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EPRI to develop report on buried piping management

The Electric Power Research Institute plans to issue a report by third-quarter 2010 that will help utilities better understand the capabilities and limitations of technologies that can be used to manage buried piping, an EPRI official said last week.

In a May 2007 workshop, EPRI identified maintenance of buried pipes as a major priority given the vulnerability of such pipes to degradation. Maria Korsnick, the incoming chair of EPRI's nuclear power council, said in a January 21 interview that EPRI conducts research and development on buried piping technologies and develops guidelines that help operators better manage their buried piping infrastructure. Korsnick is also senior vice president of operations and chief operating officer at Constellation Energy Nuclear Group.

As part of its efforts, EPRI — in some instances in conjunction with the Nuclear Energy Institute — has published numerous documents with recommendations on buried pipe management and has created the Buried Pipe Integrity Group, which provides a forum for nuclear companies to exchange plant experience and to support the implementation of buried pipe assessment and mitigation technologies, she said.

Buried piping at power reactors has garnered considerable attention in recent months. NRC Chairman Gregory Jaczko ordered the staff in September to review the agency's oversight of buried pipes after incidents of leaks from such pipes at several power reactors (INRC, 7 Dec. '09, 3). The staff reported in December that current NRC regulations and industry codes and standards are adequate to assure the integrity of, and minimize leaks from, buried pipes. Three Democratic congressmen challenged that conclusion last month, asking the Government Accountability Office to investigate issues related to buried pipes at power reactors (INRC, 18 Jan., 7).

Vermont's Department of Public Service said last month it will re-open an investigation of Entergy's license renewal request after regulators discovered Vermont Yankee employees incorrectly said in testimony supporting the renewal that there were no buried pipes carrying radionuclides (see story, page 5).

Neil Wilmshurst, director of plant technology at EPRI, said in an interview last week that the report due to be published later this year will supplement some of the institute's guidelines on buried piping. He said EPRI is working closely with industry, and particularly NEI, which keeps NRC informed of efforts such as the buried piping initiative the industry adopted last year (INRC, 14 Sept. '09, 9).

"The report will be a compilation of what is known at this point in time about the techniques, how to use them, and lessons learned [from] operating experiences," Wilmshurst said. "It will pull the various pieces of information available into one usable place."

Wilmshurst characterized the report as a "living document" that will be updated as EPRI learns more about buried pipe management techniques and technologies. "The focus is on helping people achieve the requirements of the [buried piping] initiative," he said. "As the new technologies become available, they'll roll into the report."

EPRI in the short term does not expect the nuclear industry to deploy new buried piping inspection or maintenance technologies. EPRI's short-term R&D focus entails learning more about the capabilities and limitations of existing technologies, Wilmshurst said. That work, he said, could help utilities better understand the data that they're receiving, "so they can make an informed judgment about the condition of their pipes."

As an example, Wilmshurst said many utilities are starting to deploy guided wave technologies to inspect buried piping infrastructure. The results from inspections using this technology are sensitive to "the coating on the pipe, the type of soil that the pipe is buried in, and the configuration of the pipe. So gaining an appropriate understanding of those characteristics of the techniques is one example of our focus," he said.

EPRI's longer-term focus could entail developing new technologies and deployment methods that would make it easier for utilities to inspect buried piping, Wilmshurst said. One of the leading technologies is the Remote Field Eddy Current, a nondestructive technology that inspects pipes and tubes from the inside. He said robotically deploying the technology in a pipe would allow for volumetric inspection of the pipe and wells.

EPRI has successfully developed a prototype and tested that technology for a specific pipe diameter, Wilmshurst said. "The technology has been shown to be feasible, deployable, and of value," he said. EPRI by third-quarter 2010 will perform tests on a similar technology for the inspection of pipes with smaller diameters, he said.

The technology, however, will not be commercially viable until there is demand for it and there are enough robotic devices developed and tested for various pipe diameters, Wilmshurst said. Discussions are under way in the industry to better understand the technology and to determine whether eventually there could be a market for it, he said.

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