

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555



FEB 05 1988

MEMORANDUM FOR: C. Z. Serpan, Jr., Chief
MEB/DE/RES

FROM: E. O. Woolridge
MEB/DE/RES

SUBJECT: MEETING ON E-BRITE ALLEGHENY LUDLUM STEEL CO.

On February 4, I attended a presentation made by Allegheny Ludlum (AL) on the ferritic stainless steel E-Brite. AL has owned the patent rights on this alloy since 1978.

The only known nuclear application of this alloy is in tubing for a heat exchanger in Arkansas Unit 2. This tubing has a .065" wall and was fabricated by AL.

E-Brite is melted in a vacuum induction furnace and rigidly controlled to have very low interstitials, thus enhancing resistance in intergranular corrosion-superior ductility.

The alloy has a low CTE, work harden less than austenitic ss, has resistance to SCC, pitting and crevice corrosion. It is known as one of the super ferritics SS. The prime application for the material is in stress corrosion environment.

The ductile brittle transition temperature DBTT is strongly influenced by type of notch, material thickness, criteria for stating DBTT (ft-lbs-fracture appearance-strain rate, etc.)

The stabilizing (Nb) greatly improves ductility in thin sections but doesn't help much in thick sections.

During fabrication (welding) contamination is a real problem - contamination with C, N₂, grease, HC is a no-no. N₂ or C pick up - bad on impact.

Tubing weld from strip must be argon shielded inside and out for successful welding.

Included with this memo is a handout detailing the presentation and information on E-Brite.

E O Woolridge
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ATTACHMENT 2

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