

# **Need for Enhanced Eddy Current Qualification Program**

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# Eddy Current Examination Regulatory Needs

- ASME Code Case N-770-1 surface examinations
- ASME Code Case N-766 Inlay/Onlay mitigation
- Surface examinations
  - Partial penetration welds
    - Upper head penetration nozzles
    - Lower head penetration nozzles
    - Vent line welds and other penetrations with no interference fit
- NUREG/CR-6996 (ADAMS #ML092170311)
  - Demonstrated value of eddy current versus dye penetrant for stress corrosion cracking surface detection in partial penetration welds

# Current Limitations

- ASME Code Case N-770-1 surface examination acceptance criteria
  - Note 15(d) applies 1/16” bleedout sizing limit
  - Paragraph IV-1200(e) of Section XI limits the ECT mandatory appendix to acceptance standard of 1/8”
- Need for “very shallow” volumetric detection capability
  - Inlay/Onlay to ensure effective 2 layer boundary
  - Ensure no shallow near surface flaws in pre and post peening surfaces
- “Very shallow” qualification program not developed

# N-773 Value & Limitations

- ASME Code Case N-773 provides an eddy current qualification program extension for wetted surface exams of dissimilar metal welds
  - Provides a blind and open qualification program
  - Provides detection criteria for 0.4” surface flaws
- Need to expand on N-773 in the following areas
  - Make detection criteria have a similar flaw size to dye penetrant bleed out acceptance criteria in N-770
  - Provide a “very shallow” volumetric detection program
  - Generalize program to include wetted surface exams of partial penetration welds