From the desk of Mark Lindholm, WRPS President and Project Manager:

WRPS explores technology to destroy chemical vapors

Initial testing of a technology to eliminate chemical vapors is showing promise, destroying 95 percent of the vapors fed into the system in a recent test.

WRPS is supporting NUCON International as it develops a thermal-oxidation demonstration project based on an internal combustion engine. The unit works by pulling tank vapors into the engine's induction system and combusts them in the engine cylinders, destroying the vapors in the process.

Proof-of-concept testing was conducted in May. The goal of the test was to determine if the NUCON unit could destroy or remove chemicals of potential concern, or COPCs, in the tank farms with 93 percent destruction efficiency. The NUCON unit performed above that threshold, destroying 95 percent of the vapors fed into the system.

Testing was performed at NUCON's facility in Columbus, Ohio. It focused on destroying furans and hexane, formaldehyde, hydrocarbons, ammonia and mercury. Representatives from WRPS, DOE-ORP and TerraGraphics Environmental Engineering, Inc. witnessed the testing.

While it was demonstrated that the system works at a high level, it did not demonstrate the system functions adequately with the low concentrations of compounds such as furans and nitrosamines that are present in the Hanford waste tanks. Additional testing will be performed to help resolve this issue.

The NUCON units will be shipped to an off-site facility in Richland for bench-scale testing. If successful, those tests will be followed by a pilot-scale test in fiscal year 2018 and a full-scale demonstration in the years that follow.

The NUCON thermal-oxidation unit is one of a number of technologies being explored to improve worker safety. The WRPS Chief Technology Office began evaluating technologies in fiscal year 2016.

Opportunities for Employee Engagement

- The next CVST Communications Sub-Team meeting is Monday, Aug. 7, from 3 to 4 p.m. in Conference Room 110 at 2425 Stevens Center.
- The next full CVST meeting is Wednesday, Aug. 23, from 2 to 4 p.m. at 2704-HV, Room G-206.

Mark