



Hanford Tank Vapors

Vapors Weekly Update
Feb. 1, 2018

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

WRPS is preparing engineering-scale testing of NUCON technology, a novel vapor-abatement unit that pulls tank vapors into an internal combustion engine's induction system where they are combusted and destroyed in the engine cylinders.

Successful proof-of-concept tests, conducted last May, confirmed the NUCON test unit could destroy the chemicals of potential concern (COPCs) with 93 percent efficiency. Testing focused on destroying furans and hexane, formaldehyde, hydrocarbons, and ammonia in the engine and a three-phase catalytic converter and scrubbing mercury with an activated carbon filter.

Although the testing demonstrated that the system worked, additional testing is needed to ensure the NUCON unit will function adequately with the low concentrations of compounds, such as furans and nitrosamines, present in Hanford's waste tanks.

The prototype unit was shipped to the Pacific Northwest National Laboratory for engineering-scale testing later in fiscal year 2018. This testing will be expanded to focus on destroying additional COPCs and, as the result of nuclear-safety concerns, the NUCON unit will be converted to a diesel-powered generator instead of running on propane, as was used in the proof-of-concept test. A diesel oxidation catalyst and regenerative diesel particulate filter will replace the three-way catalytic converter.

If the results of the engineering-scale test are successful, next steps may include beginning the permitting process for use of the NUCON unit in the tank farms; design and construction of a new unit to meet the requirements for an on-site demonstration, and possibly conducting a technical demonstration on-site using a full-scale system.

Opportunities for Employee Engagement

- The next full Chemical Vapors Solutions Team (CVST) meeting is scheduled for Wednesday, Feb. 14, from 2 to 4 p.m. in Conference Room G-206 in 2704-HV.
- The next CVST Communications Sub-Team meeting is Monday, Feb. 5, from 3 to 4 p.m. in Conference Room 110 at 2425 Stevens Center.

Mark

Have questions? Send us a message! wrpsadmin@rl.gov