DATE	7/20/12
INVOICE NO.	496239
BILL OF LADING	75061
CUSTOMER NO.	5446
CUSTOMER P.O.	600420

NUCOR-YAMATO STEEL CO.

P.O. BOX 1228 ● BLYTHEVILLE,AR 72316

CERTIFIED MILL TEST REPORT

100% MELTED AND MANUFACTURED IN U.S.A.
All shapes produced by Nucor-Yamato Steel are cast and rolled to a fully killed and fine grain practice.

SHIP TO

SOLD TO

SPECIFICATIONS

ASTM A992/A992M-11 A572/A572M GR50-07
ASTM A709/A709M-11 GR50 (345)
ASTM A709/A709M-11 GR50S (345S)
ASTM A6/A6M-11

ITEM #	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES: YIELD TO TENSILE RATIO	YIELD STRENGTH PSI / MPa	TENSILE STRENGTH PSI / MPa	ELONG % / %	CHARPY IMPACT TEMP °F / °C	IMPACT ENERGY FT-LBS / JOULES			CHEMICAL PROPERTIES: C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	Cb	CE
																				Sn	Pcm		Cl
1	W24 -146.0	4	389199	.78	57000	73000	29					.08	1.23	.017	.023	.27	.29	.12	.10	.04	.03	.021	.35
	40'			.78	56000	72000	27													.01	.18		
	W610 x217.0				393	503	29																
	12.192 M				386	496	27																
2	W24 -146.0	5	389245	.77	56000	73000	28					.07	1.31	.018	.022	.30	.29	.11	.15	.03	.05	.005	.37
	40'			.77	58000	75000	28													.01	.18		
	W610 x217.0				386	503	28																
	12.192 M				400	517	28																
3	W24 -146.0	7	389257	.76	55000	72000	28					.07	1.20	.013	.019	.23	.24	.13	.13	.05	.02	.021	.33
	40'			.77	55000	71000	29													.01	.17		
	W610 x217.0				379	496	28																
	12.192 M				379	490	29																
4	W24 -146.0	4	389261	.78	58000	74000	28					.08	1.25	.015	.023	.28	.29	.10	.09	.03	.02	.022	.35
	40'			.78	59000	76000	29													.01	.18		
	W610 x217.0				400	510	28																
	12.192 M				407	524	29																
5	W24 -146.0	7	389262	.79	57000	72000	28					.08	1.20	.017	.027	.26	.28	.10	.10	.03	.02	.022	.34
	40'			.81	58000	72000	29													.01	.18		
	W610 x217.0				393	496	28																
	12.192 M				400	496	29																
6	W24 -146.0	1	389264	.78	58000	74000	28					.07	1.20	.015	.020	.25	.30	.11	.10	.03	.02	.022	.33
	40'			.78	57000	73000	26													.01	.17		
	W610 x217.0				400	510	28																
	12.192 M				393	503	26																
7	W24 -146.0	1	389362	.76	55000	72000	28					.07	1.18	.026	.025	.24	.45	.25	.19	.04	.01	.022	.37
	40'			.75	54000	72000	28													.01	.18		
	W610 x217.0				379	496	28																
	12.192 M				372	496	28																

$Pcm = C + \frac{Si}{30} + \frac{Mn}{20} + \frac{Cu}{20} + \frac{Ni}{60} + \frac{Cr}{20} + \frac{Mo}{15} + \frac{V}{10} + 5B$ B=Approx..0005

CARBON EQUIVALENT: CE = CE(IIW) = C + Mn/6 + (Cr+Mo+V)/5 + (Ni +Cu)/15
Mercury has not been used in the direct manufacturing of this material.

Corrosion Index: CI=26.01(%Cu)+3.88(%Ni)+1.20(%Cr)+1.49(%Si)+17.28(%P)-7.29(%Cu)(%Ni)-9.10(%Ni)(%P)-33.39(%Cu)^2

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by this material manufacturer are in compliance with the requirements of the material specifications listed in the Specifications Block above.

QUALITY ASSURANCE

CUSTOMER COPY

STATE OF ARKANSAS COUNTY OF MISSISSIPPI
SWORN TO AND SUBSCRIBED BEFORE ME THIS

20 Day of 07/12

Charlene Wallis NOTARY PUBLIC

MY COMMISSION EXPIRES 10/21/2013

CHARLENE WALLIS
MY Comm. Exp.
NOTARY PUBLIC
10-21-2013
MISSISSIPPI CO. ARKANSAS