

# North Texas Pressure Vessels INC.

327 Travis Street  
 Wolters Industrial Park  
 MINERAL WELLS TX 76067  
 Tel: 940-327-0800 Fax: 940-327-0801



## Pressure Vessel Data Package

Customer	SPECIALIZED DESANDERS INC.	
Customer P.O. #	2015690	Dated 01/13/2015
NTPV S/N	0115-SD1 1-5	NB # 2933-2937
NTPV MODEL #	SS-20-120-5500-3F-C-N-CA	Date 04/20/2015

### MECHANICAL DESIGN

Design / Fabrication / Inspection & Testing in accordance with ASME Section VIII, Division 1, 2013 Edition

MAWP	5500 PSI	@	160	° F
MAEWP	X PSI	@	X	° F
MDMT	5500 PSI	@	-40	° F
PWHT	2.25 Hours	@	1150	° F
Pressure Test, HYDRO	7150 Psig	@	15	Minutes
RT/UT markings per UG116	RT-1			
Corrosion Allowance	.125 Inches			
NACE – MR0175 – 2009	<input checked="" type="checkbox"/> Yes		<input type="checkbox"/> No	

### CONNECTIONS

Flange ASME / ANSI Class	2500
Coupling ASME / ANSI Class	N/A

### INSPECTION / TESTING

Hardness Test Report(s)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
PT – Liquid Penetrant Test Report(s)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
MT – Magnetic Particle Test Report(s)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
UT – Ultrasonic Test Report(s)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
RT – Radiography Test Report(s)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Impact Test per UG84 Report(s)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
PMI – Positive Mat'l Identification Report(s)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Ferrite Test Report(s)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Hydro Pressure Test Report(s)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

### TABLE OF CONTENTS

U1A Data Report	<input checked="" type="checkbox"/> Yes	_____ Page(s)
Nameplate Rubbing	<input checked="" type="checkbox"/> Yes	_____ Page(s)
Hydro Chart / Certification(s)	<input checked="" type="checkbox"/> Yes	_____ Page(s)
Inspection / Test Reports	<input checked="" type="checkbox"/> Yes	_____ Page(s)
PWHT Specification / Certification(s)	<input checked="" type="checkbox"/> Yes	_____ Page(s)
Production Impact Certification	<input checked="" type="checkbox"/> Yes	_____ Page(s)
Weld / Material Maps	<input type="checkbox"/> Yes	_____ Page(s)
Personnel Certifications	<input type="checkbox"/> Yes	_____ Page(s)
Material Test Certifications	<input checked="" type="checkbox"/> Yes	_____ Page(s)

Transmitted By \_\_\_\_\_ Date \_\_\_\_\_

**FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS**  
 (Alternative Form for Single Chamber, Completely Shop or Field Fabricated Vessels Only)  
 As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by North Texas Pressure Vessels, Inc., 301 Travis St., Wolters Industrial Park, Mineral Wells, Texas 76067  
(Name and address of Manufacturer)

2. Manufactured for Specialized Desanders Inc., Suite 111, 3355-114 Avenue SE, Calgary, Alberta T2Z 0K7, Canada  
(Name and address of Purchaser)

3. Location of Installation UNKNOWN  
(Name and address)

4. Type Vertical 0115-SD1-1 W8491.2 SS-158C 2B LWN Rev 1 2933 2015  
(Horizontal or Vertical Tank) (Manufacturers serial No) (CRN) (Drawing number) (National Board number) (Year built)

5. ASME Code, Section VIII, Division 1 2013 None  
[Edition and Addenda, if applicable (date)] (Code Case Numbers) [Special Service per UG 120(d)]

6. Shell: SA-106-CN 3" .125" 1' - 2" 10' - 0" S/S  
(Material spec number, grade) (Nominal thickness) (Corr Allow) (Inner diameter) [Length (overall)]

Body Flanges on Shells										Bolting		
No.	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Location	Number & Size	Bolting Material	Washer (OD, ID, thk)	Washer Material

7. Seams Seamless None 100 1150 2.25 Type 1 Full 100 1  
[Long (welded, dbl, lap, butt), singl.] (R.T (Spot or full)) (Eff. %) (H.T. Temp) (Time hr) [Girth (welded, dbl, lap, butt), singl.] (R.T (Spot or full)) (Eff. %) (No. of courses)]

8. Heads: (a) Material SA-516-70N (b) Material SA-516-70N  
(Spec no., grade) (Spec no., grade)

	Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)	Top	2.375"	.125"					7"		Concave
(b)	Bottom	2.375"	.125"					7"		Concave

Body Flanges on Heads										Bolting		
	Location	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Num & Size	Bolting Material	Washer (OD, ID, Thk)	Washer Material
(a)												
(b)												

9. MAWP 5500 psi   psi at max. temp. 160 °F   °F  
(Internal) (External) (Internal) (External)

Min. design metal temp. -40 °F at 5500 psi. Hydro., pneu., or comb. Test pressure Hydro 7150 psi.

10. Nozzles, inspection and safety valve openings:   Proof test NO

Purpose (Inlet, Outlet, Drain, etc.)	NO.	Diameter or Size	Type	Material		Nozzle Thickness		Reinforcement Material	Attachment Details		Location (Insp. Open)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
Inlet	1	3"	2500# RTJLWN	SA-350-LF2-1	SA-350-LF2-1	1.13"	.125"	Integral	Welded		Top End
Outlet	1	3"	2500# RTJHB	SA-350-LF2-1	SA-350-LF2-1	2.05"	.125"	Integral	Welded		Shell
Relief Valve	1	2"	2500# RTJHB	SA-350-LF2-1	SA-350-LF2-1	1.59"	.125"	Integral	Welded		Shell
Cleanout	1	3"	2500# RTJHB	SA-350-LF2-1	SA-350-LF2-1	2.05"	.125"	Integral	Welded		Shell
Sand Outlet	1	3"	2500# RTJLWN	SA-350-LF2-1	SA-350-LF2-1	1.13"	.125"	Integral	Welded		Bottom End

11. Supports: Skirt No Lugs 2 Legs 2 Other 4 Wear Pads Attached Welded - Shell  
(Yes or No) (Number) (Number) (Describe) (Where and how)

12. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of this report:  
None  
(Name of part, item number, Manufacturer's name and identifying stamp)

Vessels shall not be used in cyclic service.  
 Yes; Shell material impact tested to -40 °F per UG-84, Remaining material impact test exempt per UCS-66, (11.7 sqft),  
 Relief Valve by others, Design to UG 22(a) only, For Non-corrosive Service only, Model No.: SS-20-120-5500-3F-C-N-CA.

CERTIFICATE OF SHOP/FIELD COMPLIANCE			
We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. "U" Certificate of Authorization No. <u>36,226</u> expires <u>12-01-2015</u>			
Date <u>4-20-2015</u>	Co. name <u>North Texas Pressure Vessels, Inc.</u>	Signed <u>[Signature]</u>	<small>(Manufacturer) (Representative)</small>
CERTIFICATE OF SHOP/FIELD INSPECTION			
Vessel constructed by <u>North Texas Pressure Vessels, Inc.</u> at <u>301 Travis St., Wolters Industrial Park, Mineral Wells, Texas 76067</u>			
I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and employed by <u>OneCIS Insurance Company of LYNN, MA</u> have inspected the component described in this Manufacturer's Data Report on <u>4-8-2015</u> and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. By signing this certificate neither the inspector nor his/her employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.			
Date <u>4-20-15</u>	Signed <u>[Signature]</u>	Commissions <u>NB12125 "A" "N"</u>	<small>(Authorized Inspector) [National Board (incl. endorsements)]</small>

**FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS**  
 (Alternative Form for Single Chamber, Completely Shop or Field Fabricated Vessels Only)  
 As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by North Texas Pressure Vessels, Inc., 301 Travis St., Wolters Industrial Park, Mineral Wells, Texas 76067  
(Name and address of Manufacturer)

2. Manufactured for Specialized Desanders Inc., Suite 111, 3355-114 Avenue SE, Calgary, Alberta T2Z 0K7, Canada  
(Name and address of Purchaser)

3. Location of Installation UNKNOWN  
(Name and address)

4. Type Vertical 0115-SD1-2 to 5 W8491.2 SS-158C 2B LWN Rev 1 2934 to 2937 2015  
(Horizontal or Vertical Tank) (Manufactures serial No) (CRN) (Drawing number) (National Board number) (Year built)

5. ASME Code, Section VIII, Division 1 2013 None  
[Edition and Addenda, if applicable (date)] (Code Case Numbers) [Special Service per UG 120(d)]

6. Shell: SA-106-CN 3" .125" 1' - 2" 10' - 0" S/S  
(Material spec number, grade) (Nominal thickness) (Corr. Allow.) (Inner diameter) (Length (overall))

Body Flanges on Shells										Bolting		
No.	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Location	Number & Size	Bolting Material	Washer (OD, ID, thk)	Washer Material

7. Seams: Seamless None 100 1150 2.25 Type 1 Full 100 1  
[Long (welded, dbl, lap, butt), singl.,] [R.T (Spot or full) (Eff. %)] (HT Temp.) (Time hr) [Girth (welded, dbl, lap, butt), singl.,] [R.T (Spot or full) (Eff. %)] (No. of courses)

8. Heads: (a) Material SA-516-70N (b) Material SA-516-70N  
(Spec no., grade) (Spec no., grade)

	Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)	Top	2.375"	.125"					7"		Concave
(b)	Bottom	2.375"	.125"					7"		Concave

Body Flanges on Heads										Bolting		
	Location	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Num & Size	Bolting Material	Washer (OD, ID, Thk)	Washer Material
(a)												
(b)												

9. MAWP 5500 psi   psi at max. temp. 160 °F   °F  
(Internal) (External) (Internal) (External)

Min. design metal temp. -40 °F at 5500 psi. Hydro., pneu., or comb. Test pressure 7150 psi.  
 Proof test NO

Purpose (inlet, Outlet, Drain, etc.)	NO.	Diameter or Size	Type	Material		Nozzle Thickness		Reinforcement Material	Attachment Details		Location (Insp. Open)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
Inlet	1	3"	2500# RTJLWN		SA-350-LF2-1	1.13"	.125"	Integral		Welded	Top End
Outlet	1	3"	2500# RTJHB		SA-350-LF2-1	2.05"	.125"	Integral		Welded	Shell
Relief Valve	1	2"	2500# RTJHB		SA-350-LF2-1	1.59"	.125"	Integral		Welded	Shell
Cleanout	1	3"	2500# RTJHB		SA-350-LF2-1	2.05"	.125"	Integral		Welded	Shell
Sand Outlet	1	3"	2500# RTJLWN		SA-350-LF2-1	1.13"	.125"	Integral		Welded	Bottom End

11. Supports: Skirt No Lugs 2 Legs 2 Other 4 Wear Pads Attached Welded - Shell  
(Yes or No) (Number) (Number) (Describe) (Where and how)

12. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of this report:  
None  
(Name of part, item number, Manufacturer's name and identifying stamp)

Vessels shall not be used in cyclic service.  
 Yes; Shell material impact tested to -40 °F per UG-84, Remaining material impact test exempt per UCS-66, (11.7 sqft),  
 Relief Valve by others, Design to UG 22(a) only, For Non-corrosive Service only, Model No.: SS-20-120-5500-3F-C-N-CA.

**CERTIFICATE OF SHOP/FIELD COMPLIANCE**

We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. "U" Certificate of Authorization No. 36,226 expires 12-01-2015

Date 4-20-2015 Co. name North Texas Pressure Vessels, Inc. Signed [Signature]  
(Manufacturer) (Representative)

**CERTIFICATE OF SHOP/FIELD INSPECTION**

Vessel constructed by North Texas Pressure Vessels, Inc. at 301 Travis St., Wolters Industrial Park, Mineral Wells, Texas 76067

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and employed by OneCIS Insurance Company of LYNN, MA have inspected the component described in this Manufacturer's Data Report on 4-13-2015 and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. By signing this certificate neither the inspector nor his/her employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 4-20-15 Signed [Signature] Commissions NB12125 "A" "N"  
(Authorized Inspector) (National Board (incl. endorsements))



55-15

# NTPV

NB 2933



CERTIFIED BY  
NORTH TEXAS PRESSURE VESSELS, INC.  
301 TRAVIS ST.  
MINERAL WELLS, TEXAS 76067  
PHONE 940-327-0800

5500 PSI AT 160 °F  
MAWP

U

40 °F AT 5500 PSI  
MDMT

W

RT I

X PSI AT X °F  
MAEWP

HT

NACE

CRN-W849121

SERIAL NO. 0115-SD1-1

G.A. 0.125 INCH YEAR BLT. 2015

20 X 120

PATENTED SAND SHARK

BY 5/5/15

# NTPV

2954



CERTIFIED BY  
NORTH TEXAS PRESSURE VESSELS, INC.  
301 TRAVIS ST.  
MINERAL WELLS, TEXAS 76067  
PHONE 940-327-0800

5500 PSI AT 160 OF  
MAWP

U

40 OF AT 5500 PSI  
MDMT

W

X PSI AT X OF  
MAEWP

RTI

CRN-W8491.2.1

HT

SERIAL NO. 0115-SDI-2

NACE

G.A. 0.125 INCH YEAR BLT. 2015

20 X 120

PATENTED SAND SHARK

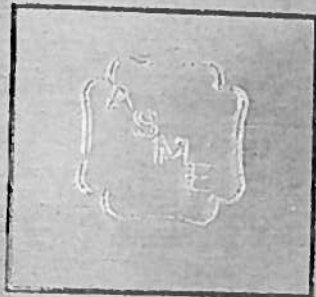


5/5/15

# NTPV

NB

2935



CERTIFIED BY  
NORTH TEXAS PRESSURE VESSELS, INC.  
301 TRAVIS ST.  
MINERAL WELLS, TEXAS 76067  
PHONE 940-327-0800

5500 PSI AT 160 °F  
MAWP

U

-40 °F AT 5500 PSI  
MDMT

W

RTI

X PSI AT X °F  
MAEWP

HT

CRN-W8491.21

NACE

SERIAL NO. 0115-SD1-5

C.A. 0.125 INCH YEAR BLT. 2015

20 X 120

PATENTED SAND SHARK

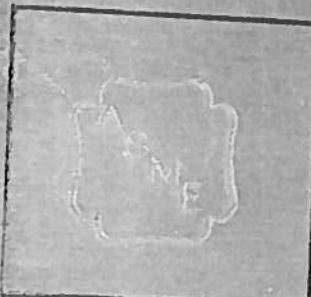
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# NTPV



