

San Juan Project Overhead Electric Line strike Investigation Summary

INCIDENT: Overhead Transmission Line Strike

TYPE OF INCIDENT: Overhead Line Strike

BUSINESS UNIT: NAG Onshore/ San Juan PU/ Major Projects

LOCATION OF INCIDENT: Durango, Colorado between Hronich and Krajack well sites.

COUNTRY: USA

Tr@ction No: 2009-IR-3017024

DATE OF INCIDENT: 3/31/09

BRIEF ACCOUNT OF INCIDENT: On 31 March 2009, at approximately 1200 hours, an incident occurred on a BP well site lease road that resulted in potential exposure to electrical current from an overhead transmission line. Pre-fabrication of piping spools took place on a nearby well site that required the spool to be moved under the power line to the installation site. Operator attempted to drive a trackhoe (2004 John Deere Model 270 CLC excavator) under a 7.2 KV overhead line while carrying four 80 foot sections of pipe. During the move, the trackhoe boom made contact with the overhead line. The line did not part, however, sparking was observed by witnesses. The equipment operator and other personnel in the area were not injured by the event. The equipment operator remained in the track hoe, backed up, lowered the load to clear the power line and continued to move the trackhoe and piping to the Krajack well site. The incident caused the loss of power to 146 homes in the area for approximately 30 minutes. La Plata Electric Association inspected the power line and did not observe any further damage to it.

ACTUAL/POTENTIAL OUTCOME: Potential for incident to have resulted in a fatality.

GOLDEN RULES: Lifting operations – risk was not adequately assessed.

WHAT WENT WRONG (CRITICAL FACTORS):

- 1.) Operator raised the trackhoe arm to a height that allowed contact with the overhead power line while transporting load
- 2.) Pre-fabrication of piping at the nearby site required movement of equipment under the power line to get to the installation site
- 3.) Failure to perform adequate risk assessment for moving pipe

SUMMARY OF IMMEDIATE CAUSES:

- 2.5 Incorrect placement of equipment** – The trackhoe was raised to a height that allowed contact with the overhead power line.
- 3.1 Need for protective methods not recognized:** The individuals performing the work did not recognize that the overhead power line was in the travel path and proactive actions were needed.
- 4.1 Distracted by other concerns** – Trackhoe Operator was distracted by the load's proximity to a pick up truck and a gate, while near the power line. The Operator was also distracted by a funeral he was to attend the next day.

SUMMARY OF SYSTEM CAUSES:

- 12.6 Unusual concentration/perception demands** - Trackhoe Operator was distracted by the load's proximity to a pick up truck and a gate while near the power line and the pending funeral of a friend.
- 13.1 Antecedent not present** – No warning signs were present drawing attention to overhead power line.
- 13.3 Incorrect behaviour reinforced** – Inadequate site safety plans and JSEA's were reviewed and accepted on a regular basis by personnel responsible for safety oversight (both contractor and BP). Expectations around quality discussion for JSEA's, site safety plans and work plans were not reinforced by leadership (both contractor and BP).
- 14.1 Assessment of required skills or competency not effective** – Contractor Superintendent did not have the competency to conduct risk assessments. It was not clear whether the other responsible supervisors had the right level of competencies.
- 16.2 Participation in safety efforts not effective** – The leaders associated with this work activity did not demonstrate appropriate personal behaviors with respect to their role in visibly participating and leading safety activities, learning from previous HIPOs, and monitoring/auditing safety management systems.
- 19.1 No work planning or risk assessment performed** – No evidence of job planning or MoC was found for the pre-fabrication and relocation of the water transfer station from between the two well sites

SUMMARY OF LOCAL ACTIONS:

- Contractor to provide BP with a plan to increase management focus and strengthen competencies of front line safety leadership.
- BP will define and clearly communicate expectations of contract agency personnel regarding safety oversight on work locations.
- The Area Authority will be the SPA for approval of all site safety and work plans for all jobs. Area Authority and Construction Managers will determine the standard and criteria for work plan and site safety plans
- Confirm process is in place to share lessons learned from HIPO and MIA's

KEY MESSAGES:

1. Real competency – We must ensure people have adequate technical training for their roles in controlling and executing the work, and not rely on non-technical policy training.
2. Role of site leadership/supervision – Leadership/supervision of a site is a critical role that cannot be diluted with other responsibilities.
3. Risk assessments need to be structured appropriately for the job. Accidents occur when "normal" activities are being executed and people are unmindful of the hazards

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Trackhoe boom and contact point



Power line, gate and terrain of incident site.



Bundle of 80 foot pipe sections
that were moved during the
incident

