

Poehler, Jeffrey

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From: Poehler, Jeffrey *NR*
Sent: Wednesday, September 26, 2012 7:28 AM
To: McIntyre, Richard
Subject: RE: Japan Steel Works Info Related to Forging Practices

What time works for you? I'm free all day today, and free anytime tomorrow except 10-12.

Jeffrey C. Poehler
Sr. Materials Engineer
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From: McIntyre, Richard *NR*
Sent: Tuesday, September 25, 2012 6:14 PM
To: Poehler, Jeffrey
Cc: Reichelt, Eric; McIntyre, Richard; Kavanagh, Kerri
Subject: RE: Japan Steel Works Info Related to Forging Practices

Jeff

Come down and I will show you the info that JSW went over when we were in Japan

Richard P. McIntyre
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From: Poehler, Jeffrey
Sent: Monday, September 24, 2012 10:08 AM
To: McIntyre, Richard
Cc: Reichelt, Eric
Subject: Japan Steel Works Info Related to Forging Practices

Rich, in connection with recent operating experience at Doel 3 on Belgium with extensive reactor vessel indications, I would like to get any information you may have from your visits to JSW related to the steelmaking process, forging process, and post-forging heat treatment, for large pressure vessel forgings. The preliminary root cause by the owner and Belgian regulator identified hydrogen flaking as the most likely cause of the indications. NRR is following the investigation and is trying to determine the relative susceptibility of US plants to the same mechanism. Since most of the forging producers for operating reactors are defunct, we would like to see what the practices are for the currently operating producers, with respect to prevention of hydrogen flaking. Types of information that would be particularly useful include:

Information on the vacuum degassing processes used during melting and casting the ingot
Measurements of hydrogen in the melt, ingot, or forging

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Post-forging cooling practices and heat treatment – Do they perform a special de-hydrogenation heat treatment before heat treatment for properties?

Ultrasonic testing of the forgings

Metallurgical tests of the ingot or forging

Eric, per our conversation this morning the same information regarding Doosan would be helpful.

Thanks for your help!

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