Advanced Welding and Joining Technical Workshop
Boulder, Colorado, January 25-26, 2006

Working Group 4
Weld Maintenance and Repair

Working Group Discussion Notes

Discussion of difference of standards between 19th and 20th edition.
DOT does not recognize appendix B but says that "best practice should be used"
AMSE section 9 is a 192 option. 1104 is much easier to deal with vs. section 9 but section 9 is used
What do we do about in service welding with the section 9 procedures?
Must set a qualified procedure to supplement AMSE section 9 procedures
AMSE is currently working on in service procedures
Someone will attend AMSE meeting as a liaison

Design considerations to weld metal strength
API 1104 considers branch welds to be a fillet weld but branch welds should be more clearly defined
Difficult to get matching strength on in service welds
Can we make up to the strength mismatch?

Need to come up with scope of work for future DOT funded projects
In the ditch: Heat input/ runout ratio could be a small part of a future project

Technology transfer: Dissemination of information to the welder. Possibly come up with a new training manual for the welder. Training courses also valuable. Bill Bruce teaches a pipeline repair course. Possibly do a video series for a wider distribution. Other interactive learning tools such as a CD ROM. Is there a need for a standardized training manual? Difficult to convince welders that Hydrogen is a problem. Demonstrations are good to show benefits of low Hydrogen electrode and proper care of electrode. At first there was resistance to using low hydrogen electrode (welders insisted on using cellulosic electrodes). welders need to be convinced effectively. Welders must qualify on in service simulated conditions for thin walled pipes. Less than .250" carries risk of burn through.

Suggestion: web page for putting links available to the public. PHSNA could have a technology link.

PRCI reports are for sale through technical tool.com
Expensive to encourage membership.

Identify top three goals for in service welding. (Preliminary)

- Technology Transfer
- Further Develop planning tools: thermo-mechanical models that make use of current computing technology
- Weldability issues: NDE methods for determining carbon equivalent. To be used for in the ditch improvements