



## Hanford Operating Experience Program

September 22, 2014

Lessons Learned/Good Practice

2014-RL-HNF-0018

### Workers Refine New Equipment and Process Prior to Field Implementation

#### SUMMARY

A group of CH2M Hill Plateau Remediation Contractor (CHPRC) worker representatives visited the Advanced Mixed Waste Treatment Project (AMWTP), a similar cleanup site, at the Idaho National Laboratory, to see how the Mine Safety Appliances (MSA) PremAire™ system and a new encapsulating suit were being utilized. The AMWTP workers found that the MSA PremAire™ respiratory system with Vortex cooling combined with the Rich Industries Level B encapsulating suit technology kept the workers cooler, offered better protection and improved efficiency during high hazard entries. The creation and use of a mock-up system and the deliberate worker involvement led to improvements for the equipment and their uses.



**Good Practice:** When utilizing new equipment, implementing a realistic mock-up is most beneficial. The mock-up allows an opportunity to refine the process and familiarize workers with equipment prior to field implementation. Additionally, the use of feedback benefits the manufacturers, the users and everyone involved.

#### DISCUSSION

CHPRC workers visited AMWTP to obtain knowledge and share lessons in the use of MSA PremAire™ respiratory system in conjunction with a Level B encapsulating suit for high hazard work. Following the visit, facility personnel developed and executed training for the MSA PremAire™ Breathing Air system and encapsulating protective suit strategy. The hands-on training was held in an area configured to the approximate dimensions and characteristics of the work location. The first part of the training involved respirator user training and activities. The second part of the training required that the trainees be placed in to the new Level B suits wearing the MSA PremAire respirators and given a task to perform.

The training helped the user become familiar with the cooling unit and suit capabilities while performing mock up activities. Real time temperature monitoring took place to plan for and prevent heat stress within the suits. A dress/undress protocol was also developed as workers familiarized themselves with previously unknown methods of donning and doffing the suit.

## ANALYSIS

Although these suits had not been used on the Hanford Site, the workers, with support from Senior Leadership, recognized the potential benefit of utilizing this Personal Protective Equipment at the Plutonium Finishing Plant and elsewhere on the Hanford Site for high hazard entries.

Additional equipment such as an improved communication system and an in-suit breathing zone monitor were also tested during the simulated activities. During the worker training process, improvements to the don/doff process for the suits were also identified. Each of these areas of improvement was communicated to the respective manufacturers, who took the feedback and made revisions prior to implementation in the field.

## RECOMMENDATIONS

- Ensure procedures and processes allow and recommend the use of realistic mock-up activities when implementing new equipment and/or processes
- Utilize worker expertise for developing training and implementing process improvements
- Encourage feedback between co-workers, management and vendors so that improvements can be implemented

## REFERENCES

Condition Report CR-2014-1777, *Worker Developed and Performed Training for PremAire Breathing Air System and level B Protective Suit*

## CONTACTS

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