Deficiencies in planning and use of spotters contributed to vehicles striking overhead power lines.

Events

Site/Facility: **Los Alamos National Laboratory, Firing Sites and HE Lab**
Boom of Transported Crane Contacts 13.2-Kilovolt Power Line – Reference: **ORPS Report** ALO-LA-LANL-LANL-2004-0005
On February 26, 2004, the boom of a mobile crane being transported along a road struck a 13.2 kilovolt power line hung about 30 feet above the road. This caused arcing, separated all three lines of the three-phase distribution line, and damaged the crane's boom and cable. The crane operator had previously raised and lowered the boom to negotiate turns and had successfully passed under a 16-foot-high power line. However, the boom control mechanism subsequently malfunctioned and the operator's attempts to free it only raised the boom higher.

Important Point:	• **The transport had pilot vehicles leading and trailing the crane, but apparently their occupants did not serve as spotters.**
Contributors:	• **The crane operator was in a cab separate for the driver. The crane operator attempted to warn the driver of his raised boom by sounding a horn on the crane, but the driver did not stop in time.**

Site/Facility: **Savannah River Site, Site Utilities Department**
Dump Truck Bed Contacts 13.8-Kilovolt Transmission Line – Reference: **ORPS Report** SR--WSRC-SUD-2002-0009
On September 24, 2002, the driver of a gravel-hauling truck had just completed a gravel dump and was lowering the truck bed when the bed contacted an energized 13.8 kilovolt transmission line. The truck served as an electrical ground, blowing one tire and scorching two others, and causing a quarter-acre grass fire.

Important Point:	• **The driver was aware of the transmission line but had incorrectly guessed that there was enough clearance to lower the truck bed.**
Contributors:	• **The driver's escort was not trained as a spotter and did not serve as one.** • **Although the escort expressed concern over the clearances, he did not stop the operation.**

Site/Facility: **Brookhaven National Laboratory, former Hazardous Waste Management Facility**
Forklift Pulls Overhead Lines - Reference: **ORPS Report** CH-BH-BNL-BNL-2003-0013
On August 12, 2003, the mast of a forklift transporting a trailer-mounted generator caught and stretched a telephone cable hung underneath 208 volt electric power cables. This subsequently broke a backstay cable, tilted a utility pole about 15 degrees, and resulted in cables sagging within four feet of the road surface.

Important Point:	• **The spotters assigned to the evolution left during a temporary lull and the forklift driver decided to continue without them.**
Contributors:	• **The driver had focused his attention on his nearness to a building, and had overlooked the overhead lines.**

Site/Facility: **Oak Ridge, Y-12 Site**
Cement Truck Pulls Down Overhead Power Lines - Reference: **ORPS Report** ORO--BWXT-Y12CM-2002-0002
On November 12, 2002, a concrete truck had just completed a delivery of concrete to a construction site and was exiting the area when the receiving hopper portion of the truck snagged four overhead power lines. Before coming to a stop, the truck had pulled down the lines and broke three utility poles.

Important Point:	• **The access road had been closed to truck traffic when the overhead cables were hung. When the road was reopened for truck use, the hazard from low-hanging cables was not addressed.**
Contributors:	• **The hazard analysis checklist for the work site did not include overhead hazards at points of ingress and egress.**

Site/Facility: **Rocky Flats Environmental Technology Site, Non-plutonium Operations Area III**
Excavator Contacts 13.8-Kilovolt Power Line - Reference: **ORPS Report** RFO--KHLL-NONPUOPS3-2002-0002
On April 22, 2002, an excavator (track hoe) used for building demolition was being parked adjacent to a substation transformer. As is normal practice for this type of equipment with wide tracks, the operator extended the boom to assist in turning. The boom contacted a 13.8 kilovolt overhead power line more than 23 feet above the ground, causing arcing and tripping the substation feeder circuit breaker that powered the overhead line.

Important Point:	• **Although the operator knew of the overhead lines, he forgot about them when he turned the excavator.**
Contributors:	• **The job hazard analysis only addressed the need for spotters when backing heavy equipment, and not for other movements.** • **No area for parking idle heavy equipment was designated.**

Important Considerations for Vehicle Movements (Lessons Learned)

- ☐ Has pre-job planning and hazard analyses restricted vehicle travel and activities to only areas where overhead lines and other hazards have been addressed?
- ☐ Have overhead power lines and their heights been identified for the travel routes and activities to be taken?
- ☐ Will any operation of a vehicle place it, its mechanical equipment, or its load within 10 feet of overhead lines, utility poles, or supporting guy wires?
- ☐ As well as overhead power lines, are all guy wires, utility poles and communication lines clearly visible to drivers and spotters?
- ☐ Are there trained and dedicated spotters provided for all travel routes and for all work activities? (If not, why not?)
- ☐ Is the number of spotters assigned adequate to detect all hazards and communicate these to the vehicle drivers/equipment operators?
- ☐ Have steps been taken to ensure continuous communications between spotters and vehicle drivers/ operators?