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From Meredith Brown racer@lanl.gov
Subject- Yellow Alert: Oxygen Hazards

Project Hanford Lessons Learned

Title: Yellow Alert- Oxygen Hazards

Date November 1, 1999 Identifier 1999-RL-HNF-0042

Lessons Learned Statement- Improper use of oxygen (e.g. spraying it on clothing or body parts for cooling) can result in serious injuries or death.

Discussion of Activities- During the past several months three employees of McDermott International, Inc. were burned while improperly using oxygen. In the first case an employee intentionally put the nozzle of an unlit cutting torch in his pants with the oxygen valve open. As soon as he re-lit the torch, the heat from the flame ignited his pants, causing severe burns to his body below his belt line. The next incident occurred inside a small space located in a steel enclosure where a worker had been cutting with a torch. The worker turned off the gases with the valves on the torch before exiting the workspace. As he was lighting the torch after returning to the job, a minor explosion resulted in a short flash fire that severely burned the employee. The oxygen valve on the torch had not been fully closed, permitting oxygen to accumulate in the small space. Most recently, an employee squirted oxygen into his glove to cool his hand. Sparks from a nearby metal saw being operated by a fellow worker ignited the glove, severely burning the torch bearer's hand.

Analysis- Pure oxygen supports rapid combustion of any burnable material. Materials in the presence of an enriched oxygen atmosphere can ignite with little warning. Oxygen must never be used for any purpose other than intended.

Recommended Actions- Anyone working with or near oxygen should exercise extraordinary caution, especially when ignition sources are present. It can easily result in significant safety hazards when used improperly.

Priority Descriptor YELLOW/ Caution

Functional Categories (DOE) Occupational Safety & Health, Maintenance

Functional Categories (Hanford specific) N/A

Work Activity Welding, Burning, Hot Work

Hazard Fire/NFPA, compressed gas

ISM Core Function Perform work

Originator McDermott International, Inc. Edited by Fluor Daniel Hanford, Inc.

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Keyword(s) cutting torch, oxygen, welding, compressed gas

References McDermott International, Inc. Safety Gram dated 15 September 1999