2936

CERTIFIED BY  
NORTH TEXAS PRESSURE VESSELS, INC.  
301 TRAVIS ST.  
MINERAL WELLS, TEXAS 76067  
PHONE 940-327-0800



5500 PSI AT 160 °F  
MAWP

U

-40 °F AT 5500 PSI  
MDMT

W

X PSI AT X °F  
MAEWP

RTI

CRN-W8491.21

HT

NACE

SERIAL NO. 0115-SD1-4

C.A. 0.125 INCH YEAR BLT. 2015

20 X 120

## PATENTED SAND SHARK



JBH  
5-5-15

# NTPV

JB 2937



CERTIFIED BY  
NORTH TEXAS PRESSURE VESSELS, INC.  
301 TRAVIS ST.  
MINERAL WELLS, TEXAS 76067  
PHONE 940-327-0800

5500 PSI AT 160 °F  
MAWP

U

-40 °F AT 5500 PSI  
MDMT

W

X PSI AT X °F  
MAEWP

RTI

CRN-W 8491.21

HT

NACE

SERIAL NO. 0115-SD1-5

C.A. 0.125 INCH YEAR BLT. 2015

20 X 120

PATENTED SAND SHARK



Date: 04/08/2015

Set 918 NB Numbers: Specialized Desanders Inc.  
Here is the s/n to stamp on nameplates for **S/n 0115-SD1**

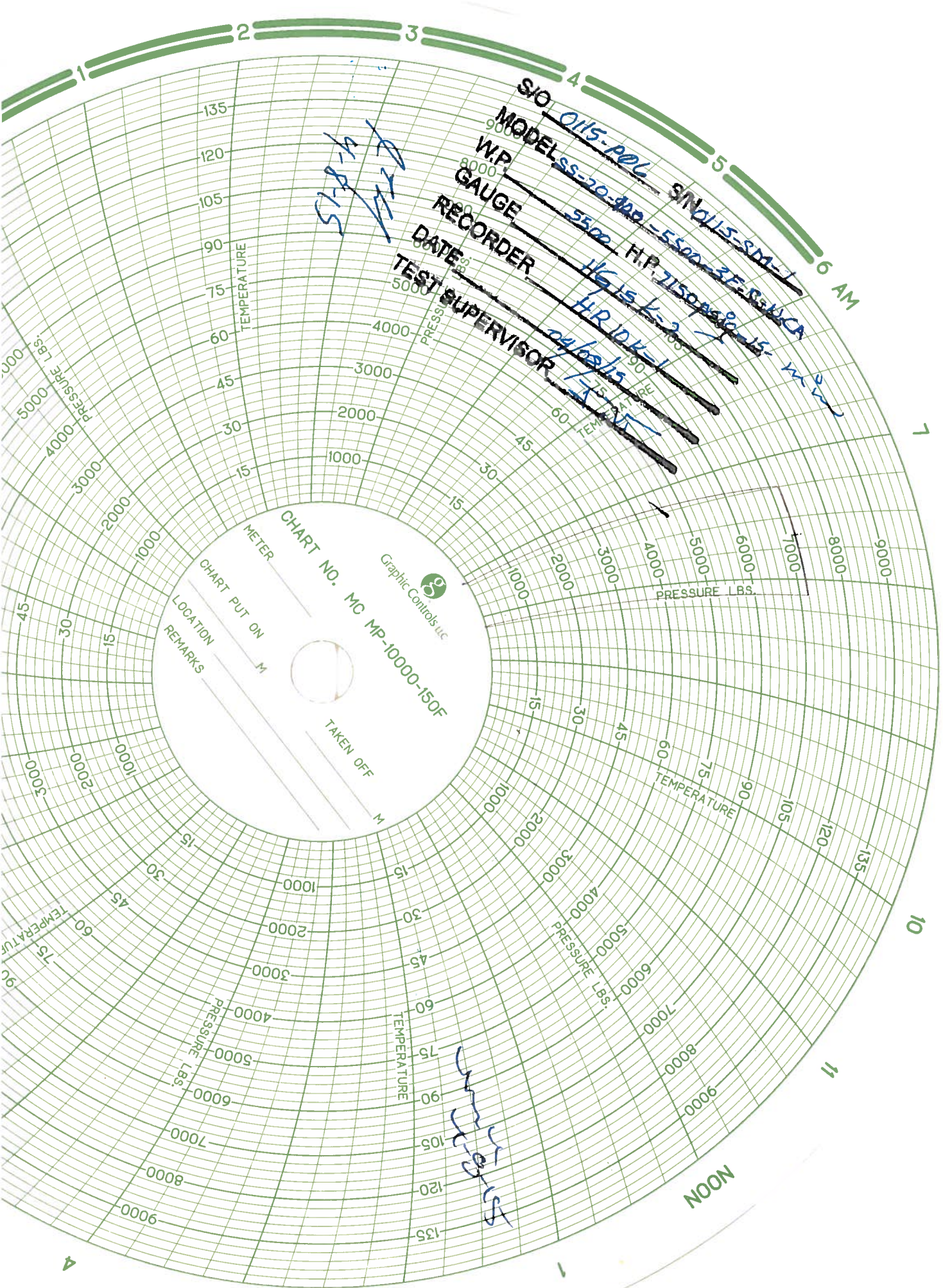
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s/n 0115-SD1-2 NB# 2934

s/n 0115-SD1-3 NB# 2935

s/n 0115-SD1-4 NB# 2936

s/n 0115-SD1-5 NB# 2937



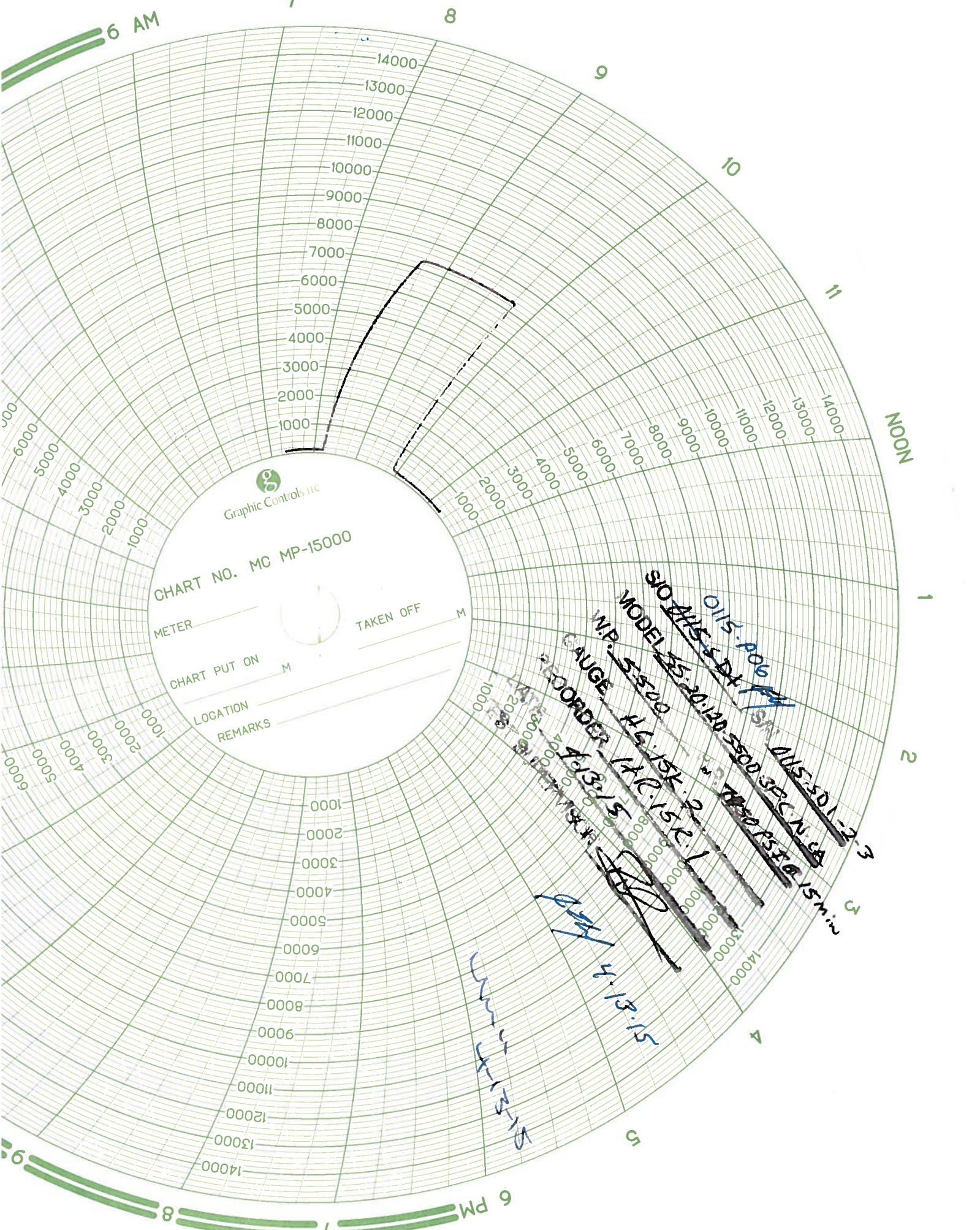
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SIO 0115-206  
 MODEL SS-20-900  
 W.P. GAUGE RECORDER DATE TEST SUPERVISOR  
 H.P. 2150488-15  
 HR 10:15-1  
 04/08/15

CHART NO. MC MP-10000-150F  
 Graphic Controls Inc.  
 METER  
 CHART PUT ON M  
 LOCATION REMARKS  
 TAKEN OFF M

NOON





Graphic Controls Inc

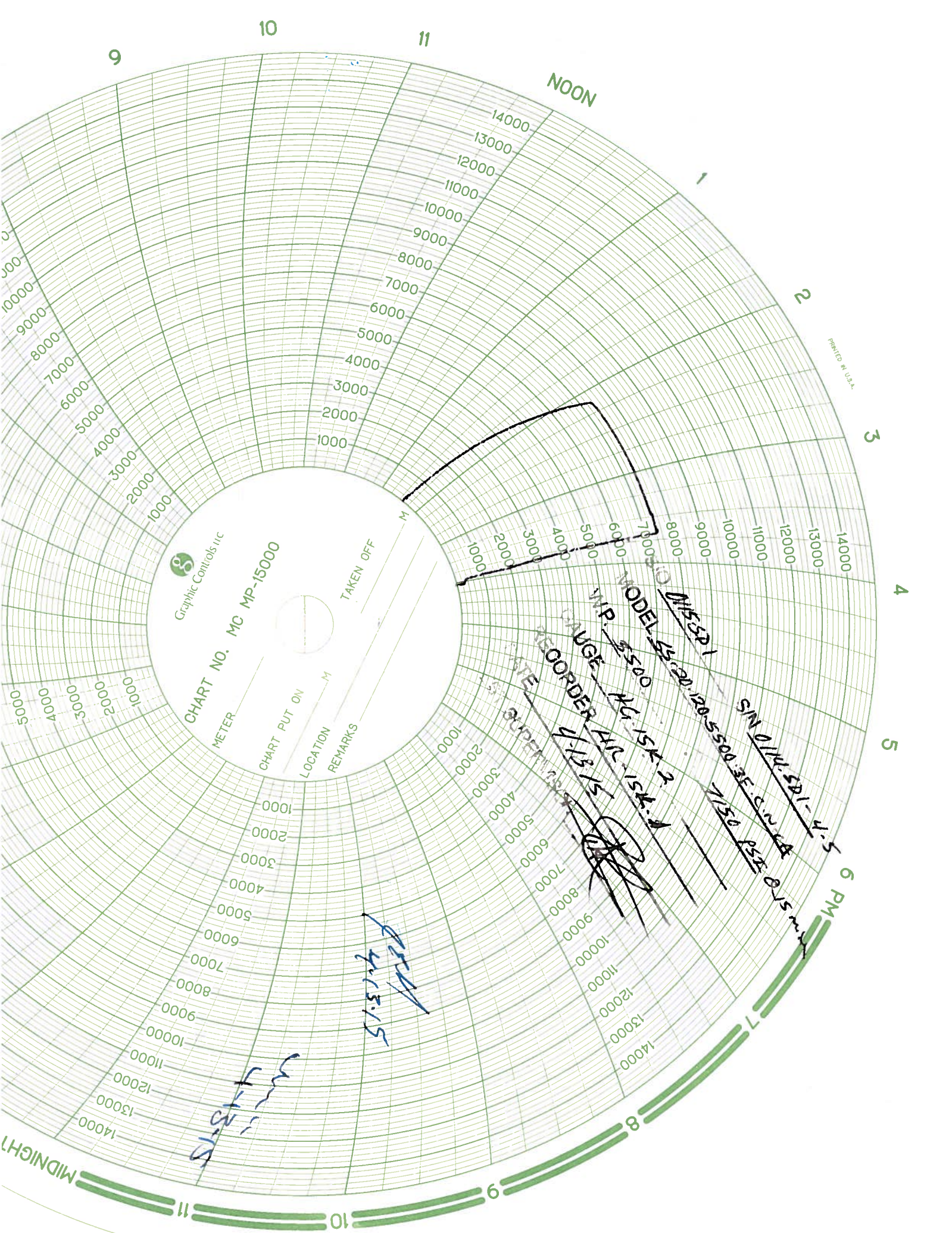
CHART NO. MC MP-15000

METER \_\_\_\_\_ TAKEN OFF \_\_\_\_\_ M  
CHART PUT ON \_\_\_\_\_ M  
LOCATION \_\_\_\_\_  
REMARKS \_\_\_\_\_

0115-PO6  
SIO ALS-5-DX  
MODEL ALS-20-120-3500 SPEC NLSA  
W.P. 5-3500  
GAUGE H.C. 15K-2  
ORDER H.C. 15K-2  
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4-13-15

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4-13-15  
4-13-15





Graphic Controls, Inc.  
CHART NO. MC MP-15000

TAKEN OFF

METER  
CHART PUT ON  
LOCATION  
REMARKS

NOON

MIDNIGHT

PRINTED IN U.S.A.

