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Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: Questions Concerning NRC Order EA-03-009

PROJECT NUMBER: 689

Dear Dr. Sheron:

Questions concerning interpretation and implementation of NRC Order EA-03-009 are provided in Enclosure 1 for NRC staff review prior to the February 24, 2003, meeting on the Order. We expect that licensees will ask additional questions at the meeting.

One of the benefits of this public meeting is that licensees will be able to have their questions addressed by the NRC staff. In the interest of capturing this valuable information, we encourage the NRC staff to document responses in the meeting summary.

If you need addition information concerning this submitted, please contact me at (202) 739-8080, am@nei.org or Kurt Cozens at (202) 739-8085, koc@nei.org.

Sincerely,

Alex Marion

Alexander Marion

KOC/
Enclosure

c: Mr. Richard J. Barrett, U.S. Nuclear Regulatory Commission
Mr. William H. Bateman, U.S. Nuclear Regulatory Commission
Mr. Michael L. Marshall, Jr., U.S. Nuclear Regulatory Commission
Mr. Steven D. Bloom, U.S. Nuclear Regulatory Commission

Enclosure 1

QUESTIONS CONCERNING INTERPRETATION AND IMPLEMENTATION OF NRC ORDER EA-03-009

INSPECTION COVERAGE

1. The order requires visual inspection of 100% of the RVH surface, 360° around a nozzle and NDE coverage up two inches above the weld. Achieving 100% is rarely achieved in the field, especially for complex structures such as the RPV head. During the fall 2002 RPV head inspections, numerous licensees informed the NRC staff of instances where they were unable to achieve 100% coverage. Many of these interferences were discoveries that could not be anticipated in advance. However, licensees were still able to assure integrity of the RVH.

   The NRC's regulation 10CFR50.55a requires "essentially 100%," which requires examination of more than 90 percent of the volume. Will the NRC consider this typical definition of "essentially 100%" to satisfy the Order's 100% coverage requirement?

   We propose that the NRC staff develop a Temporary Instruction and protocol to better define the 100% criteria as being consistent with other NRC regulations that define "essentially 100%".

2. In the past, visual inspections of the RV head have been performed to include essentially 360° around a penetration and in the process of performing that inspection, licensees determined if wastage had occurred on the head. The literal interpretation of the Order's 100% visual inspection requirement suggests that the licensee is required to visually inspect all surface area including that with no meaningful source of boric acid leakage (e.g., inside the RV head stud holes, under the cooling shroud ring, underside of the head and inside the RVH lifting lug bolt holes) to determine if wastage has occurred. These inspections do not appear to be consistent with our understanding of the intent of the Order.

   Please provide clarification of "100% of the RVH surface."

3. The order specifies that ultrasonic testing of each nozzle be performed from two inches above the J-groove weld to the bottom of the nozzle.

   The bottom of the nozzle is not a good reference point for the lower extent of the scope of these inspections. Some plant's nozzles extend some distance below the weld. Other plants have threads cut into the bottom of the nozzle, with or without a taper. Please explain the technical basis for requiring coverage as high as two-inches above the weld and to the bottom of the penetrations.

   The coverage criteria required by the order will likely require many exceptions. Will each of these specific exceptions need to be processed through the relaxation request procedures or could the order be amended to clarify the required inspection coverage?

EDY CALCULATION

4. The last paragraph on page 6 states:

   "This calculation shall be performed with best estimate values for each parameter at the end of each operating cycle for the head that will be in service during the subsequent operating cycle. The calculated value of EDY shall determine the susceptibility category and the appropriate inspection for the RPV head during each refueling outage."

   The EFPY term in the equation typically addresses the time period between initial plant startup and the refueling outage when the inspections are to be performed and does not include the subsequent operating cycle.

   Please clarify this is consistent with the intended definition of EFPY contained in the Order.

5. The order requires a calculation of accumulated EDYs for each operating cycle.

   Once a plant reaches the "high" susceptibility category, is this periodic calculation required to be performed and documented?

