

August 18, 2010

Mr. Anthony R. Pietrangelo,  
Senior Vice President  
and Chief Nuclear Officer  
1776 Street, NW, Suite 400  
Washington, DC 20006-3708

Dear Mr. Pietrangelo,

By letter to William Borchardt dated November 20, 2009, the Nuclear Energy Institute (NEI) forwarded to the staff the proposed Buried Piping Integrity Initiative. This proposed initiative, which was dated November 18, 2009, identified as its goal to “provide reasonable assurance of structural and leakage integrity of all buried piping with special emphasis on piping that contains radioactive materials.” The initiative described a series of actions and a schedule for completion of the activities. In addition, the staff has periodically met with members of the NEI Buried Piping Integrity Task Force, the Institute of Nuclear Power Operations (INPO), and the Electric Power Research Institute’s (EPRI’s) Buried Piping Integrity Group (BPIG) to discuss the initiative, industry arrangements for collection, documentation and sharing of operational experience information and industry’s existing and planned research programs to support inspection of buried piping. We expect to continue to meet on a routine basis with the next meeting scheduled for September 21, 2010. We appreciate the industry’s development of an initiative and continuing communication with NRC on this important subject.

On December 2, 2009 The Nuclear Regulatory Commission (NRC) staff issued SECY 09-0174, “Staff Progress in Evaluation of Buried Piping at Nuclear Reactor Facilities,” which is available via Agencywide Document Access Management System (ADAMS) Accession number ML093160004. This evaluation discussed a number of ongoing staff activities to address the issue of buried piping degradation, including the industry’s initiative. On May 18, 2010, the staff issued a Buried Piping Action Plan (ML101480739) that identifies and tracks these ongoing activities. In particular, the plan includes several activities intended to enable the staff to develop an understanding of the Buried Piping Integrity Initiative. The action plan also includes activities that involve collection of information that the staff may use to evaluate ongoing buried piping degradation.

As part of the Buried Piping Integrity Initiative, we understand that the industry may be collecting some of this information. In order to assist the staff’s efforts to understand the initiative and collect industry operating experience with degradation of buried piping, we request you provide the following information, to the extent that it is available:

- 1) The staff understands that the Buried Piping Integrity Initiative includes an action for utilities to complete a risk ranking of all of their buried piping systems. The staff is interested in understanding the scope of the risk ranking process. Please provide a general listing of buried piping systems at nuclear power plants that would be subject to the risk ranking process. Include in that listing any buried piping system segments that

are either safety-related or that contain, either normally or occasionally, radioactive or other potentially environmentally hazardous materials (e.g., tritium, fuel oil). Identify the piping material general type (ferritic, austenitic, polymer, aluminum alloy, copper alloy, etc.) and the highest typical level of American Society of Mechanical Engineers (ASME) Code classification for each of the systems. Please identify whether any ASME Class 1, 2 or high energy Class 3 buried piping exists at nuclear power plants participating in the initiative.

- 2) The staff is considering a buried piping performance metric that involves the annual rate of discovery of leaks in buried piping. The annual rate would be compared to an established historical rate to determine whether degradation of buried piping is increasing or decreasing. In order to develop the historical rate of occurrence, the staff is attempting to assemble a list of all known occurrences of throughwall leaks in safety-related buried piping or nonsafety-related buried piping that contains, either normally or occasionally, radioactive or other potentially environmentally hazardous materials (e.g., tritium, fuel oil). The staff has access to information related to reportable events, but is seeking information related to potentially less significant events that would not have needed to be reported. The completeness of the information is important because if incidents occurred, but are not accounted for in the occurrence rate, then the calculated historical occurrence rate could be skewed. The staff recognizes that the completeness of the historical record could be affected by past changes in reporting thresholds, or information technology platforms. For this reason, the staff believes that a listing of operational occurrences of throughwall leaks dating back to about 2000 would be appropriate.
- 3) The staff believes that the type of mechanism that has caused degradation and leaks in buried piping has been predominantly localized pitting that does not typically represent a challenge to piping system structural integrity. Additionally, the staff is aware of instances where general corrosion caused degradation. General corrosion could, if undiscovered and allowed to progress for many years, lead to a situation where piping system structural integrity could be challenged. The staff requests a listing of all of the general categories of degradation mechanism and causes that have been observed in service for the operational incidents tabulated in item 2.

Please let us know if this information will be available, if you are willing to provide it, and a schedule when it would be provided.

In addition to these information requests, the staff anticipates a need to meet with representatives of the Buried Piping Integrity Initiative organization in order to gain a better understanding of various aspects of the initiative, including the risk ranking process, guided wave technology, and expectations for plant performance with respect to the initiative.

- 1) The staff will contact the EPRI BPIG to initiate a discussion of the risk ranking process. The staff is interested in learning details regarding the scope, protocol, categorization criteria and detailed processes that would be used for performing risk ranking. For example, it is not clear to us whether all safety-related piping is rated in the highest category or whether there are ranking distinctions between safety-related piping and nonsafety-related piping containing radioactive materials.
- 2) The staff understands that guided wave ultrasonic examination is an inchoate non-destructive examination technology that may eventually provide a powerful tool for

evaluating buried piping degradation. The staff is interested in how this technology will be qualified and used to make decisions.

- 3) Finally, we are currently evaluating development of an inspection procedure to assess licensee performance with respect to the Buried Piping Integrity Initiative. Should we decide to develop an inspection procedure, we would intend to solicit your input regarding performance expectations for licensees with respect to required actions in the initiative. For example, the initiative describes the need to establish an asset management plan. The staff would be interested in understanding your expectations for the content and scope of an effective asset management plan.

During the February 24, 2010, meeting between NRC staff and industry representatives the following action items were recorded.

- 1) The industry indicated they were considering expanding the scope of the initiative to address additional buried and underground assets that contain liquids and gases (besides buried piping). The industry agreed to inform the staff regarding plans for expansion.
- 2) The industry agreed to provide additional detail describing how the deviation process is established and maintained.
- 3) The industry agreed to provide additional details or examples that describe the risk ranking process.

We plan to discuss progress on these prior action items during the meeting scheduled for September 21, 2010.

We would like to convey our appreciation to NEI and the industry for agreeing to address this important issue of buried piping integrity and look forward to receiving regular updates on your progress in this area. If you have any questions, please contact Robert O. Hardies of my staff at 301-415-5802.

Sincerely,

**/RA/**

Michele G. Evans, Director  
Division of Component Integrity  
Office of Nuclear Reactor Regulation

cc: A. Marion, Senior Director of Engineering, Nuclear Energy Institute  
J. Riley, Director of Engineering, Nuclear Energy Institute  
M. Korsnick, Chief Nuclear Officer, Constellation Energy

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Michele G. Evans, Director  
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 Office of Nuclear Reactor Regulation

cc: A. Marion, Senior Director of Engineering, Nuclear Energy Institute  
 J. Riley, Director of Engineering, Nuclear Energy Institute  
 M. Korsnick, Chief Nuclear Officer, Constellation Energy

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<b>DATE</b>	8/16/10	8/16/10	8/16/10	8/18/10