*Handwritten signature*  
4/13/15

*Handwritten signature*  
4/13/15

MODEL 55-10  
W.P. 5500  
GAUGE HC 15K-2  
REORDER AIR 15K-2  
DATE 4/13/15

SIN OIL EXP 1-1-15  
A  
1/30 855  
B 1515

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# North Texas Pressure Vessels INC.

327 Travis Street  
 Wolters Industrial Park  
 MINERAL WELLS TX 76067  
 Tel: 940-327-0800 Fax: 940-327-0801



## MT Report

Date:	April, 2015
S/N	0115-SD1-1 to 5
PAGE 1 OF 1	

### QA/QC MAGNETIC PARTICLE EXAMINATION REPORT

Customer Specialized Desanders, Inc. Drawing # SS-158C 2B LWN R1  
 Shop Order # 0115-P06 Model # SS-20-120-5500-3F-C-N-CA

NDE Procedure # QA-NDE-2 Revision 0 Inspector & Cert level \_\_\_\_\_

Equipment	AC – Yoke	Model #	Parker DA-400
		Serial/Id #	19100
Examination Medium	Dry Iron Powder	Color / Batch #	Red / 11A061
		Manufacture / Part #	Magnaflux / 8A
Light Source	AC - Yoke	Light Intensity	400Lx

Calibration	AC-Yoke SN 19100	1-6-2014	Light Meter SN 1027723	11-24-2010
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#### EXAMINATION RESULTS

Description of Examination	Initial & Date		Description of Reject / Defect	Initial & Date	
	Accept	Reject		Accept	Reject
0115-SD1-1 Nozzles A & E to Heads	4-11-15				
0115-SD1-1 Nozzles B, C & D to Shell	4-11-15				
0115-SD1-2 Nozzles A & E to Heads	4-11-15				
0115-SD1-2 Nozzles B, C & D to Shell	4-11-15				
0115-SD1-3 Nozzles A & E to Heads	4-11-15				
0115-SD1-3 Nozzles B, C & D to Shell	4-11-15				
0115-SD1-4 Nozzles A & E to Heads	4-11-15				
0115-SD1-4 Nozzles B, C & D to Shell	4-11-15				
0115-SD1-5 Nozzles A & E to Heads	4-14-15				
0115-SD1-5 Nozzles B, C & D to Shell	4-14-15				

Sketch all Indications Noted:

No indications noted, MT performed after PWHT.

Inspector signature

Date:

4-14-15

Customer Inspector

Date:

# 4T-NDT & INSPECTIONS LLC

## RADIOGRAPHIC TECHNIQUE AND REVIEW FORM

PROCEDURE: 4T-NDT-RT 1

Customer: North Texas Pressure Vessels Job No. 0115-SD1-1 PO No. \_\_\_\_\_ Page 1 of 1  
 Description: 20" PRESSURE VESSEL Code /Spec ASME SECT VIII RT 1 Film Type: AGFA D7  
 Energy Type: Iridium 192 Source Strength: 87 curies Focal spot: .146 Lead Screens: .010 Front and Back Geometric Unsharpness: .02 max  
 Exposure Arrangement see Sect V Article 2 C/S = Carbon Steel S/S = Stainless Steel S = Single D = Double

Weld Joint ID	Film ID	Accepted	Rejected	Defect Code	Date Accepted	Exposure Arrangement	Welder	IQI Size Location S-source side F- film side	Wall Thickness	Outside Diameter	Material	Source To Object	Source Side of Object To Film	Weld Reinforcement	Weld thickness	Film Load	Film Exposure	Film Viewing	No. of Exposure
G1	1-2	X				A	E-F	F/C-SET	3"	20"	C/S	7"	3.125"	.125"	3.125"	S	S	S	1
	2-3	X																	
	3-4	X																	
	4-5	X																	
	5-1	X																	
G2	1-2	X				A	E-F	F/C-SET	3"	20"	C/S	7"	3.125"	.125"	3.125"	S	S	S	1
	2-3	X																	
	3-4	X																	
	4-5	X																	
	5-1	X																	

Defect Codes: 1-Slags; 2-Porosity; 3-Crack; 4-Incomplete Penetration; 5-Incomplete Fusion; 6-Surface; 7-Underfill; 8-Excessive Reinforcement; 9-Other

Interpreted by/ Date 3/25/15 Radiographer: Dale Young ASNT/ACCP II 180763 Manufacturer Representative Date  
 ASNT /ACCP LEVEL II BUTCH JOHNSON RT CERT. NO. 180764 Radiographer: Butch Johnson ASNT/ACCP II 180764

*[Signature]* 5.26.15



# 4T-NDT & INSPECTIONS LLC

## RADIOGRAPHIC TECHNIQUE AND REVIEW FORM

PROCEDURE: 4T-NDT-RT 1

Customer: North Texas Pressure Vessels Job No. 0115-SD1-2 PO No. \_\_\_\_\_ Page 1 of 1  
 Description: 20" PRESSURE VESSEL Code/Spec ASME SECT VIII RT 1 Film Type: AGFA D7  
 Energy Type: Iridium 192 Source Strength: 87 curies Focal spot: .146 Lead Screens: .010 Front and Back Geometric Unsharpness: .02 max  
 Exposure Arrangement see Sect V Article 2 C/S = Carbon Steel S/S = Stainless Steel S = Single D = Double

Weld Joint ID	Film ID	Accepted	Rejected	Defect Code	Date Accepted	Exposure Arrangement	Welder	IQI Size Location S-source side F- film side	Wall Thickness	Outside Diameter	Material	Source To Object	Source Side of Object To Film	Weld Reinforcement	Weld thickness	Film Load	Film Exposure	Film Viewing	No. of Exposure
G1	1-2	X				A	C-G	F/C-SET	3"	20"	C/S	7"	3.125"	.125"	3.125"	S	S	S	1
	2-3	X																	
	3-4	X																	
	4-5	X																	
	5-1	X																	
G2	1-2	X				A	C-G	F/C-SET	3"	20"	C/S	7"	3.125"	.125"	3.125"	S	S	S	1
	2-3	X																	
	3-4	X																	
	4-5	X																	
	5-1	X																	

Defect Codes: 1-Slag; 2-Porosity; 3-Crack; 4-Incomplete Penetration; 5-Incomplete Fusion; 6-Surface; 7-Underfill; 8-Excessive Reinforcement; 9-Other

Interpreted by/ Date 3/25/15 Radiographer: Dale Young ASNT/ACCP II 180763 Manufacturer Representative Date

AGENT / ACCP LEVEL II  
 BUTCH JOHNSON  
 RT  
 CERT. NO. 180764

Radiographer: Butch Johnson ASNT/ACCP II 180764

*[Signature]* 3.26.15

# 4T-NDT & INSPECTIONS LLC

## RADIOGRAPHIC TECHNIQUE AND REVIEW FORM

PROCEDURE: 4T-NDT-RT 1

Customer: North Texas Pressure Vessels Job No. 0115-SD1-3 PO No. \_\_\_\_\_ Page 1 of 1  
 Description: 20" PRESSURE VESSEL(welder cert I) Code/Spec ASME SECT VIII RT 1 Film Type: AGFA D7  
 Energy Type: Iridium 192 Source Strength: 87 curies Focal spot: .146 Lead Screens: .010 Front and Back Geometric Unsharpness: .02 max  
 Exposure Arrangement see Sect V Article 2 C/S = Carbon Steel S/S = Stainless Steel S = Single D = Double

Weld Joint ID	Film ID	Accepted	Rejected	Defect Code	Date Accepted	Exposure Arrangement	Welder	IQI Size Location S-source side F- film side	Wall Thickness	Outside Diameter	Material	Source To Object	Source Side of Object To Film	Weld Reinforcement	Weld thickness	Film Load	Film Exposure	Film Viewing	No. of Exposure
G1	1-2	X				A	R-I	F/C-SET	3"	20"	C/S	7"	3.125"	.125"	3.125"	S	S	S	1
	2-3	X																	
	3-4	X																	
	4-5	X																	
	5-1	X																	
G2	1-2	X				A	R-I	F/C-SET	3"	20"	C/S	7"	3.125"	.125"	3.125"	S	S	S	1
	2-3	X																	
	3-4	X																	
	4-5	X																	
	5-1	X																	

Defect Codes: 1-Slags; 2-Porosity; 3-Crack; 4-Incomplete Penetration; 5-Incomplete Fusion; 6-Surface; 7-Underfill; 8-Excessive Reinforcement; 9-Other

Interpreted by/ Date 3/25/15 Radiographer: Dale Young ASNT/ACCP II 180763 Manufacturer Representative Date

ASNT/ACCP LEVEL II  
 BUTCH JOHNSON  
 RT  
 CERT. NO. 180764

Radiographer: Butch Johnson ASNT/ACCP II 180764

*[Signature]* 3-26-15

Customer: North Texas Pressure Vessels Job No. 0115-SD1-4 PO No. Page 1 of 1

Description: 20" PRESSURE VESSEL Code /Spec ASME SECT VIII RT 1 Film Type: AGFA D7

Energy Type: Iridium 192 Source Strength: 84 curies Focal spot: .146 Lead Screens: .010 Front and Back Geometric Unsharpness: .02 max

Exposure Arrangement see Sect V Article 2 C/S = Carbon Steel S/S = Stainless Steel S = Single D = Double

Weld Joint ID	Film ID	Accepted	Rejected	Defect Code	Date Accepted	Exposure Arrangement	Welder	IQI Size Location S-source side F- film side	Wall Thickness	Outside Diameter	Material	Source To Object	Source Side of Object To Film	Weld Reinforcement	Weld thickness	Film Load	Film Exposure	Film Viewing	No. of Exposure
G1	1-2	X	X	1	3/31/15	A	Z-1	F/C-SET	3"	20"	C/S	7"	3.125"	.125"	3.125"	S	S	S	1
	2-3	X	X	1	3/31/15														
	3-4	X																	
	4-5	X																	
	5-1	X																	
G2	1-2	X				A	Z-1	F/C-SET	3"	20"	C/S	7"	3.125"	.125"	3.125"	S	S	S	1
	2-3	X																	
	3-4	X																	
	4-5	X																	
	5-1	X																	

Defect Codes: 1-Slag; 2-Porosity; 3-Crack; 4-Incomplete Penetration; 5-Incomplete Fusion; 6-Surface; 7-Underfill; 8-Excessive Reinforcement; 9-Other

Interpreted by/ Date 3/31/15 Radiographer: Dale Young ASNT/ACCP II 180763 Radiographer: Butch Johnson ASNT/ACCP II 180764

ASNT / ACCP LEVEL II BUTCH JOHNSON RT CERT. NO. 180764 Manufacturer Representative Date

Technique/Review Form *[Signature]* 4-1-15



4T-NDT & INSPECTIONS LLC

RADIOGRAPHIC TECHNIQUE AND REVIEW FORM

PROCEDURE: 4T-NDT-RT 1

Customer: North Texas Pressure Vessels

Job No. 0115-SD1-5 PO No.

