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Section XI adoption of Section IX Temper Bead Qualification Rules, Code Case N-762

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Adoption of Section IX, QW-290 Procedure Qualification Rules for Temper Bead WPS

- Section IX provides consistent Welding Procedure Specification (WPS) Qualification Rules for all other book sections.
  - Until recently, Temper Bead rules were contained in individual Sections.
- SC IX initiated action to review rules contained in all other book Sections and to develop a consolidated set of rules that addressed all key technical requirements.
  - Section XI recognized it would need additional requirements for nuclear applications.
  - Code Case N-762 provides the ability to use QW-290 rules and addresses nuclear specific rules.

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Adoption of Section IX, QW-290 Procedure Qualification Rules for Temper Bead WPS

- QW-290 includes the following essential variables:
  - P-No./Group No.
  - Power Ratio or Heat input ratio between layers
  - Fluid backing (addition)
  - Interpass temp (increase)
  - Bead overlap
- QW-290 provides for upgrading of existing WPSs to meet new rules
- Identifies suitable processes: SMAW, GTAW (M, AU), SAW, PTAW, FCAW, GMAW.
  - Section XI draft Code Case N-762 limits it to just GTAW (M, AU) and SMAW.

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Adoption of Section IX, QW-290 Procedure Qualification Rules for Temper Bead WPS

- QW-290 requires the following tests:
  - Tensile and Bend Testing
  - Hardness Testing (if required by Code of Const.)
  - Impact Testing (per Code of Const. and A-370)
- Draft Code Case N-762 adds the following:
  - Test material impact performance
    - Const. Code/Owner's Requirements or CVN Testing $\leq$LSMT
  - Test material orientation
    - weld parallel to rolling direction
  - Heat treatment history
  - Impact testing acceptance requires HAZ $\geq$ BM.
    - Section III adjustment temperature may be used.

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Adoption of Section IX, QW-290 Procedure Qualification Rules for Temper Bead WPS

- Code Case N-762 has may not be used in applications involving predicted neutron fluence greater than 1×10^{17} neutrons per square centimeter prior to welding.
- Current Code Status of Code Case N-762:
  - Code Case proposal has passed Subcommittee Section XI with no negatives and is currently at Standards Committee.

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