fective preventive control, given previous test data showing the presence of a significant unmixed heel.

- The DOE has not yet addressed the long-term reliability of the sparge system to ensure its operability when called upon to perform its safety function.
- The analysis supporting the control strategy for the low-solids Newtonian vessels following loss of agitation contains unverified assumptions.
- The DOE has not yet specified how waste parameters important to the control strategy will be verified during operations.

For controlling criticality in process vessels, the DNFSB identified the following strategy deficiencies:

- The nuclear modeling calculations used to define mass limits do not comply with American National Standards Institute/American Nuclear Society (ANSI/ANS) 8 series standards and may not be conservative.
- Key assumptions regarding the implementation of mass control and soluble neutron poisons lack sufficient technical rigor.
- Vessel heel cleanout operations are not identified as a safety-related control in the test plan for full-scale testing of the new standard high-solids vessel design to demonstrate that such cleanout operations are effective.
- Assumptions regarding the location, quantity, and properties of heavy plutonium particulate matter in the Hanford tank farms contain uncertainties. While the DOE has proposed a characterization and staging facility to ensure that the waste feed meets WTP acceptance criteria, the department has not defined that facility's functions and requirements or updated the criteria to protect tank waste assumptions related to plutonium particulate.

Finally, the DNFSB identified the following deficiencies related to the DOE's strategy for controlling hydrogen in piping and ancillary vessels:

- The DOE is using quantitative risk analysis to determine the adequacy of a safety control but is not applying DOE Standard 1628, "Development of Probabilistic Risk Assessments for Nuclear Safety Applications," to the risk analysis models.
- Because quantitative risk analysis calculations are used to demonstrate that a safety control is adequate to perform its credited safety function, the DOE's proposed strategy is inconsistent with 10 CFR 830, *Nuclear Safety Management*.
- The DOE has not defined how quantitative risk analysis input parameters will be maintained and protected to ensure the calculations remain valid over the life of the facility.

The technical report, *Flammable Gas and Criticality Hazards at the Waste Treatment and Immobilization Plant,* can be found on the DNFSB website, at <www.dnfsb.gov/documents/reports>.

## WRPS receives project management award

The Project Management Institute (PMI) has awarded Washington River Protection Solutions the 2017 PMI Project of the Year Award for its work to remove high-level radioactive waste from an underground storage tank at the Hanford Site. The award recognizing Hanford's Double Shell Tank AY-102 Recovery Project was presented to WRPS at PMI's Global Conference 2017, held October 28–30 in Chicago, Ill.

*Continued*


Photo: Washington River Protection Solutions

The AY-102 Recovery Project received the 2017 Project of the Year Award at PMI's Global Conference in October. Pictured, from left, are Caterina La Tona, vice chair of PMI's board of directors, Sebastien Guillot, AY-102 Recovery Project manager, Doug Greenwell, WRPS Retrieval manager, and Mark Dickson, chairman of the PMI board.