Page 1 of 1

Description: 20" PRESSURE VESSEL

Code/Spec ASME SECT VIII RT 1

Film Type: AGFA D7

Energy Type: Iridium 192

Source Strength: 84 curies

Focal spot: .146

Lead Screens: .010 Front and Back

Geometric Unsharpness: .02 max

Exposure Arrangement see Sect V Article 2

C/S = Carbon Steel S/S = Stainless Steel

S = Single D = Double

Weld Joint ID	Film ID	Accepted	Rejected	Defect Code	Date Accepted	Exposure Arrangement	Welder	IQI Size Location S-source side F- film side	Wall Thickness	Outside Diameter	Material	Source To Object	Source Side of Object To Film	Weld Reinforcement	Weld thickness	Film Load	Film Exposure	Film Viewing	No. of Exposure
G1	1-2	X				A	T-1	F/C-SET	3"	20"	C/S	7"	3.125"	.125"	3.125"	S	S	S	1
	2-3	X																	
	3-4	X																	
	4-5	X																	
	5-1	X		X	1	4/2/15													
G2	1-2	X				A	T-1	F/C-SET	3"	20"	C/S	7"	3.125"	.125"	3.125"	S	S	S	1
	2-3	X																	
	3-4	X																	
	4-5	X																	
	5-1	X																	
						5													

Defect Codes: 1-Slag; 2-Porosity; 3-Crack; 4-Incomplete Penetration; 5-Incomplete Fusion; 6-Surface; 7-Underfill; 8-Excessive Reinforcement; 9-Other

Interpreted by/ Date 4/2/15

ASNT /ACCP LEVEL II  
BUTCH JOHNSON  
RT

CERT.NO. 180764

Radiographer: Dale Young ASNT/ACCP II 180763  
Radiographer: Butch Johnson ASNT/ACCP II 180764

Manufacturer Representative Date



Southwest Metal Treating Corp.

CERTIFICATION

North Texas Pressure Vessels N
327 Travis Dr.
Wolters Ind. Park
Mineral Wells, TX 76067 USA

Certification ID: 84817-1
Date: 4/6/2015
Cert Date: 04/06/2015
Purchase Order: 10331
Material: All

We are pleased to provide you with the following Certification.

Table with 4 columns: Part Number, Part Description, Qty, Weight. Rows include PWHT-SS-129C and PWHT-SS-158C with their respective descriptions and quantities.

Customer Requirements table with columns: Inspection Type, U Of M, Lower Spec, Lower Control, Target Value, Upper Control, Upper Spec. Row for Process shows Parts ran per process.

Results table with columns: Inspection Type, Qty Tested, Qty Passed, Qty Rejected, Scale, Minimum, Maximum, Range. Row for Process shows 1 tested, 1 passed, 0 rejected.

Miscellaneous Comments

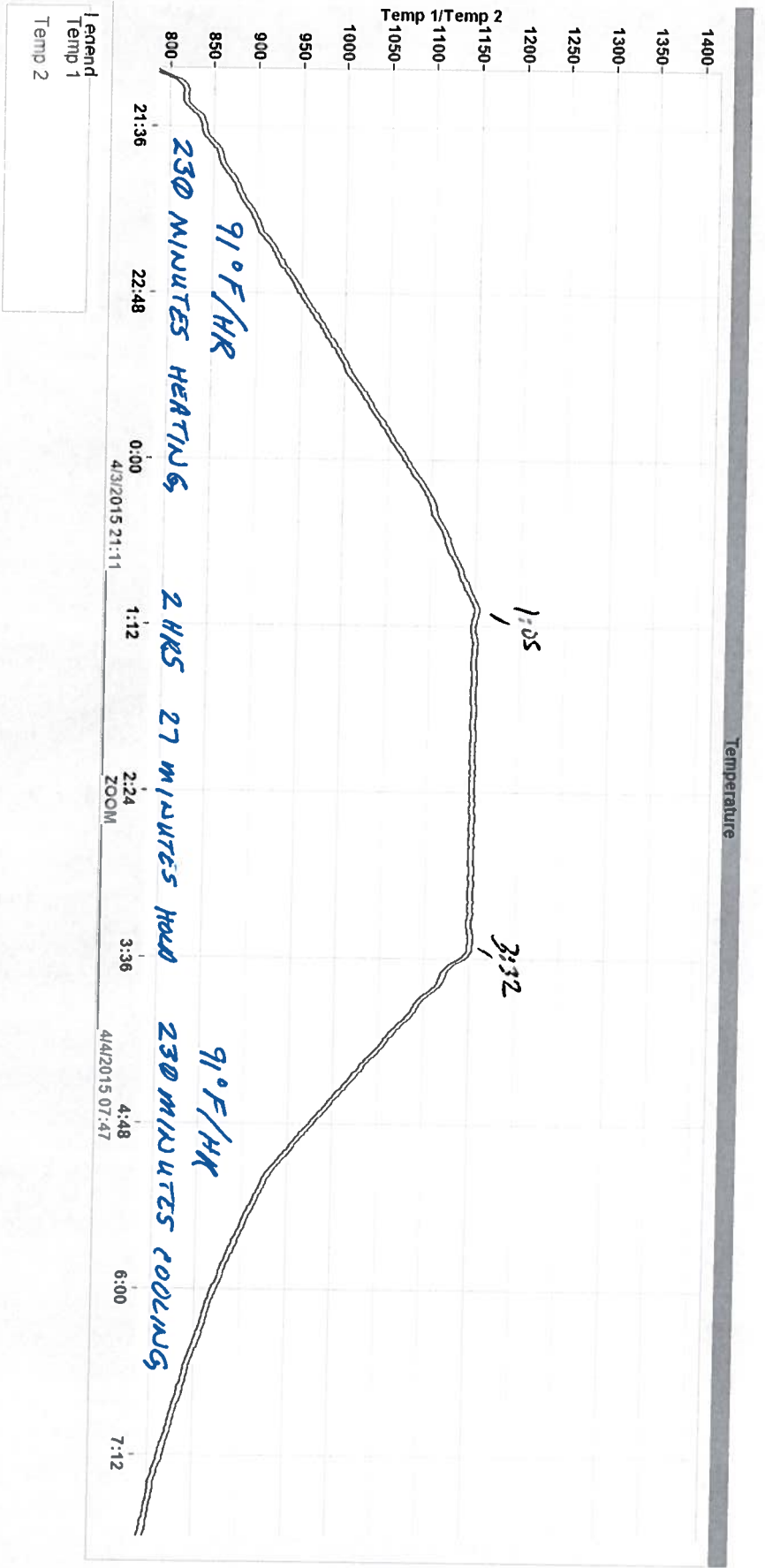
- PWHT Process:
Post Weld Heat Treat
Step 1. Start Furnace at 800 degF
Step 2. Heat 130 degF an Hour to 1150 degF
Step 3. Hold at 1150 degF for 2 Hour 15 Minutes
Step 4. Cool 160 degF an Hour to 800 degF
Step 5. Pull Parts

Certification Statement

I certify that these are accurate and true results of the indicated test performed.

Handwritten signature and date 4.7.15

Certified By: Justin Fussell
Title: Quality Control Manager
Date: 04/06/2015



**Southwest Metal Treating Corporation**

Customer: North Texas Pressure

PO #: 10331

SWMT #: 84817

WO/SO/PN #: 0115-SD1-1 To 5-15

Date: 4/6/2015

Sign: [Signature]

TIME/TEMPERATURES ACCEPTABLE

[Signature]  
4-7-15





Southwest Metal Treating Corp.

CERTIFICATION

North Texas Pressure Vessels N
327 Travis Dr.
Wolters Ind. Park
Mineral Wells, TX 76067 USA

Certification ID: 84865-1
Date: 4/9/2015
Cert Date: 04/09/2015
Purchase Order: 10347
Material: All

We are pleased to provide you with the following Certification.

Table with 4 columns: Part Number, Part Description, Qty, Weight. Rows include PWHT-SS-133C, PWHT-SS-129C, PWHT-SS-158C, and TEST PLATE.

Customer Requirements table with 7 columns: Inspection Type, U Of M, Lower Spec, Lower Control, Target Value, Upper Control, Upper Spec. Row for Process.

Results table with 8 columns: Inspection Type, Qty Tested, Qty Passed, Qty Rejected, Scale, Minimum, Maximum, Range. Row for Process.

Miscellaneous Comments

- PWHT Process:
Post Weld Heat Treat
Step 1. Start Furnace at 800 degF
Step 2. Heat 120 degF an Hour to 1150 degF
Step 3. Hold at 1150 degF for 2 Hour 30 Minutes
Step 4. Cool 150 degF an Hour to 800 degF
Step 5. Pull Parts

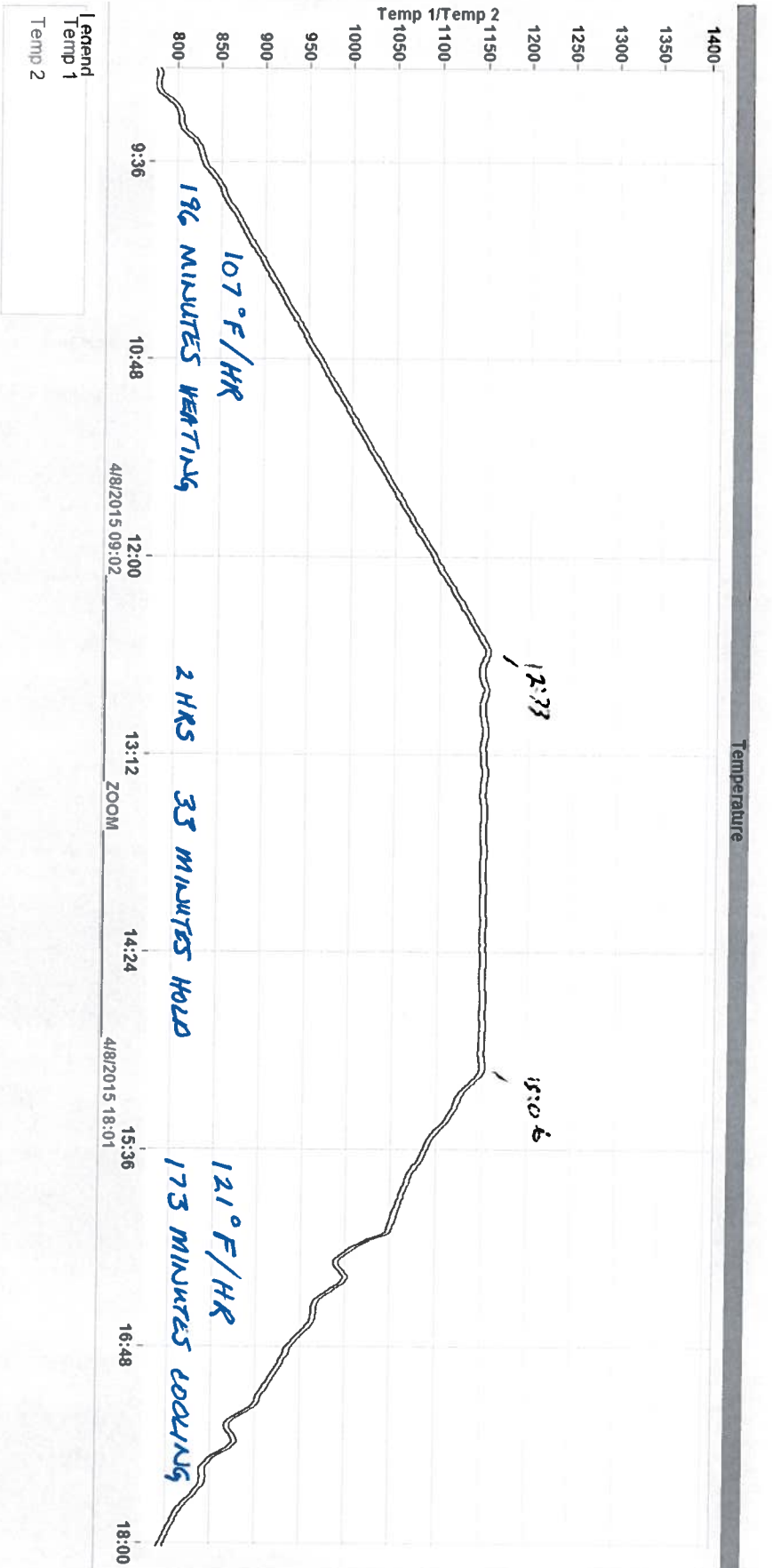
Certification Statement

I certify that these are accurate and true results of the indicated test performed.