REPLACEMENT HEADS

6. Clarify that initial construction/installation inspections performed on replacement heads will fulfill the requirement for the initial 100% bare metal visual inspection specified in Order Section IV.C(3)(a), and thus the next 100% bare metal visual inspection for the new head would be required within the next three refueling outages or five (5) years whichever occurs first.

   Similarly, Section 3(b) is required to be implemented "at least once over the course of five (5) years after issuance of the order and thereafter at least every four (4) refueling outages or every seven (7) years, whichever occurs first." For a newly replaced head, can the specified interval be redefined to state at least once over the course of five (5) years after replacement of the head unless a preservice baseline exam was performed in which case the four RFO/ seven year interval applies?

7. The Order does not explicitly define inspection criteria for plants that replaced the reactor head with a head using Alloy 690 penetrations. In this situation, will the licensee be required to use the same EDY calculation that is specified for reactor heads with Alloy 600 penetrations?

8. Some plants have ordered replacement reactor heads with Alloy 690 penetrations. Will these plants be given relief from the specified inspection requirements for their first refueling outage following issuance of the order if the replacement is to occur in their second refueling outage following issuance of the order?

SCHEDULE ISSUES

9. Clarify the NRC expectation for the level of detail required in the 60-day reports, and the basis for the 60-day interval.

   Typically, NDE vendors need 60 to 90 days to issue the final examination reports to the licensees. Thus, a 90-day reporting requirement similar to existing requirements for ASME Code ISI inspection reports would be reasonable. If a 60-day report is required, clarify if this report can be in some format other than the final vendor NDE examination report.

INSPECTION REQUIREMENTS

10. Paragraph (2) on page 8 states that:

    "...In addition the requirements of 2(a) and 2(b) shall each be performed at least once over the course of every two (2) refueling outages...".

    Is it the intent that these exams be alternated or must both be performed simultaneously every two refueling outages.

11. A moderate susceptibility plant is planning to do 100% BMV plus NDE of nozzles in the coming outage. This is a proactive approach since by the new order NDE would not be required for 1 additional cycle.

    Can the plant credit that NDE as the NDE required for the first cycle when the plant enters the high susceptibility ranking?

12. In the testing of nozzles/welds, will a surface exam of the weld (ECT or PT) meet the intent of "an assessment of to determine if leakage has occurred into the interference fit zone."

13. The order states, "visual inspections shall be performed to identify potential boric acid leaks from pressure-retaining components above the reactor head."

    Please clarify that bare metal visual inspections of all CRDM pressure-retaining surfaces, including those that may be normally obscured, is not required by this statement.

EXCEPTIONS

14. The Order (Footnote 2) allows deviation from its requirements for the next refueling outage, "if the NRC staff has already accepted a specific variation from the requirements of the Order."

    Will this Order requirement be satisfied if the NRC staff gave its acceptance during a conference call with the licensee or is it necessary that the NRC provided its acceptance in writing?

15. Footnote 1 states:

    "The NRC has issued guidance to address flaw evaluations for RPV head penetration nozzles (see letter dated November 21, 2001, from J. Strosnider, NRC, to A. Marion, Nuclear Energy Institute) ..."

    Does Footnote 1 allow the use of alternatives for flaw evaluation that are found acceptable to the NRC staff without a license amendment or specific relaxation per IV.F.

16. Please clarify the range of options available to a licensee to seek relaxation of specific aspects of the Order following the twenty-day initial period.

LONG TERM ISSUES

17. Will the NRC consider long term relaxation from the bare metal visual examination requirement for high susceptible plants who cannot remove their insulation without costly modifications to their RPV head insulation package?

18. The order does not allow for the use of new volumetric and/or surface inspection technologies.

    Once new technologies are developed will the order be revised.

NRC STAFF POSITION

19. Responses to these questions are expected to involve clarifications that may significantly affect a licensee's response to or actions taken because of the Order. Please discuss the process that the Staff will use for documenting the responses to these questions for formal use by the licensees.