

Date Tue, 25 Apr 2000 133738 -0600
From Meredith Brown racer@lanl.gov
Subject: Yellow Alert- Vaporized Oil Flash Fire Burns Mechanic

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Date April 7, 2000 Identifier 2000-RL-HNF-0012

Lessons Learned Statement- Even routine maintenance actions that have been performed many times can occasionally lead to accidents or injuries. Appropriate personal protective clothing, procedural precautions, and engineered safeguards should be employed to guard against all reasonable accident scenarios.

Discussion of Activities- Two heavy-duty equipment mechanics were attempting to remove a gland nut from the end of a leaking hydraulic lift cylinder while performing routine corrective maintenance on a man lift. They could not remove the gland nut using only mechanical methods so they applied heat with an oxyacetylene torch to release tension on the nut. Hydraulic fluid trapped between the leaking seal and the wiper seal vaporized, escaped from the leaking seal, and ignited from the heat of the torch. One employee received first and second degree burns on his right forearm from the vapor flash.

Analysis- Similar repairs had been performed safely without incident hundreds of times in the past. In this case, the workers wore appropriate personnel protective equipment (PPE) for the job, however, the injured employee's coverall sleeve was raised to the elbow exposing his bare forearm. Normal flexing of his arm apparently caused his sleeve to work up his arm while working. Full welder's PPE was not prescribed since this was not welding. When the workers encountered problems removing the gland nut, they stopped to consult another technical authority, determine a path forward, and agree on appropriate safety precautions. At no time was the possibility of the hydraulic fluid vaporizing and igniting identified as a hazard since no one involved in the job hazard discussion had previously experienced such an event or considered its possibility. All employees involved were experienced with this type of work and had many years of collective experience in this field.

Recommended Actions-

- * Wear full hot-work PPE, including fire retardant gloves with gauntlets and a face shield, when heating components.
- * Remove all potential fire hazards from the area before performing hot work.
- * Conduct periodic refresher training on hot work techniques and safety practices.
- * Include potential hazards identified in this lessons learned in the Automated Job Hazard Analysis hazard tree for hot work.

Priority Descriptor YELLOW/Caution

Work / Function Maintenance - Heavy Equipment; OS and H- Personnel Protective Equipment;
Welding, Burning, Hot work

Hazard Fire; Personal Injury - Other

ISM Core Function Analyze Hazards

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Authorized Derivative Classifier Not required

Reviewing Official John Bickford

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References Report of restricted work day case #13747

DynCorp Critique report dated January 20, 2000