Handwritten signature of Justin Fussell

Certified By: Justin Fussell
Title: Quality Control Manager
Date: 04/09/2015

Handwritten initials and date: JFF 4-10-15



**Southwest Metal Treating Corporation**

Customer: North Texas Pressure

PO #: 10347

SWMT #: 84865

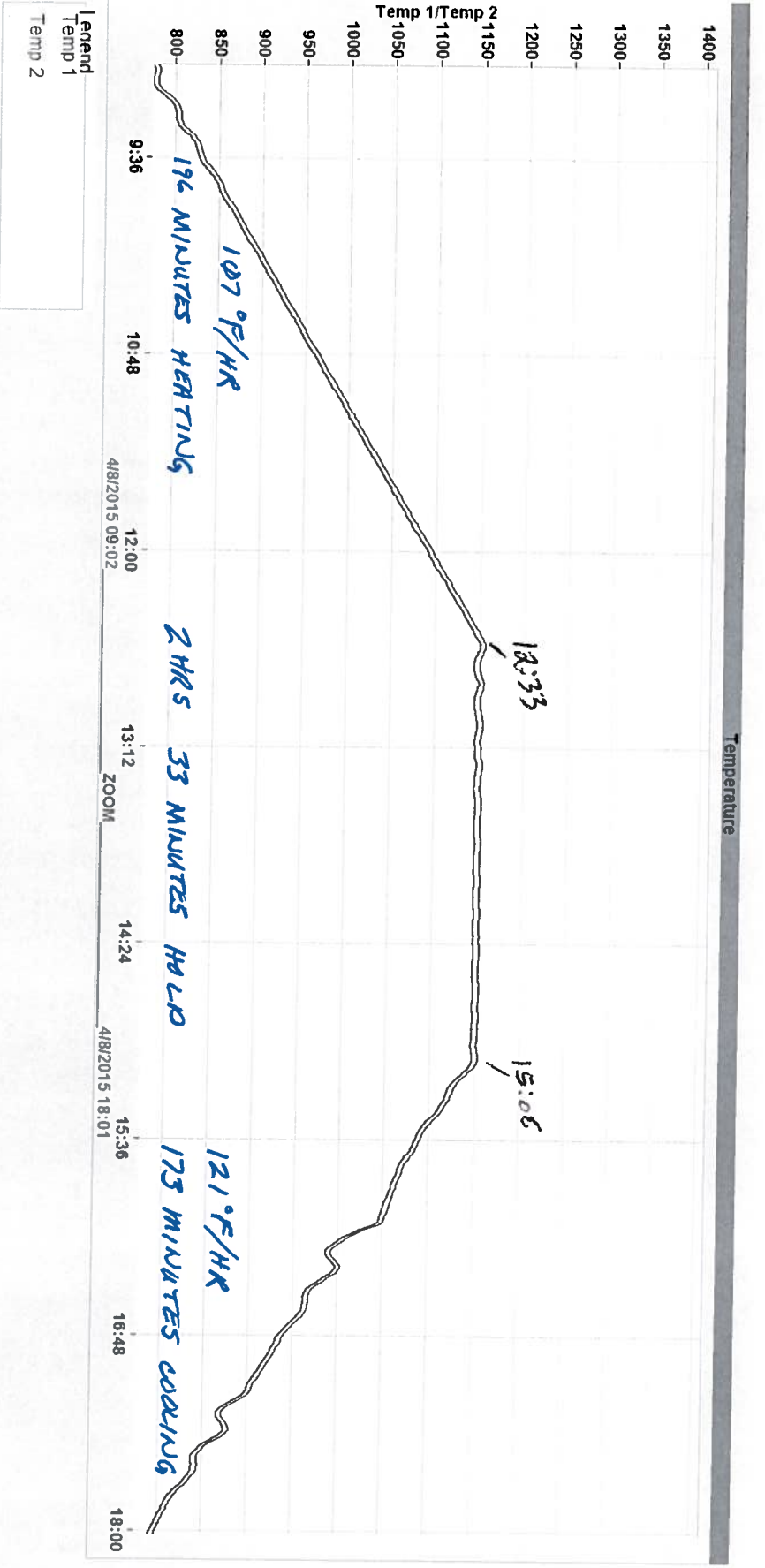
WO/SO/PN #: 0115-SD1-A

Date: 4/9/2015

Sign: [Signature]

TEMPERATURE TAKES ACCEPTABLE

[Signature] 4.10.15



**Southwest Metal Treating Corporation**

Customer: MATIA TEXAS PRESSURE

PO #: 10397

SWMT #: 84865

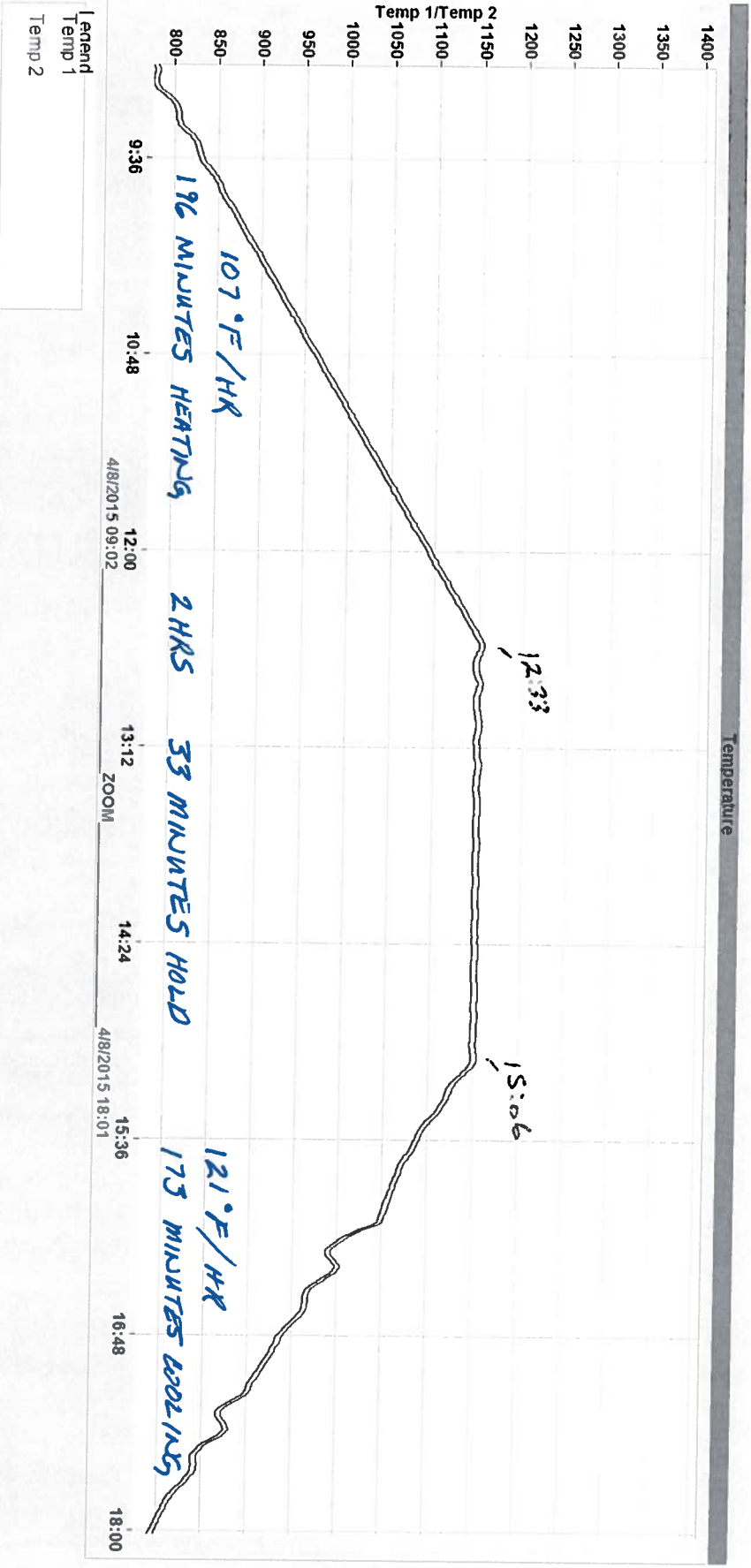
WOSOP/N #: 015-SD1-3

Date: 4/9/2015

Sign: MTW

TIME / TEMPERATURES ACCEPTABLE

*PSH*  
4-10-15



**Southwest Metal Treating Corporation**

Customer: North Texas Pressure

PO #: 10347

SWMT #: 84865

WOS/OPN #: 0115-SP1-4

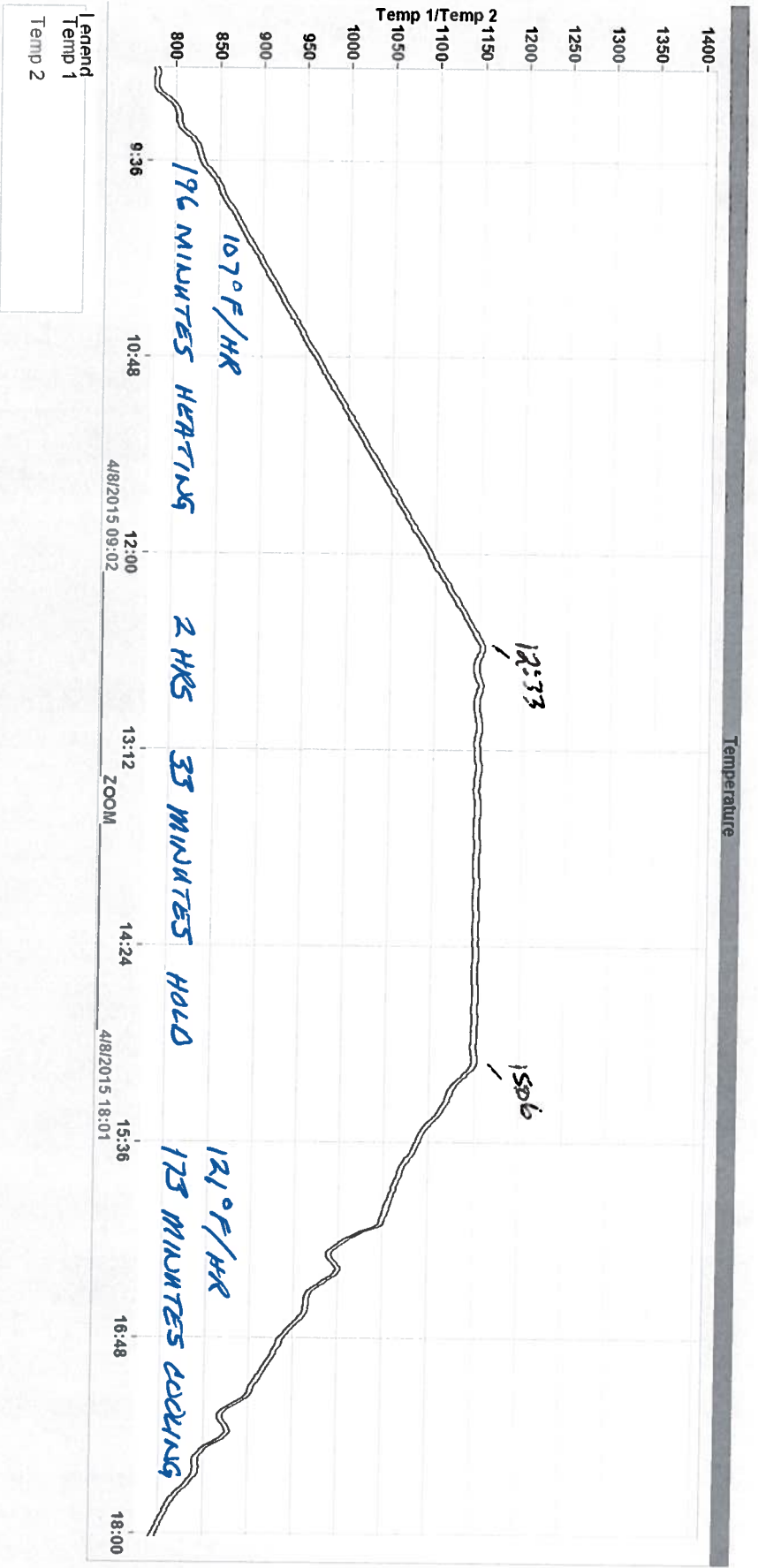
Date: 4/9/2015

Sign: [Signature]

TIME/TEMPERATURE ACCEPTABLE

[Signature] 4-10-15





**Southwest Metal Treating Corporation**  
 Customer: North Texas pressure  
 PO #: 10247  
 SWMT #: 84865  
 WO/SO/PN #: 0115-SP1-S  
 Date: 4/9/2015  
 Sign: [Signature]

TIME/TEMPERATURE ACCEPTABLE  
 4-10-15

## Charpy Impact Test Report

Page 1 of 1

Vendor General - N/A

Brian Taylor  
Southwest Metal Treating  
9516 Lynwood  
Ft. Worth, TX 76134

Date Issued : 03/25/2015  
Lab Number : L15142357  
PO Number : 84550  
Location: AADFW Lab  
Date Tested : 03/25/2015  
File Number : 0022832-00

PH: (817) 551-1295

FX: (817) 551-1770

Rev Date :

Rev: 00

Part #: Test Plate  
Description: Single V Weld  
Material: SA-106-CN  
Mat. Thickness: 3"  
Size: 12" x 12"

Cust. Name: NTPV  
Cust. PO: 10264  
Heat #: E11402662QX  
Specification: ASME BPV Sec. VIII UG-84  
Spec Rev#: 2013

### Equipment

Tinius Olsen - SN:221583 Model IT 406  
Impact Velocity 17.93 ft/sec

### Test Method

ASTM A 370

### Rev

14

### Specification

ASME Sect VIII, UG-84

### Rev

2013

Orientation: Weld - Face

	Units	Requirements	Sample1	Sample 2	Sample 3
			A1	B1	C1
Width (W)	IN	0.391-0.397 (Full Size)	0.394	0.394	0.395
Depth (D)	IN	0.391-0.397	0.394	0.394	0.394
Notch Depth	IN	0.079-0.081	0.079	0.079	0.079
Notch Radius	IN	0.009-0.011	0.010	0.010	0.010
Temperature	F Deg	-40	-40	-40	-40
Energy Absorbed	Ft Lbs	Report	83	103	33
Lateral Expansion	IN	Report	0.070	0.071	0.043
Percent Shear	%	Report	60	70	20

Disposition: For Review Only, based only on test data reported above. I certify that these are accurate and true results of the indicated tests performed in accordance with the AADFW applicable test procedures and relate only to the samples tested. AADFW is accredited by AZLA, Mechanical field of testing, Cert # 603.01.

