

July 14, 2010

MEMORANDUM TO: Jerry Dozier, Chief
Aging Management of Reactor Systems
and Guidance Update
Division of License Renewal
Office of Nuclear Reactor Regulation

FROM: Robert Gramm, Sr. Mechanical Engineer /RA/
Aging Management of Reactor Systems
and Guidance Update
Division of License Renewal
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF THE LICENSE RENEWAL PUBLIC
TELECONFERENCE TO DISCUSS INDUSTRY COMMENTS ON
DRAFT CHANGES TO THE AGING MANAGEMENT PROGRAM
FOR BURIED AND UNDERGROUND PIPING AND TANKS

The U.S. Nuclear Regulatory Commission staff (NRC or the staff) held a public teleconference on June 21, 2010, to discuss formal comments submitted by the Nuclear Energy Institute (NEI). The NEI comments regarded the Aging Management Program (AMP) XI.M41 from draft NUREG-1801, Revision 2, "Generic Aging Lessons Learned (GALL) Report," dated May 2010. The AMP XI.M41 is for managing the aging of buried and underground piping and tanks. Enclosures to this letter are a list of the meeting participants and the teleconference agenda. The NRC staff provided an updated working level draft of AMP XI.M41 for discussion during the teleconference. The NRC updated working level draft of AMP XI.M41 and the NEI comments are available in the NRC's Agencywide Documents Access and Management System under Accession No. ML101760047 and ML101610406 respectively.

A summary of the meeting's major discussions follows.

The staff stated the primary purpose of the teleconference was to continue the dialogue about the buried piping aging management program. In particular, to discuss an updated working level draft of AMP XI.M41 that was prepared by the staff subsequent to the receipt of the NEI comments on June 7, 2010. The staff stated that the working level draft XI.M41 is still being discussed by the staff. The updated working level draft has not received any management or legal review. All formal comments on the draft Revision 2 GALL Report will be considered by the staff while XI.M41 is being finalized. The staff stated that stakeholder comments on the updated draft XI.M41 should be submitted using the same methods discussed in the *Federal Register* Notice (75 FR 27838) announcing the availability of the GALL Report for comment.

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The staff discussed a summary of the changes that were made as part of the updated draft XI.M41. This included removing limited access piping and tanks from the AMP to be addressed under other AMPs; adding references to potential AMPs which may address aging on the inside of buried and underground pipe; changing “10 years before period of extended operation (PEO) and 10 years after entry into PEO” to “each 10 year period beginning 10 years before PEO”; and adjusting tables (4 a, 4 c, 4 d) to require some inspections of high density polyethylene piping.

The industry participants raised several comments and questions:

- 1) A comment was made that item 4.b.vi is overly restrictive in not allowing credit for other units having shared piping. This is in contrast to typical industry programs. In particular for non-safety related shared systems such as fire protection, provisions should be included for crediting shared system inspection results. The staff indicated that they will re-consider this restriction.
- 2) A comment was made that Note 6 of Table 2a states backfill should be consistent with 49 CFR 195.252 which is for petroleum lines. The provisions of this standard exceed what is appropriate for nuclear plant buried piping associated with systems like fire protection. The nuclear plants have used engineered backfill and have specified criteria for aspects such as placement and compaction. Backfill aggregate is typically in accordance with the American Society for Testing and Materials standards. The staff commented that the 49 CFR standards were specifically written to govern backfill placement so that potential degradation of piping coatings would be avoided. The structural backfill provisions were not directly concerned about maintaining the integrity of the coatings. The staff will consider the comment but as currently written applicants would need to take an exception if the backfill does not comply with the 49 CFR provisions.
- 3) A comment was made that Note 6 of Table 4a states that inspection of the pipe can be eliminated if the cathodic protection system has been operating for 90% of the time since the piping was originally installed or was visually inspected. While several plants had a cathodic protection system installed from the beginning of plant operations, system documentation may be lacking for the early years. The industry suggested that an alternative approach would be to evaluate the system operation during the 5 year period prior to the period of extended operation. The staff indicated they would consider the alternate concept.
- 4) A comment was made that Note 3 of Table 4a discusses pipe that contains radioisotopes at levels greater than background. This description is subject to interpretation and should be more closely aligned with the Groundwater Initiative. The staff indicated they would re-examine the language and strive to reduce the subjectivity.
- 5) A general comment was made that many plants do not have coatings that comply with the National Association of Corrosion Engineers (NACE) standards and that the industry doesn't have control over what preventive actions were or were not implemented 30 years ago. Applicants will end up having more exceptions with this updated draft XI.M41. The AMP should be revised to take into account the actual plant conditions for buried piping so that the number of exceptions would be less. The staff responded that

the NACE standards represent current day practices that are appropriate for the plant components in scope of this AMP. The staff understands that the number of exceptions may increase, however a framework for the applicant to document the bases for their buried piping condition and for the staff to review it will be in place.

