

Date: Tue, 20 May 1997 09:45:59 -0600
From: Meredith Brown <racer@lanl.gov>
Subject: Yellow Alert: Anti-C Clothing Fire

This Yellow/Caution was issued by Bechtel Hanford, Inc. and is retransmitted here at the request of DOE-RL for the information of the DOE complex. It is similar in some respects to the welder fatality reported under Lessons Learned R-1997-OR-LMESK25-0201.

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TITLE: Anti-Contamination Clothing Fire

Location of Event: Bechtel Hanford, Inc., 116-C-5 Retention Basin

Identifier: RL--BHI-REMACT-1997-0005

Lessons Learned: Hanford Site standard anti-contamination clothing and some flame resistant anti-contamination clothing can support combustion under specific circumstances.

Summary: On May 7, 1997, slag from a cutting operation in the 116-C-5 Retention Basin, 100 B/C Area, caught in the folds of a laborer's anti-contamination clothing resulting in minor burning of the clothing. The flames were extinguished by the laborer by patting down the fire with gloved hands. There were no injuries resulting from this event.

Discussion of Activities: On May 7, 1997, two subcontractor laborers were cutting the contaminated 116-C-5 Retention Basin steel into 4' X 15' plates. A radiological control technician (RCT) was also working in the area surveying the plates prior to the cutting operation. At approximately 1020 hrs, one of the laborers noticed a smell that was not consistent with his cutting operation. The laborer stopped cutting, looked around and noticed the leg of his coveralls were on fire. The laborer put out the flame by patting down the fire with his gloved hand, and then notified supervision. There was no injury to the laborer.

The steel cutting operation was performed in an open, outdoor area posted as a Contamination Area (CA), on 1/2" carbon steel plates. The laborers were using an ARCAIR slice torch, producing approximately 3500 degrees F. The laborers were dressed in a single pair of standard anti-contamination coveralls, flame resistant boot covers, and leather chaps and jacket. Approximately 12" of anti-contamination clothing was exposed between the leather chaps and the flame resistant boot covers. The flame resistant boot covers are red in color, 100% cotton, and have a flame resistant finish.

The fire occurred at ankle level of the anti-contamination coveralls and burned a hole approximately 8 inches in diameter. The flame resistant boot covers worn under the anti-

contamination coveralls also sustained burns, and minor burn damage was sustained to the jeans which were worn under the protective clothing.

Analysis: The Hotwork Permit required the use of the "buddy system" (mutual monitoring of the other person's work activity), and did not require a designated fire watch. This was acceptable due to the open, outdoor area of the cutting activity. The Activity Hazards Analysis required the use of PPE's for the person using the slice torch (i.e., welder's leathers, gloves, etc.), which the laborer was wearing. No fire watch was specified for this activity, however, it is believed a fire watch would not have prevented the incident. In lieu of a fire watch, the two laborers and the RCT were working in close proximity and monitoring each others activities. All cutting operations and protective clothing appeared to be used in accordance with the Radiological Work Permit (RWP), Hot Work Permit, and Activity Hazards Analysis.

Bechtel Hanford, Inc. (BHI) has purchased the standard Hanford store stock flame resistant red "PROBAN" coveralls for the subcontractor to be used when this ARCAIR hotwork process is resumed. New flame retardant red 'booties' have been ordered by the PHMC as a store stock item. BHI will utilize these booties once they are in stock. The existing red booties that BHI has been able to obtain from INS were manufactured under the brand name of Euclid. BHI has not been able to find the manufacturer in any source literature and have concluded that they are no longer producing this product. Based on this information, it is suspected the existing booties have been washed enough times that the flame resistant finish is no longer effective. BHI is pursuing the purchase of a limited number of Nomex coveralls for use by craft personnel for hotwork operations. There is a new Nomex fabric that will be released in about a month that is specifically designed for welding protection. It is a fiber blend of 60/40 Viscose FR/Para-aramid and will be manufactured in 8.5 and 6.8 oz/yd². BHI will determine if Nomex will be purchased for all hotwork operations after a trial basis.

Originator: Bechtel Hanford, Inc.

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Authorized Derivative Classifier: N/A

Reviewing Official: T. S. Quinn, 372-9257

Priority Descriptor: Yellow/Alert

Functional Category: Conduct of Operations, Operations

Keywords: anti-contamination clothing, cutting, slag, burning

References: Occurrence Report RL--BHI-REMACT-1997-0005