AADFW, Inc.

  
Jeremy Wilson, B.S., P.E., C.W.I., Metallurgist

## Charpy Impact Test Report

Vendor: General - N/A

Page 1 of 1

Brian Taylor  
Southwest Metal Treating  
9516 Lynwood  
Ft. Worth, TX 76134

Date Issued : 03/25/2015  
Lab Number : L15142357  
PO Number : 84550  
Location: AADF Lab  
Date Tested : 03/25/2015  
File Number : 0022833-00  
Rev Date :

PH: (817) 551-1295

FX: (817) 551-1770

Rev: 00

Part #: Test Plate  
Description: Single V Weld  
Material: SA-106-CN  
Mat. Thickness: 3"  
Size: 12" x 12"

Cust. Name: NTPV  
Cust. PO: 10264  
Heat #: E11402662QX  
Specification: ASME BPV Sec. VIII UG-84  
Spec Rev#: 2013

### Equipment

Tinius Olsen - SN:221583 Model IT 406  
Impact Velocity 17.93 ft/sec

### Test Method

ASTM A 370

### Rev

14

### Specification

ASME Sect VIII, UG-84

### Rev

2013

### Orientation: Weld - Root

	Units	Requirements	Sample1	Sample 2	Sample 3
			A2	B2	C2
Width (W)	IN	0.391-0.397 (Full Size)	0.394	0.394	0.394
Depth (D)	IN	0.391-0.397	0.394	0.394	0.394
Notch Depth	IN	0.079-0.081	0.079	0.079	0.079
Notch Radius	IN	0.009-0.011	0.010	0.010	0.010
Temperature	F Deg	-40	-40	-40	-40
Energy Absorbed	Ft Lbs	Report	93.8	82.6	98.1
Lateral Expansion	IN	Report	0.072	0.065	0.080
Percent Shear	%	Report	70	60	60

Disposition: For Review Only, based only on test data reported above. I certify that these are accurate and true results of the indicated tests performed in accordance with the AADF applicable test procedures and relate only to the samples tested. AADF is accredited by A2LA, Mechanical field of testing, Cert # 603 01.

AADF, Inc.

  
Jeremy Wilson, B.S., P.E., C.W.I., Metallurgist

## Charpy Impact Test Report

Page 1 of 1

Vendor: General - N/A

Brian Taylor  
Southwest Metal Treating  
9516 Lynwood  
Ft. Worth, TX 76134

Date Issued : 03/25/2015  
Lab Number : L15142357  
PO Number : 84550  
Location: AADFV Lab  
Date Tested : 03/25/2015  
File Number : 0022834-00  
Rev Date : Rev: 00

PH: (817) 551-1295

FX: (817) 551-1770

Part #: Test Plate  
Description: Single V Weld  
Material: SA-106-CN  
Mat. Thickness: 3"  
Size: 12" x 12"

Cust. Name: NTPV  
Cust. PO: 10264  
Heat #: E11402662QX  
Specification: ASME BPV Sec. VIII UG-84  
Spec Rev#: 2013

### Equipment

Tinius Olsen - SN:221583 Model IT 406  
Impact Velocity 17.93 ft/sec

### Test Method

ASTM A 370

### Rev

14

### Specification

ASME Sect VIII, UG-84

### Rev

2013

Orientation: HAZ - Face

	Units	Requirements	Sample 1	Sample 2	Sample 3
			A3	B3	C3
Width (W)	IN	0.391-0.397 (Full Size)	0.393	0.394	0.394
Depth (D)	IN	0.391-0.397	0.396	0.396	0.396
Notch Depth	IN	0.079-0.081	0.079	0.079	0.079
Notch Radius	IN	0.009-0.011	0.010	0.010	0.010
Temperature	F Deg	-40	-40	-40	-40
Energy Absorbed	Ft Lbs	Report	26	23	24
Lateral Expansion	IN	Report	0.020	0.020	0.020
Percent Shear	%	Report	20	20	20

Disposition: For Review Only, based only on test data reported above. I certify that these are accurate and true results of the indicated tests performed in accordance with the AADFV applicable test procedures and relate only to the samples tested. AADFV is accredited by 2LA, Mechanical field of testing, Cert # 603.01.

AADFV, Inc.

 Jeremy Wilson, B.S., P.E., C.W.I., Metallurgist



## Charpy Impact Test Report

Page 1 of 1

Vendor: General - N/A

Brian Taylor  
Southwest Metal Treating  
9516 Lynwood  
Ft. Worth, TX 76134

Date Issued : 03/25/2015  
Lab Number : L15142357  
PO Number : 84550  
Location: AADFV Lab  
Date Tested : 03/25/2015  
File Number : 0022835-00  
Rev Date :

PH: (817) 551-1295

FX: (817) 551-1770

Rev: 00

Part #: Test Plate  
Description: Single V Weld  
Material: SA-106-CN  
Mat. Thickness: 3"  
Size: 12" x 12"

Cust. Name: NTPV  
Cust. PO: 10264  
Heat #: E11402662QX  
Specification: ASME BPV Sec. VIII UG-84  
Spec Rev#: 2013

### Equipment

Tinius Olsen - SN:221583 Model IT 406  
Impact Velocity 17.93 ft/sec

### Test Method

ASTM A 370

### Rev

14

### Specification

ASME Sect VIII, UG-84

### Rev

2013

Orientation: HAZ - Root

		Units	Requirements	Sample 1	Sample 2	Sample 3
				A4	B4	C4
Width (W)	IN		0.391-0.397 (Full Size)	0.394	0.394	0.394
Depth (D)	IN		0.391-0.397	0.396	0.396	0.396
Notch Depth	IN		0.079-0.081	0.079	0.079	0.079
Notch Radius	IN		0.009-0.011	0.010	0.010	0.010
Temperature	F Deg		-40	-40	-40	-40
Energy Absorbed	Ft Lbs		Report	44	59	26
Lateral Expansion	IN		Report	0.040	0.047	0.022
Percent Shear	%		Report	30	40	20

Disposition: For Review Only, based only on test data reported above. I certify that these are accurate and true results of the indicated tests performed in accordance with the AADFV applicable test procedures and relate only to the samples tested. AADFV is accredited by A2LA, Mechanical field of testing, Cert # 603.01.

AADFV, Inc.

  
Jeremy Wilson, B.S., P.E., C.W.I., Metallurgist

**North Texas Pressure Vessels Inc.**

301 Travis Street  
 Wolters Industrial Park  
 Mineral Wells, TX 76067  
 Phone: 940-327-0800  
 Fax: 940-327-0801  
[www.ntpvinc.com](http://www.ntpvinc.com)



CUSTOMER: SPECIALIZED DESANDERS INC.  
 CUSTOMER TAG NO.: 0  
 NTPV SERIAL NO.: 0115-SD1 1-5  
 VESSEL NO.: 1  
 MODEL: SS-20-120-5500-3F-C-N-L-CA  
 VESSEL DWG. NO: SS-158C 2B LWN REV. 0

**HEAT NO. / QA NO. / LOT NO. MAP**

CONNECTION	SIZE	RATING	TYPE	MATERIAL	HEAT NO. / QA NO. / LOT NO.	WELDER
A	3"	2500#	RTJLWN	SA-350-LF2-1	C1027BN	R
B	3"	2500#	RTJHB	SA-350-LF2-1	C1021BN	R
C	2"	2500#	RTJLWN	SA-350-LF2-1	C1015BN	R
D	3"	2500#	RTJHB	SA-350-LF2-1	C1021BN	R
		2500#	RTJLBD	SA-350-LF2-1	CZAN	
		1.25"	STUDS	SA-193-B7	B7	
		1.25"	H.HEX NUT	SA-194-2H	2H	
E	3"	2500#	RTJLWN	SA-350-LF2-1	C1027BN	C
SHELL	20"	3"	PIPE	SA-106-CN	E11402662QX	
TOP END	20"	3"	HEMI HD	SA-516-70N	ZJN	E, F
BTM END	20"	3"	HEMI HD	SA-516-70N	ZJN	E, F
LIFT LUGS		SMALL	FRGD	SA-105	ADVA	R
SADDLES		3/8"	PLATE	SA-36	249047	R
WEAR PADS	4" x 4"	20" S/XH	PIPE	SA-106-B	649204	R
	6" x 6"	20" S/XH	PIPE	SA-106-B	649204	R
NMPLT BRKT			TEE	SA-36	SA-36	R

*J. Hardy* 4-13-15

**North Texas Pressure Vessels Inc.**

301 Travis Street  
 Wolters Industrial Park  
 Mineral Wells, TX 76067  
 Phone: 940-327-0800  
 Fax: 940-327-0801  
[www.ntpvinc.com](http://www.ntpvinc.com)



CUSTOMER: SPECIALIZED DESANDERS INC.  
 CUSTOMER TAG NO.: 0  
 NTPV SERIAL NO.: 0115-SD1 1-5  
 VESSEL NO.: 2  
 MODEL: SS-20-120-5500-3F-C-N-L-CA  
 VESSEL DWG. NO: SS-158C 2B LWN REV. 0

**HEAT NO. / QA NO. / LOT NO. MAP**

CONNECTION	SIZE	RATING	TYPE	MATERIAL	HEAT NO. / QA NO. / LOT NO.	WELDER
A	3"	2500#	RTJLWN	SA-350-LF2-1	C1027BN	R
B	3"	2500#	RTJHB	SA-350-LF2-1	C1021BN	D
C	2"	2500#	RTJLWN	SA-350-LF2-1	C1015BN	T
D	3"	2500#	RTJHB	SA-350-LF2-1	C1021BN	D
		2500#	RTJLBD	SA-350-LF2-1	CZAN	
		1.25"	STUDS	SA-193-B7	B7	
		1.25"	H.HEX NUT	SA-194-2H	2H	
E	3"	2500#	RTJLWN	SA-350-LF2-1	C1027BN	R
SHELL	20"	3"	PIPE	SA-106-CN	E11402662QX	
TOP END	20"	3"	HEMI HD	SA-516-70N	ZJN	C, G
BTM END	20"	3"	HEMI HD	SA-516-70N	ZJN	C, G
LIFT LUGS		SMALL	FRGD	SA-105	ADVA	D
SADDLES		3/8"	PLATE	SA-36	249047	D
WEAR PADS	4" x 4"	20" S/XH	PIPE	SA-106-B	649204	D
	6" x 6"	20" S/XH	PIPE	SA-106-B	649204	D
NMPLT BRKT			TEE	SA-36	SA-36	D

*J. P. [Signature]* 4-13-15



**North Texas Pressure Vessels Inc.**

301 Travis Street  
 Wolters Industrial Park  
 Mineral Wells, TX 76067  
 Phone: 940-327-0800  
 Fax: 940-327-0801  
[www.ntpvinc.com](http://www.ntpvinc.com)



CUSTOMER: SPECIALIZED DESANDERS INC.  
 CUSTOMER TAG NO.: 0  
 NTPV SERIAL NO.: 0115-SD1 1-5  
 VESSEL NO.: 3  
 MODEL: SS-20-120-5500-3F-C-N-L-CA  
 VESSEL DWG. NO: SS-158C 2B LWN REV. 0

**HEAT NO. / QA NO. / LOT NO. MAP**

CONNECTION	SIZE	RATING	TYPE	MATERIAL	HEAT NO. / QA NO. / LOT NO.	WELDER
A	3"	2500#	RTJLWN	SA-350-LF2-1	C1027BN	C
B	3"	2500#	RTJHB	SA-350-LF2-1	C1021BN	T
C	2"	2500#	RTJLWN	SA-350-LF2-1	C1015BN	T
D	3"	2500#	RTJHB	SA-350-LF2-1	C1021BN	T
		2500#	RTJLBD	SA-350-LF2-1	CZAN	
		1.25"	STUDS	SA-193-B7	B7	
		1.25"	H.HEX NUT	SA-194-2H	2H	
E	3"	2500#	RTJLWN	SA-350-LF2-1	C1027BN	C
SHELL	20"	3"	PIPE	SA-106-CN	E11402662QX	
TOP END	20"	3"	HEMI HD	SA-516-70N	ZJN	I, R
BTM END	20"	3"	HEMI HD	SA-516-70N	ZJL	I, R
LIFT LUGS		SMALL	FRGD	SA-105	ADVA	T
SADDLES		3/8"	PLATE	SA-36	249047	T
WEAR PADS	4" x 4"	20" S/XH	PIPE	SA-106-B	649204	T
	6" x 6"	20" S/XH	PIPE	SA-106-B	649204	T
NMPLT BRKT			TEE	SA-36	SA-36	T

**North Texas Pressure Vessels Inc.**

301 Travis Street  
Wolters Industrial Park  
Mineral Wells, TX 76067  
Phone: 940-327-0800  
Fax: 940-327-0801  
[www.ntpvinc.com](http://www.ntpvinc.com)



CUSTOMER: SPECIALIZED DESANDERS INC.  
CUSTOMER TAG NO.: 0  
NTPV SERIAL NO.: 0115-SD1 1-5  
VESSEL NO.: 4  
MODEL: SS-20-120-5500-3F-C-N-L-CA  
VESSEL DWG. NO: SS-158C 2B LWN REV. 0

