CERTIFICATE OF CONFORMANCE TO SPECIFICATION REQUIREMENTS FOR WELDING ELECTRODES AND FLUXES

CHEMICAL COMPOSITION OF ELECTRODE

April 27, 2010

SUPPLIED TO:

QUANTITY: DIAMETER: HEAT: FLUX LOT:

This is to certify that <u>Spoolarc 70</u> electrode, Classification <u>EA1</u>, and <u>ESAB OK Flux 350</u> submerged arc welding flux, AWS/ASME Classification <u>F8TA2-EA1</u>, as supplied on the above order, are of the same classification, manufacturing process and material requirements as the flux-electrode combination tested on March 5, 2010.

All tests required by Specification AWS /ASME SFA5.23 and ANSI/AWS A5.01 Schedule G were performed. The materials tested met all the requirements for Classification <u>F8TA2-EA1</u>. The chemical composition of the electrode and mechanical properties of the deposited weld metal were as follows:

Total

<u>C</u>	$\underline{\mathbf{M}\mathbf{n}}$	<u>S1</u>	<u>S</u>	<u>P</u>	Mo	<u>Cu</u>	Other Element	<u>S</u>	
.09	.94	.11	.004	.009	.49	.11	<.50		
WELD TEST NO.: R1-4728-10-10247 AS							ELDED	CHARPY V-NO	OTCH IMPACT
Radiography Test: Met all requirements								Ft-Lbs @ -20°F	(Joules @ -29°C)
Tensi	le Test:							25	(34)
Yield Strength, ksi (MPa)						75.3	(519)	25	(34)
Tensile Strength, ksi (MPa)						104.4	(720)	25	(34)
Elongation, 2-in. %						26.0		20	(27)
								21	(<u>28</u>)
								24 (avg.3)	(32) (avg.3)

Welding Conditions:

Arc Voltage: 32 V

650 A D

Base Plate: A516 Gd. 50, 1/2 in. Thick

Arc Current:

650 A DCEP

Set-up: Double V, 90° incl. angle, ¼" root face, no root gap

Travel Speed:

20 ipm

No. of Layers: One pass each side

Wire Diameter: 5/3

5/32-in.

Preheat/Interpass: RT/211°F max

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