



Carondelet Division

8600 Commercial Blvd. - Pevely, MO 63070 USA
Phone: 636-479-4499 - Fax: 636-479-3399

Material Test Report

ENERGY INDUSTRIES OF OHIO

Purchase Order Number PPPL-FP-LTS-2

Pattern Number MCWF-C4

CAF Metal Designation CF8MNMnMod

Material Spec CF8MNMnMOD

Ladle#1 Heat 30108

Cert Number S75920-3

Pour Date 7/12/2005

Element	Min	Actual	Max
C	0.04	0.04	0.07
MN	2.3	2.4	2.8
SI	0.0	0.3	0.5
CR	18.0	18.2	18.5
NI	13.0	13.3	13.5
MO	2.1	2.3	2.5
P*	0.0	0.029	0.015
S*	0.0	0.014	0.015
N	0.24	0.25	0.28

*P & S taken from ladle sample button and analyzed by wet chemistry, ASTM E1019-03 for sulfur and Colormetric for phosphorous.

*P is above the specification.

Respectfully Submitted,
Charles A. Ruud
Quality Assurance Manager

Superior Quality Engineered Metal Products

www.MetalTekInt.Com



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Purchase Order Number PPPL-FP-LTS-2

Pattern Number MCWF-C4

CAF Metal Designation CF8MNMnMod

Material Spec CF8MNMnMOD

Ladle#2 Heat 30109

Cert Number S75920-3

Pour Date 7/12/2005

Element	Min	Actual	Max
C	0.04	0.05	0.07
MN	2.3	2.5	2.8
SI	0.0	0.4	0.5
CR	18.0	18.4	18.5
NI	13.0	13.4	13.5
MO	2.1	2.2	2.5
P*	0.0	0.033	0.015
S*	0.0	0.015	0.015
N	0.24	0.26	0.28

*P & S taken from ladle sample button and analyzed by wet chemistry, ASTM E1019-03 for sulfur and Colormetric for phosphorous.

*P is above the specification.

A handwritten signature in black ink, appearing to read "CAR".

Respectfully Submitted,
Charles A. Ruud
Quality Assurance Manager

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ENERGY INDUSTRIES OF OHIO

Purchase Order Number PPPL-FP-LTS-2

Pattern Number MCWF-C4

CAF Metal Designation CF8MNMnMod

Material Spec CF8MNMnMOD

Ladle#3 Heat 30112

Cert Number S75920-3

Pour Date 7/12/2005

Element	Min	Actual	Max
C	0.04	0.04	0.07
MN	2.3	2.6	2.8
SI	0.0	0.4	0.5
CR	18.0	18.1	18.5
NI	13.0	13.1	13.5
MO	2.1	2.2	2.5
P*	0.0	0.028	0.015
S*	0.0	0.012	0.015
N	0.24	0.26	0.28

*P & S taken from ladle sample button and analyzed by wet chemistry, ASTM E1019-03 for sulfur and Colorimetric for phosphorous.

*P is above the specification.

A handwritten signature in black ink, appearing to read "CAR".

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Material Spec CF8MNMnMOD

Weighted average of 3 heats - 30108(38%),30109(23%),30112(39%) Total Weight 32028 lbs.

Cert Number S75920-3

Pour Date 7/12/2005

Revised 10/26/05

Element	Min	Actual	Max
C	0.04	0.04	0.07
MN	2.3	2.5	2.8
SI	0.0	0.4	0.7
CR	18.0	18.2	18.5
NI	13.0	13.2	13.5
MO	2.1	2.2	2.5
P*	0.0	0.030	0.035
S*	0.0	0.013	0.025
N	0.24	0.26	0.28

*P & S taken from ladle sample button and analyzed by wet chemistry, ASTM E1019-03 for sulfur and Colorimetric for phosphorous.

PRODUCT ANALYSIS

Results of spectrometer analysis of cast on test bar after spectrometer preventive maintenance performed and at Wisconsin Centrifugal.

***Not analyzed on spectrograph.

Element	CAF after PM	WC Analysis
C	***	0.04
MN	1.4	1.5
SI	0.6	0.6
CR	18.2	17.8
NI	13.6	13.6
MO	2.4	2.4
P	0.031	0.030
S	0.009	0.012
N	***	0.25

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