**HEAT NO. / QA NO. / LOT NO. MAP**

CONNECTION	SIZE	RATING	TYPE	MATERIAL	HEAT NO. / QA NO. / LOT NO.	WELDER
A	3"	2500#	RTJLWN	SA-350-LF2-1	C1027BN	R
B	3"	2500#	RTJHB	SA-350-LF2-1	C1021BN	T
C	2"	2500#	RTJLWN	SA-350-LF2-1	C1015BN	T
D	3"	2500#	RTJHB	SA-350-LF2-1	C1021BN	T
		2500#	RTJLBD	SA-350-LF2-1	CZAN	
		1.25"	STUDS	SA-193-B7	B7	
		1.25"	H.HEX NUT	SA-194-2H	2H	
E	3"	2500#	RTJLWN	SA-350-LF2-1	C1027BN	R
SHELL	20"	3"	PIPE	SA-106-CN	E11402662QX	
TOP END	20"	3"	HEMI HD	SA-516-70N	ZJN	I, Z
BTM END	20"	3"	HEMI HD	SA-516-70N	ZJN	I, Z
LIFT LUGS		SMALL	FRGD	SA-105	ADVA	T
SADDLES		3/8"	PLATE	SA-36	249047	T
WEAR PADS	4" x 4"	20" S/XH	PIPE	SA-106-B	649204	T
	6" x 6"	20" S/XH	PIPE	SA-106-B	649204	T
NMPLT BRKT			TEE	SA-36	SA-36	T

*Handwritten signature and date* 4-13-15

**North Texas Pressure Vessels Inc.**

301 Travis Street  
Wolters Industrial Park  
Mineral Wells, TX 76067  
Phone: 940-327-0800  
Fax: 940-327-0801  
[www.ntpvinc.com](http://www.ntpvinc.com)



CUSTOMER: SPECIALIZED DESANDERS INC.  
CUSTOMER TAG NO.: 0  
NTPV SERIAL NO.: 0115-SD1 1-5  
VESSEL NO.: 5  
MODEL: SS-20-120-5500-3F-C-N-L-CA  
VESSEL DWG. NO: SS-158C 2B LWN REV. 0

**HEAT NO. / QA NO. / LOT NO. MAP**

CONNECTION	SIZE	RATING	TYPE	MATERIAL	HEAT NO. / QA NO. / LOT NO.	WELDER
A	3"	2500#	RTJLWN	SA-350-LF2-1	C1027BN	D
B	3"	2500#	RTJHB	SA-350-LF2-1	C1021BN	D
C	2"	2500#	RTJLWN	SA-350-LF2-1	C1015BN	T
D	3"	2500#	RTJHB	SA-350-LF2-1	C1021BN	D
		2500#	RTJLBD	SA-350-LF2-1	CZAN	
		1.25"	STUDS	SA-193-B7	B7	
		1.25"	H.HEX NUT	SA-194-2H	2H	
E	3"	2500#	RTJLWN	SA-350-LF2-1	C1027BN	D
SHELL	20"	3"	PIPE	SA-106-CN	E11402662QX	
TOP END	20"	3"	HEMI HD	SA-516-70N	ZJL	I, T
BTM END	20"	3"	HEMI HD	SA-516-70N	ZJL	I, T
LIFT LUGS		SMALL	FRGD	SA-105	ADVA	D
SADDLES		3/8"	PLATE	SA-36	249047	D
WEAR PADS	4" x 4"	20" S/XH	PIPE	SA-106-B	649204	D
	6" x 6"	20" S/XH	PIPE	SA-106-B	649204	D
NMPLT BRKT			TEE	SA-36	SA-36	D

4-13-15





ALDOS HORNOS DE MEXICO

MILL TEST CERTIFICATE

AHMSA:QUALITY WITH THE STRENGTH OF STEEL B647955B

P.O. 7415  
PLATE 3/8" x 8' x 10'  
HT# 249047  
SA-36

CUSTOMER	AHMSA INT/ TRIPLE-S HOUSTON	DATE OF ISSUED	30.09.2014	PAGE	1
WE HEREBY THAT CHEMICAL AND T.O.R TEST SHOW IN THIS REPORT ARE CORRECT AS CONTAINED THE RECORDS OF THE COMPANY					

ADDRESS 5150 N LOOP1604 W SAN ANTONIO, TX.  
 PRODUCT STEEL PLATE  
 CHEMICAL COMPOSITION  
 NIG RAMIRO GONZALEZ MEXICANA  
 MECHANICAL TESTS AND CERTIFICATION

HEAT	SPRIFICATION	C	Mn	P	S	SI	CU	CR	NI	MO	ALT	V	CB	TI	
249047	ASTM A36/ASME SA36	E007	A000.171	0.025	0.021	0.008	0.116	0.024	0.031	0.017	0.005	0.043	0.002	0.001	0.003

HEAT	SLAB	PLATE NO.	THICKNESS (Inch)	Y. STRENGTH	T. STRENGTH	ELONG.
249047	7150	1156118001	0.3750	40,682 (KSI)	70.516 (KSI)	25 (%)
249047	7180	1156117001	0.3750	41,404 (KSI)	72.105 (KSI)	26 (%)

HEAT	PLANCHON	PLATE NO.	THICKNESS (Inch)	MIDTH (Inch)	LARGE (Inch)	ORDER	ITRY	DELIVERY
249047	7120	1156119002	0.3750	96.0000	240.0000	0000159177	000010	1002004910

SHIPPED PRODUCT  
 CUSTOMER ORD. AHI 3066 (TXN-1982)-L2  
 All heats and sizes fully aluminum killed with fine grain practice.  
 Complies with DIN EN10204 3.1  
 COUNTRY OF ORIGIN: MEXICO  
 END OF DATA

AHMSA'S COMPROMISE IS ONLY WITH THE CUSTOMER MENTIONED IN THIS CERTIFICATE. AHMSA WILL ONLY ACCEPT THE ORIGINAL DOCUMENT.  
 ISSUED : S115948

11-3-14  
924

P.O. 7275  
 PIPE 24" 5/570  
 HT# 649204  
 SA-106.C  
 NHCE



MANUFACTURER: TANJUN PIPE GROUP CORPORATION  
 ADD: JAYTANG ROAD DONGLI DISTRICT, TANJUN, CHINA  
 TEL: 86-22-24801073  
 FAX: 86-22-24801251

QUALITY CERTIFICATE

License No.: 14050718  
 QR-11-824-19

Contract No. TPCO-141731  
 L/C No. /  
 Order: American Pipe & Products Inc  
 Product: SEAMLESS STEEL LINE PIPE  
 P.O. No. POEP13253  
 Port of dest. /  
 Standard: API SPEC 5L 4854 / ASTM A537M 430MPS (SEE ENCLURE) / SA-106C-301  
 O.D. x W.T. 24.000" x 0.375" (609.609 x 9.53) /  
 Steel grade: B7X42 PSJ LGE B7GC  
 Min. Method: HOT ROLLING SEAMLESS  
 Length range: 11.59-13.41  
 Packing: IN LOOSE  
 Total pieces: 60  
 Total tons: 105.635

Heat No.	Lot No.	Pieces	Meters	Bundles	Tons	Delivery condition	Sample No.	1 <sup>st</sup> Test		T.S. Type		Y.S	Elong. %	Shrink. %	2 <sup>nd</sup> Test		Stac	AK1	AK2	AK3	Shear %	Shear %	Shear %
								T	ZI	R10.5	R10.5				T	C							
649204	150	60			105.635	As rolled	150-04-018	A	ZI	570	R10.5	435	41.0										
Total	60				105.635																		

Heat No. 649204  
 Lot No. 150  
 Sample No. 150-04-018  
 HRC 1  
 Hardness test (inside): 1 2 3 4 AVE 1 2 3 4 AVE  
 Hardness test (middle): 1 2 3 4 AVE 1 2 3 4 AVE  
 Hardness test (outside): 1 2 3 4 AVE 1 2 3 4 AVE  
 NDE UT/US

Heat No. 649204

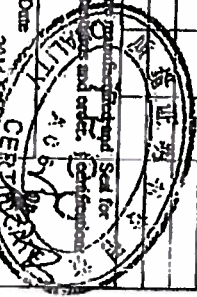
Material: C SI Mn P S Ni Cr Mo Cu Al V Nb Ti B Ca N H O

Chemical composition % (Ladle analysis & Product analysis)

	C	SI	Mn	P	S	Ni	Cr	Mo	Cu	Al	V	Nb	Ti	B	Ca	N	H	O	Hydro. Test
649204	L 0.19	0.21	1.23	0.015	0.005	0.04	0.09	0.03	0.06	0.011	0.04	<0.01	<0.01	0.0005	0.0013				4.3
	P 0.18	0.21	1.23	0.014	0.002	0.04	0.09	0.03	0.06	0.005	0.04	<0.01	<0.0005	0.0014					4.2
18Mn6V	P 0.17	0.21	1.25	0.015	0.002	0.04	0.09	0.03	0.06	0.006	0.04	<0.01	<0.01	<0.0005	0.0013				4.2
	L																		
	P																		
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	P																		
	L																		
	P																		

Hydro. Test 1180/8

Note: EN 10204-1.1, No Void Request. Memory From Company of origin for heat of material. Company of origin for producer of pipe. CE II W-CHEM-6-(C+Mn+V+S+O+N)/15  
 Material: 18Mn6V  
 Hydro. Test: 1180/8  
 Date: 2014-5-28  
 Page: (1)



10/13/14



P.O. 10087  
LIFT LUG, SMALL FRAGD  
HT ADVA  
SA-105

# Phoenix \* Capitol \* Camco CapProducts

## Certified Mill Test Report

Commanding a Higher Standard<sup>sm</sup>

Printed: 2/6/2015  
Customer  
NORTH TEXAS PRESSURE VESSELS INC

Certified: 11/26/2014  
P.O. 10087  
Tag

Heat No M058755  
Heat Code ADVA  
Phoenix Order # 1098753

Material ASTM A105-2011a / ASME SA105-2010 Edition

Part Number  
2.1.0900.132

Description  
SMALL LIFTING LUG

### Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.1900	0.7300	0.0110	0.0200	0.1800	0.1100	0.0300	0.0800

C Eq. Long
0.3432

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0090	0.0220								

### Additional Chemical Properties


Cr + Cu + Ni
0.2200

### Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
87,500	58,500	29.0%	63.0%	170	174

### Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average
N/A	N/A	N/A	N/A

We hereby certify that these parts were manufactured, sampled, tested, and inspected in accordance with the product specifications stated and were found to meet the requirements.

We further certify that this material was inspected using independent inspectors conforming to the requirements of EN 10204 3.1. These products meet the requirements of the latest editions of NACE MR0175, NACE MR0103, and ISO 15156. No weld repair has been performed on these products. This material was not exposed to mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

Meets ASME SA-181-70 2013 Edition. Manufactured in the USA.

*Handwritten signature and date:*  
2-11-15



(10) P.O. 10038  
 RTJ LWN 3" 2500"  
 HT# C1027BN  
 SA-350-LF2-CL1  
 NACE

# Material Test Report

Forged Vessel Connections  
 An AFGlobal Company  
 2525 De Soto, Houston, TX 77091  
 Sales: (713) 868-4421 Fax: (713) 455-8366

FVC  
 an **AFGlobal** Company

FVC Heat Nbr: C1027BN

ISO 9001:2008 Certified

Lynco Flange & Fit 00011506	PO: 96892	Sales Order: 143333	Line: 2
Attn: Accounts Payable	Item Code: LWN030259090B004A1		Qty: 10
P.O. Box 926226	Item Desc: LWN, SA350LF2, 2500#, 3"x9", RJ		
Houston, TX 77292			
Spec: ASME SA350-LF2-CL1: 2013 Edition			

Element	(%wt)	Ladle	Product	EPCRA	CAS#	Element	(%wt)	Ladle	Product	EPCRA	CAS#
C	Carbon	0.18				Sn	Tin	0.008			
Mn	Manganese	1.11		✓	7439-96-5	B	Boron	0.0004			
P	Phosphorous	0.009				Ti	Titanium	0.001		✓	7440-02-0
S	Sulphur	0.005				Al	Aluminum	0.031			
Si	Silicon	0.24				Ca	Calcium	0.0014			
Cu	Copper	0.12		✓	7440-50-8	N	Nitrogen	0.0093			
Ni	Nickel	0.07		✓	7440-02-0	As	Arsenic	0.004		✓	7440-38-2
Cr	Chromium	0.14		✓	7440-47-3	Sb	Antimony	0.003		✓	7440-36-0
Mo	Molybdenum	0.03				CE	C+Mn/6+(Cr+M)	0.41			
V	Vanadium	0.037				Cu+Ni+Cr+Mo+V		0.40			
Cb	Columbium (N)	0.001				Cr+Mo		0.17			

Mechanical Testing			Heat Treat		
Test Lab	AFG 59725		Heat Treatment	Normalized	
BHN (QTC)	137 - 140	✓			
Elg (%)	36.00	✓	Other		
RA (%)	68.00	✓	MHC	A145927	✓
Tensile (ksi)	74.469	✓	Ctry of Melt	USA	✓
Yield (ksi)	46.158	✓	Production Method	Electric Arc Furnace	✓
Specimen Orientation	Longitudinal		VD	Yes	
Charpy (ft-lbs)	60 - 97 - 104	✓	Fully Killed	Yes	
Charpy Temp (F)	-50	✓	Reduction Ratio (Mill) x:1	4.6:1	
Avg Energy 3 Specimens (ft-lbs)	87	✓	Gr.Sz.	7	
Min Energy 1 Specimens (ft-lbs)	60	✓	Made to Fine Grain Practice	Yes	
Shear (%)	20-35-40	✓			
LatExp (Mils)	49-67-70	✓			

The recording of false, fictitious, or fraudulent statement or entries on this document may be punishable as a felony under federal statute.