- 6) A question was raised whether applicants need coatings that are in accordance with the NACE standards. The staff pointed out for example note 2 of Table 2b that allows for other coatings if justification is provided in the application.
- 7) A question was raised whether Table 2b allows for any variation in the treatment of ductile or cast iron as their aging susceptibility could be different from steel. However, another commenter pointed out that NACE Standard SP0169 paragraph 1.1 states the standard applies to materials including cast and ductile iron. The staff indicated they would need to consider these comments and look more carefully at the available data.
- 8) A question was raised why underground piping is still included in XI.M41 when limited access piping has been removed. The staff stated that the situations are different as the limited access piping is in a configuration that is conducive to applying walk-down examinations described in other AMPs. In addition retaining underground piping in this AMP co-locates below grade piping where operating experience issues have arisen.
- 9) A comment was made that the XI.M41 Program Description mentions the terms buried and underground are defined in Chapter IX of the GALL Report, however they could not be found. The staff pointed out that the last paragraph of the Program Description appropriately articulates the meaning of those terms. [Following the teleconference the staff confirmed that the definition for "piping, piping components..." in Table IX.B also defines buried and underground.]
- 10) A question was raised whether note 7 for Table 4a is referring to reinforced concrete piping rather than cement lined pipe. The staff indicated that they believe that the draft AMP needs to be corrected.
- 11) A comment was made that the percentages identified in table 4a will force applicants to make an extensive number of excavations and expose an extensive linear footage of piping. The NACE process for determining high risk locations is a more amenable approach for nuclear applications. The staff remarked that there are trade-offs as on the one-hand inspecting more length of the pipe should provide greater confidence in the pipe or coating integrity, While on the other hand, making more excavations can lead to unintended consequence of damaging the piping coating. The commenter pointed out that multiple key hole excavations would not provide a large percentage of exposed pipe, but would provide a significant number of locations along the pipe for which condition of the coating/wrap/structural material could be determined.
- 12) A question was raised whether note 1 for Table 4b infers that ultrasonic inspections need to be performed of the piping interior. The staff clarified that ultrasonic inspections are to be performed on the exterior of the pipe which yield results about the condition of the interior of the pipe.

- 13) A suggestion was made to relocate item 4.f to either element 6 (acceptance criteria) or element 7 (corrective actions). The staff stated that the suggestion was reasonable.
- 14) A comment was made for element 5 (monitoring and trending) that the focus should be on trending in accordance with NACE standards to draw insights on where future excavations should take place rather than trying to estimate the remaining life of the piping. The staff indicated they would consider this comment.
- 15) A comment was made that item 6.b should be modified as all excavations will show some evidence of coating degradation. If the bare metal were exposed then a corrective action would be necessary. The suggestion was to consider the use of NACE certified inspectors to determine coating degradation. The staff indicated they would consider this comment.

The members of the public were provided an opportunity to make comments or ask questions. One participant stated that a nuclear power plant has recently committed to make major plant modifications and move essentially all the buried piping to above grade. The commenter stated this would preclude problems that exist with buried piping and should become the NRC GALL standard. The staff commented that there are a number of options on how to manage buried piping. The commenter also stated that there was data showing tritium accelerates internal corrosion. The staff asked the commenter to provide the comments and data in writing for consideration.

Another participant stated that over a 10 year period 100% of the buried piping should be examined. In addition high density polyethylene pipe becomes embrittled and is not suitable for application at nuclear facilities. The participant outlined concerns about backfill and that water chemistry programs were of questionable usefulness. The commenter suggested the use of monitoring wells to provide a detection method for the occurrence of buried piping leaks. The staff acknowledged the comments and asked the commenter to provide the comments and data in writing for consideration.

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License Renewal Public Teleconference To Discuss Industry Comments On Draft Changes To The Aging Management Program For Buried And Underground Piping And Tanks

June 21, 2010

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Stacie Sakai	NRC
Bruce Lin	NRC
David Alley	NRC
William Holston	NRC
Girija Shukla	NRC
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ENCLOSURE 1

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Steve Biagiotti	Structural Integrity Associates
Mary Lampert	Pilgrim Watch
Paul Gunter	Beyond Nuclear
Jerry Humphreys	State of New Jersey
Deann Raleigh	SCIENTECH
Fred Polaski	None

WORKING AGENDA

License Renewal Public Teleconference To Discuss Industry Comments On Draft Changes To The Aging Management Program For Buried And Underground Piping And Tanks

June 21, 2010

- 1) Introductions (NRC, NEI/Industry, members of the public)
- 2) Brief background (Bob Gramm)
- 3) NRC Overview of current working draft of M41 (Dave Alley)
- 4) NEI/Industry comments on current working draft of M41 (Eric Blocher and others)
- 5) Opportunity for any other members of the public to make comments including Mary Lampert (Pilgrim Watch) Clay Turnbull (New England Coalition of Nuclear Power)
- 6) Closing (Bob Gramm)

ENCLOSURE 2

Letter to J. Dozier from R. Gramm dated July 14, 2010

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