

May 27, 2014

MEMORANDUM TO: Robert O. Hardies, Senior Level Advisor  
Division of Engineering  
Office of Nuclear Reactor Regulation

FROM: David Alley, Senior Materials Engineer */RA/*  
Component Performance, NDE, and Testing Branch  
Division of Engineering  
Office of Nuclear Reactor Regulation

SUBJECT: ANNUAL EVALUATION OF THE QUALIFICATION AND APPLICATION  
OF GUIDED WAVE ULTRASONIC INSPECTION TECHNIQUES FOR  
EVALUATION OF PIPING CONDITION

Buried piping action plan item 2-8 requires an annual status report concerning the qualification and application of guided wave as an inspection tool for buried and underground piping. While this status report is an annual event, DE's review of the qualification and application of guided wave is an ongoing process. DE's previous reports on this subject are contained in memoranda from David Alley to Robert Hardies dated May 24, 2011, (ADAMS Accession Number ML111440356), May 24, 2012 (ML12145A522) and May 13, 2013 (ML13129A319). In these reports the staff concluded:

- a) in terms of the ASME code, guided wave remains an unqualified inspection technique;
- b) there is no reason to believe that guided wave will become a qualified inspection procedure within the next year;
- c) guided wave is currently used in an effective manner as a screening tool to indicate locations at which further evaluation should be conducted; and
- d) guided wave is currently not an acceptable substitute for qualified inspection techniques such as ultrasonic inspection because it is not capable of precisely determining the extent of localized pipe wall loss.

Also in the initial report, the staff provided a basis for these conclusions.

During the past year the staff is aware of continued, incremental, improvements in the application of guided wave to buried piping. The staff does not believe that these improvements have resulted in breakthroughs in issues such as the length of pipe that can be inspected, inspections of components such as elbows and tees, or sizing of defects.

In addition to the technical advances made in the field of guided wave ultrasonic inspection the staff is aware of, and participating in, the development of standards for use in performing these inspections by ASME and NACE International. Activities at NACE have resulted in the publication of SP0313-2013, Guided Wave Technology for Piping Applications. While useful to users and suppliers of guided wave technology, this standard does not fully resolve items a – d above.

While the staff is encouraged by the efforts concerning guided wave which have occurred during the past year, the staff's position concerning the use of guided wave, as stated in items a – d above, remains unchanged.

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