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Review helps Hanford workers with vapor protection

By Annette Cary, Herald staff writer

HANFORD — The program to protect Hanford tank farm workers from chemical vapors has room for improvement, according to a new review by independent experts.

The review was sponsored by the Hanford Concerns Council, an independent panel that handles worker health and safety concerns, at the request of Hanford Challenge and Washington River Protection Solutions, the contractor overseeing Hanford's tank farms.

Hanford Challenge is a nonprofit organization that advocates for worker safety.

The review found that vapor protection improvements had been made by the Hanford contractor, but also issued recommendations for changes that would better protect workers in "a complex and uniquely challenging environment."

Underground tanks holding radioactive and hazardous chemical waste vent chemical vapors into the air, and they can increase when waste is disturbed or under certain atmospheric conditions.

Workers may smell the ammonia in the vapors, but the gases also include 1,800 other chemicals, with 58 known to be present in quantities that could rise to harmful levels such as nitrous oxide, mercury and benzene. The waste is left from chemical processing of irradiated fuel to produce plutonium for the nation's nuclear weapons program.

"The recommendations are consistent with our principle of keeping chemical exposures 'as low as reasonably achievable' and meets our goal of continually improving worker safety at Hanford's tank farms," said Chuck Spencer, president of Washington River Protection Solutions, in a statement.

Washington River Protection Solutions plans to start implementing the recommendations with pilot projects.

The review recommended that workers be grouped into "similar exposure groups" based on work location and practices to better organize the collection and analysis of data.

A worker in each group should wear a personal monitor for vapor detection. Then data should be analyzed more frequently, the review said.

One of the traditional approaches used to compare individual measurements to the exposure limit is biased toward underestimating actual exposure, the review said.

The review approved of the tank farm contractor's work to begin raising ventilation stacks to better disperse vapors and reduce the amount inhaled by workers. Three stacks in the C Tank Farm, the only group of tanks where waste is being retrieved now, have been raised from 17 feet high to about 40 feet high.

The review said the stacks might need to be extended even higher or equipped with scrubbers to capture vapors. Washington River Protection Solutions will look at the effectiveness of raising stacks first, since scrubbing would introduce more chemicals and create more waste.

Better monitoring equipment, particularly real-time monitors, would better protect workers, the review found. However, it acknowledged that Washington River Protection Solutions has purchased the best instruments available and that most monitors now require that samples be sent to a laboratory for analysis.

The review recommended the contractor keep up to date as new technology becomes available.

Based on discussions with industrial hygienists and industrial hygienist technicians, the review authors wrote they were concerned that some "do not fully appreciate the possibility for over-exposures at the site, and therefore may not be open to considering that ill effects reported by the workers could be job-related."

A belief that exposures are minimal or nonexistent can affect professional judgment and cause a professional to overlook important warning signs, the review said.

Washington River Protection Solutions already has significantly increased its numbers of industrial hygiene professionals.

Reasonable amounts of data with strong professional judgment can make up for the uncertainties about the vapor emissions, workers were told in a meeting on the review Thursday.

"I appreciate the improvements made to date by WRPS and their willingness and openness in participating in this process and responding positively to the recommendations," said Tom Carpenter, executive director of Hanford Challenge, in a statement.

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Read more: http://www.tri-cityherald.com/2010/10/29/1228471/review-sees-ways-to-help-hanford.html#disqus_thread#ixzz13sZXzqcv