



NIFG – PDI Qualification Pre-Requisites Improvement Plan

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Standardize the Qualification Pre-requisites Approach

Performance Gap Title:

- Lack of Fundamental NDE Knowledge Required Prior to Attempting PDI Dissimilar Metal Weld Demonstration

• Performance Gap Description:

- Some Ultrasonic Examiners Attempting Dissimilar Metal Qualifications Lack the Fundamental Skills Needed

• How Identified:

- On going evaluation of Pass Rates

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Action Description

- **Revise PDI procedure / instruction to include pre-requisite actions for the candidate, utility or vendor to complete during the application process including a pre-requisite checklist requiring the individual and sponsoring organization to attest:**
 - That the candidate has a firm understanding on the physics of refracted longitudinal search units, with special emphasis on frequency selection, focusing and the various wave modes generated.

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- That the candidate has a firm understanding how to evaluate RL search units to determine they are within tolerance and working properly. E.g. how to measure the refracted angle of a focused search unit.
- That the candidate has practical experience on the use of refracted longitudinal search units and the various signals observed when using them.
- That the candidate has knowledge on the welding practices used to fabricate dissimilar metal welds and the affect it has on the ultrasonic beam.

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- That the candidate has knowledge on the types of flaws and where they are likely to initiate and their growth pattern.
- That the candidate has knowledge of signal characteristics skills of flaws that are detected in weld material.
- That the candidate has had practice on mock-ups that contain various weld configurations with known flaws. Sample should include various geometric conditions that make discrimination difficult due to the response obtained from the multiple angles and wave modes that interact with them.
- That the candidate is prepared for qualification readiness

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- That the candidate is prepared for qualification readiness
- **When available, verify documented proof of DM Weld CBT completion prior to qualification.**
- **Develop a Systematic Approach to Training specific to dissimilar metal welds and a specific outline for DM qualification training**
- **Develop an apparent cause of DM weld qualification pass rates for each session going back to 2007**

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- **Metrics**

- Reduction in OE for ultrasonic field performance issues
- Improvement in first attempt PDI detection pass rates
- Regulatory perception

- **Tracking**

- PDI semi-annual meetings discussion of recent OEs specific to technical human performance issues with ultrasonic filed performance.
- PDI semi-annual meetings tracking of pass rates
- Semi-annual meetings with the Regulator

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Summary

- The PDI qualification pre-requisites are being strengthened to require attestation of personnel demonstration readiness
- The pass rates (reason for failure) will be analyzed with the intent to implement corrective actions to the demonstration process. Changes to pre-requisite training will be implemented as necessary.

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