable to this report are the following:

- Cathead – A spool-shaped attachment on a winch around which a rope for hoisting and pulling is wound.
- Winch – A machine or instrument with a rotating shaft used for hoisting or pulling by means of attaching a drum on which a rope, cable, or chain is wound.
- Drill string – Several sections or joints of threaded drill pipe joined together.
- Tongs – Tools used for joining or removing sections of threaded drill pipe, tubing, or casing.

### Scenario

On October 7, 2003 at approximately 11:00pm, the morning crew was on location conducting visual inspections of the drilling rig before taking over operation from the night crew. One crewmember was walking on a catwalk located near the torque converters, which then extends parallel to the rig and ends at a winch mechanism that is normally used to attach a cathead. As he approached the winch mechanism he came into contact with the winch spindle end and was pulled into it. He was not released until his arm had been severed. He was transported to San Juan Regional Hospital and then to the

University of New Mexico Hospital where he later died on November 11, 2003 as a result of his injuries.

This accident was reported by the local news. Our office learned of the accident and scheduled an inspection of the incident. Local news reported that a man was recovering from surgery after losing his arm at a drilling rig in northwestern New Mexico.

Preliminary information indicated that an employee walking near some equipment got his jacket caught in a rotating shaft, which severed his right arm and injured his left.

### **Background**

Aztec Well Servicing Co. (AWS) is an oil well servicing and work-over rotary drilling business located in Aztec, NM. It has been in business since 1963 and currently employs approximately 300 employees. AWS has developed a "health, safety, and environmental policy" manual, which is distributed to all employees. It is also distributed to all AWS facilities including all drilling unit doghouse and servicing unit doghouses. Included in the program are policies on job hazard analysis, haz-com, lock-out tag-out, PPE, and daily maintenance programs.

Drilling operations continue 24 hours per day with three shift crews. Each crew consists of four employees; tool pusher, driller, derrick man, and floor hand. During each shift change the relief crew walks the rig down. This involves walking to, and visually inspecting the various sections of the rig. In addition to the visual inspection,

crewmembers will also engage in routine maintenance tasks such as greasing all machines and tools, checking oil levels, checking air systems, and servicing cooling systems. Once the walk down is completed the incoming crew relieves the previous crew and concentrates on drilling operations.

#### **Individuals Contacted**

Jerry Sandel, President, Aztec Well Servicing Co.  
900 S. Main St., Aztec, NM 87410

Stewart Peterson, Vice President, Aztec Well Servicing Co.  
900 S. Main St., Aztec, NM 87410

John Nicholes, Safety Director, Aztec Well Servicing Co.  
900 S. Main St., Aztec, NM 87410

[REDACTED]

Two witnesses that were not available for interview are the [REDACTED]  
[REDACTED] They expressed no interest in being interviewed again and had nothing to add to their initial statements.

## Investigative Findings

### 1. Deceased

Name: Shannon Mascarenas

Height:

Weight:

Age: 23

SS#:

Manner of Death: Complications due to traumatic injuries.

### 2. Physical Evidence

Rig ID: Wilson Type, Rig #124

Location: Rosa 339A Sec. 32 Township 32N Range 6W

Winch spindle dimensions: 5" diameter, 5" in length, snag points on spindle.

Catwalk: Steel construction, "expanded metal" floor, standard guardrails.

### 3. Accident Setting

The accident occurred at the drill site on the catwalk extending from the torque converters to the winch mechanism. The weather was partly cloudy with little precipitation. Visibility was limited due to the time of day (11pm) and the lack of a lighting fixture at the winching mechanism.

### 4. Documents

AWS accident investigation report

AWS safety & health plan

### Employee Discussions

Stewart Peterson, Vice President of AWS provided the following information:

The employee was not working on the winching mechanism. He was simply walking near it during a routine walk-down of the rig. The injured employee was wearing a loose fitting jacket made of nylon. The jacket became entangled in the winch shaft spindle and pulled the employee into the apparatus. The employee became dislodged only after injuries had already been sustained. The injured individual was conscious and was breathing as help arrived. He was transported to San Juan Regional Hospital at about 2 am. Mr. Peterson also stated that the spindle was approximately 5 inches in diameter extending out about 4-5 inches from the bearing. The cathead mechanism was being used to provide sufficient leverage on tongs when breaking drill stem. A cable is wrapped around the cathead (winch) shaft and supplies the necessary pull force to operate the tongs effectively. This task is performed every 3-5 minutes during the breaking of the drill stem.

[REDACTED] provided the following information:

There are two catheads on the drill rig, one of which is used to operate the break-up tong, and the other is used to operate the make-up tongs. Lighting next to the cathead is poor. "A guard has never been on the cathead". [REDACTED] requested not to comment further and that the comments on the accident report are accurate.

## Synopsis

Further investigation by this office (OHSB) indicates that in the late evening of October 7, 2003 the morning crew was on location just before 11:00pm. The evening crew had added a pipe section to the drill string. As the morning crew waited for the drill down of the added length of drill string, they initiated a walk-down of the rig. One of the crewmembers was on the catwalk that is located near the torque converters and extends to the winch mechanism shaft. This mechanism, in conjunction with a wire rope cable wrapped around its shaft, provides a leverage force to the tongs when making the connections to the drill string. The tongs are used to torque the threaded end connections of the drill string sections. Both distal ends of the winch shaft extend approximately 1.5 feet horizontally into the catwalk spaces on each side of the rig at approximately shoulder level. An employee approached this area and was caught in the rotating spindle possibly due to snag points on the spindle hooking his nylon jacket. He was then entangled on the mechanism where his right arm was severed and his left arm injured. He was transported to San Juan Regional Hospital and then to the University of New Mexico Hospital where he later died of his injuries on November 11, 2003.

## **Conclusion**

The New Mexico Occupational Health and Safety Act 50-9-5(A) states that every employer shall furnish to each of his employees employment and a place of employment, which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees. An analysis of the accident reveals that unsafe work practices on the part of the employer has resulted in the injury, and eventual fatality of an employee. Section 6.8.2 of the American Petroleum Institute Recommended Practice 54, 3<sup>rd</sup> Edition, August 1999 states the need for guarding all mechanical power drives. In this case the employer failed to provide the necessary guarding for the spindle end of the winch mechanism. This practice is in violation of the New Mexico Occupational Health and Safety Act. Citations will be issued.