

Good Work Practice

Questioning Attitude Improves Safety for Future D&D Activities

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Summary:

During D&D it is essential that as part of the disposition planning, all of the assumptions and information associated with the facility be verified, confirmed and validated because many of the post operations facilities awaiting final disposition have incomplete data or information with regard to the facility conditions and inventory. A questioning attitude and inquisitiveness contributes to acquiring critical information.

Discussion of Activities:

As part of the planning for disposition activities, a project engineer reviewed the current information and data available for a tank identified as containing plutonium (Pu) nitrate solution. From the previous analyses used to develop the DSA, it was assumed the tank was a flat bottom right circular cylinder. From a sampling video it was determined that the maximum inventory was a 3 inch depth of solution. These assumptions combined with the sample results from the solution were used to estimate the inventory of the tank. However, based on an extensive review of the tank markings and configuration the project engineer determined the tank is most likely not a flat bottom tank, but had a dome (spherical section) in the bottom center of the tank. Since the depth of the solution was estimated in the center of the tank where the spherical section is located, the total volume of the solution may be under estimated. A PISA was declared and appropriate investigations were conducted.

Analysis:

A USQ was declared stating that the inventory assigned to the tank may not be conservative due to an erroneous assumption in the origination facility of the tank. The key lesson is the recognition that we need to have a positive but questioning attitude with regard to facility conditions, assumptions and the resulting inventory and documents. The questioning attitude of the engineer in tracking the markings of the tank to determine the facility and specific location within the process where the tank originated was essential. Numerous other individuals had read the characterization report over the years (since 1965) that postulated or assumed that the tank was a flat-bottomed tank and not pursued the matter any further. It was the questioning attitude that made the difference and improved the safety of the upcoming D&D activities. In this case we reaffirmed that what we think we have is not what we always really have - and we need to be diligent in our efforts to verify the DSA reflects the actual conditions, hazards, and risks associated with the project.

Recommendations: Managers should encourage all D&D personnel to have a questioning attitude with regard to the actual conditions, hazards, and risks associated with the project.

Cost Savings/Avoidance: Implementation of the lessons learned will increase the safety of the disposition activities, and will minimize the potential for USQs to be identified during the disposition activities. Each USQ is estimated to cost roughly \$50K for a disposition facility.

Work Function: Decontamination and Decommissioning, Authorization Basis, Work Planning

Hazards: Other

Keywords: Decontamination, decommissioning, authorization basis, plutonium nitrate, tank inventory, solution, characterization

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References: None