EPCRA Supplier Notification: This product may contain one or more toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986) and 40 C.F.R. Part 372. Potentially reportable chemicals are indicated with a checkmark in the "EPCRA" column and a Chemical Abstract Services (CAS) registry number is provided for each such chemical in addition to the percent by weight of the chemical present in this product. It is your responsibility alone to determine whether your facility is required to submit a Toxic Release Inventory Report under EPCRA Section 313.

Certification No.: 1183463  
 Certification Date: 2/27/2015  
 Issued By: Cynthia Madrid

JEK  
 3-4-15

P.O. 10038  
HT# C1027BN

# Material Test Report

FVC Heat Nbr: C1027BN

Forged Vessel Connections

An AFGlobal Company

2525 De Soto, Houston, TX 77091

Sales: (713) 868-4421 Fax: (713) 455-8366

ISO 9001:2008 Certified

Lynco Flange & Fit 00011506 Attn: Accounts Payable P.O. Box 926226 Houston, TX 77292	PO: 96892	Sales Order: 143333	Line: 2
	Item Code: LWN030259090B004A1	Qty: 10	
	Item Desc: LWN, SA350LF2, 2500#, 3"x9", RJ		
Spec: ASME SA350-LF2-CL1: 2013 Edition			

MATERIAL MEETS NACE MR0175 & MR0103 LATEST EDITIONS. CE=C+(Mn/6)+((Cr+Mo+V)/5)+((Ni+Cu)/15),  
Elongation in 2" round specimen.  
YIELD STRENGTH MEASURED AT 0.2% OFFSET.  
FVC STANDARD MANUFACTURING PRACTICES:  
1) FLANGE DIMENSIONS & BOLTING COMPLY - ASME B16.5, 2013 EDITION  
2) SELF-REINFORCING NOZZLES COMPLY WITH SPECIFICATION OF SECTION VIII DIV. 1 OR DIV. 2 PER CUSTOMER DESIGN/FVC DESIGN.  
3) MATERIAL SPECIFICATION COMPLIES WITH ASME SECT. II PART A.  
4) ALL FVC MATERIAL MANUFACTURED PER FINE GRAIN PRACTICE.  
5) ALL FVC MATERIAL CERTIFIED PER EN 10204 Type 3.1 UNLESS OTHERWISE SPECIFIED.  
6) CERTIFICATE OF INSURANCE AVAILABLE UPON REQUEST.  
7) PRODUCT FREE OF MERCURY CONTAMINATION.

The recording of false, fictitious, or fraudulent statement or entries on this document may be punishable as a felony under federal statute.

EPCRA Supplier Notification: This product may contain one or more toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986) and 40 C.F.R. Part 372. Potentially reportable chemicals are indicated with a checkmark in the "EPCRA" column and a Chemical Abstract Services (CAS) registry number is provided for each such chemical in addition to the percent by weight of the chemical present in this product. It is your responsibility alone to determine whether your facility is required to submit a Toxic Release Inventory Report under EPCRA Section 313.

Certification No.: 1183463  
Certification Date: 2/27/2015  
Issued By: Cynthia Madrid



Cynthia Madrid - QA Analyst

*Handwritten initials and date:* 3-4-15

# Piping Products, Inc.

**FORGED STEEL FLANGES AND SPECIAL FITTINGS**  
 1681 Kress St., Houston, Texas 77020-8126  
 Ph: (713) 675-5374, (800) 775-5374, Fax: (713) 675-7910

## \*\*\* MILL TEST REPORT \*\*\*

LYNCO FLANGE & FITTING  
 PO BOX 926226  
 HOUSTON, TX 77292-6226

S LYNCO FLANGE & FITTING  
 H 5114 STEADMONT DR.  
 I  
 P HOUSTON, TX 77040

CUST # : LYN02  
 CUST PO : 96892-DL  
 DATE : 02/09/15  
 PPI S/O # : 273946  
 TAG # :

**ITEMS**  
 M 3 2500 RTJ BLIND SA350LF2-CL1

COUNTRY OF MANUF: USA

P.O. 10038  
 RTJBD 3" 2500

HT# CZAN  
 SA-350-LF2-CL1

### CHEMICAL PROPERTIES

HEAT NO.	C	SI	MN	PHOS	SUL	CR	NI	MO	N	CO	CU	V	AL	NI	CEQ
L0 CZAN	0.215	0.240	1.180	0.022	0.007	0.024	0.014	0.002	0.000	0.000	0.120	0.004	0.000	0.003	0.427

### PHYSICAL PROPERTIES

YIELD STRENGTH	TENSILE STRENGTH	ELONG. % IN 2"	RED. AREA	BHN	CHARPY TEST	Forge Country
50,100	76,097	31.70	60.00	149-167	V. NOTCH -50F 47/50/52	ITALY

### ITEM NOTES

L0 NORM @ 1650F 1HR PER INCH THK., COOLED IN STILL AIR.

### ORDER NOTES

EN10204 3.1B

Additional Notes or Comments:

We hereby certify that all test results and process information contained herein are correct and true as contained in the records of the company.

Quality Assurance Asst. Mgr.

5-4-15



扬州诚德钢管有限公司  
YANGZHOU CHENGDE STEEL PIPE CO., LTD

产品质量证明书  
INSPECTION CERTIFICATE

EN 10204: 2004 3.1

江苏省江都市沿江经济开发区三江大道1号

No.1, San Jiang Da Dao, Yanjiang Economic  
Development Zone, Jiang Du, 225215 Jiangsu China  
Tel: +86-514-86432805 Fax: +86-514-86432985

Web: www.cdpipe.com  
Email: sales@cdpipe.com

Customer:

Contract No.: USA-GMS-GG1406114-C

Commodity:

SEAMLESS STEEL PIPE

Size: 20"x3"

Certificate No.: USA-GMS-GG1406114-C-1-3

Specification:

API 5L-2007E+2009A, ASTM A53-2012E, ASME SA53-2010E+2012A, ASTM A106-2011E, ASME SA106-2010E+2011A, ASTM A333-2011E, ASME SA333-2010E+2011A

Grade: 5L B PSL1/X42, A/SAS3 B, A/SAS106 B/C, A/SAS33 GR.6

Quantity:

7 Pieces Total Weight(MT): 44.320 Total Length (M): 55.090

Making Method: Hot Finished

Steel Making Process:

LF+VD

Heat No.	Lot No.	Chemical composition (%) H: Heat Analysis P: Product Analysis													Flattening Test					
		C	Si	Mn	P	S	Cu	Ni	Cr	Mo	Al	V	Ca	Ti	B	N	So	Ch+V	Ch-V+Ti	
		*100													*1000					
		Max	28		130	25	25	50	50	15								6	15	
		Min	28	10	29	130	25	50	50	15							6	15		
		H	22	10	29	10	4	2	2	0.3	0.1	0.23	0.4	0.63	N.D.E		0.4	0.63		
		P1	19	20	110	8	2	1	1	0.5	0.1	0.2	0.4	0.6			0.4	0.6		
		P2	19	21	109	7	1	2	2	0.1	0.1	0.2	0.2	0.4			0.2	0.4		
		Tensile Test													Expansion Test					
		Parent (SA5370)													Bending Test					
		Direction (°)													Hardness Test					
		Y.S													147HBW					
		T.S													20.5MPa/10s					
		EL													Acceptable					
		Y.R													100%ET					
		T.S. Weld													ASTM E309 Acceptable					
		GL (2")													ASTM E213 Acceptable					
		Direction (L)																		
		Size(10x10x55mm)																		
		I.V. or A.E.																		
		L.V. or A.E.																		
		R-IBR(50.8°F)																		
		EACH AVE EACH AVE																		
		min																		
		max																		
		Remarks																		
		We hereby certify that the materials described herein have been manufactured, inspected and tested in accordance with the customer's specification(s), and that they satisfy the requirements.																		
		ISO 9001: 2008 T/DV NORL																		
		Certificate No.: 44 100 0922																		
		Heat Treatment Conditions: Normalizing 880°C~910°C																		
		EN 10204 3.1																		
		Certified to API 5L with exception: OD Tolerance +/-1%;																		
		NACE MR0175 & MR0103, ISO 15156, Mercury Free/ No Weld Repair																		
		Country of Origin for Steel Billets: China																		



RECEIVED  
2014/08/05

MANUFACTURER'S AUTHORIZED INSPECTION REPRESENTATIVE

WANG BO

12-5-14

P.O. 7426  
PIPE 20"x3" THK  
HTM E11402662QX  
SA-106-C, SA-533-C  
NACE





扬州诚德钢管有限公司  
YANGZHOU CHENGDE STEEL PIPE CO., LTD

产品质量证明书  
INSPECTION CERTIFICATE

EN 10204: 2004 3.1

江苏省江都市经济开发区五江大道1号

No.1, San Jiang Da Dao, Yanjiang Economic  
Development Zone, Jiang Du, 225215, Jiangsu China  
Tel: +86-514-86432805 Fax: +86-514-86432983

Web: www.cdpjpc.com  
Email: sales@cdpipe.com

Contract No.: USA-GMS-CG1406114-C

Commodity: SEAMLESS STEEL PIPE

Size: 20"x3"

Certificate No.: USA-GMS-CG1406114-C-1.2

Specification: API 5L-2007E+2009A, ASTM A53-2012E, ASME SA53-2010E+2012A, ASTM A106-2011E,  
ASME SA106-2010E+2011A, ASTM A333-2011E, ASME SA333-2010E+2011A

Grade: SL B PSL1/X42, ASAS3 B, AS/A106 B/C, AS/A333 GR.6

Quantity: 7 Pieces

Total Weight(MT): 44.352

Total Length (M): 55.250

Masking Method: Hot Finished

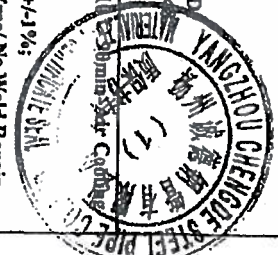
Steel Making Process:

LR+YD

Heat No.	Lot No.	Chemical composition (%) H: Heat Analysis P: Product Analysis													Tensile Test		Impact Test		Spec	Remarks				
		C	SI	Mn	P	S	Cu	NI	Cr	Mo	Al	V	CB	TI	B	N	Sa	CH-V			CH-V+Ti	Flattening Test	Expansion Test	
E11402662QX	25708	x100													x1000		x1000		ASTM E309 Acceptable	We hereby certify that the materials described herein have been manufactured, inspected and tested in accordance with the customer's specification(s), and that they satisfy the requirements.				
		Max	28		130	25	25	50	50	50	15							6			15	Bending Test	158HBW	
		H	10	29																		Hardness Test	20.5MPa/10s	
		Max P	28		130	25	25	50	50	50	15							6			15	100%Hydraulic Test	Acceptable	
		Min	10	29																		100%Visual & Dimensions		
		H	22	24	116	10	4	2	2	2	2	2.7	0.3	0.1	0.23							100%ET	ASTM E309 Acceptable	
P1	19	20	110	8	2	1	1	1	1	2.7	0.3	0.1	0.2					N.D.E.						
P2	19	21	109	7	1	2	2	2	2	0.1	0.1	0.1	0.2					100%UT	ASTM E213 Acceptable					
		Tensile Specimen Percent (SA370) Direction (T)													Round (1/2") Weld ( ) GL (2")		Direction (L) Size(10x10-55mm)							
		YS	TS	EL	YR	T.S. Weld	I.V. or A.E.		I.V. or A.E.		EACH AVE		EACH AVE		max									
		KSI													%		R-INT(-50.87)		max					
		Max																						
		Min	35	60	23							10	13											
			48	76	25.5	/	/	/	/	/	/	223	119	/	/	/	/	/	/	/				
												78	57											

ISO 9001: 2008 TUV NORD  
Certificate No.: 44 100 0922

Heat Treatment Conditions: Normalizing 860 C ~ 910 C 30mins Air Cooling  
EN 10204 3.1.  
Certified to API 5L with exception: OD Tolerance: +1.1%;  
NACE MR0175 & MR0103, ISO 15156, Mercury Free/ No Weld Repair  
Country of Origin for Steel Billets: China



RECEIVED  
2014/09/05

MANUFACTURER'S AUTHORIZED INSPECTION REPRESENTATIVE  
WANG BO

Handwritten signature and date: 12-5-14

P.O. 7426  
HT# E11402662QX



# BAKER TANKHEAD

INCORPORATED

BAKER TANKHEAD, INC.  
 P.O. BOX 77021  
 10405 NORTH FREEWAY  
 FORT WORTH, TX 76177  
 United States of America  
 Ph: 866-232-8030  
 Fax: 817-847-7244

P.O. 7356 R1  
 HEADS 20'00 X 3" TK HEAD  
 HT" ZJL, ZJN  
 SA-516-70N  
 NACE  
 IMPACT - 20 F

Cert # 86204

## Material Certification

Date :30-Jan-15

To:

NORTH TEXAS PRESSURE VESSELS I  
 \*EMAIL INVOICES\*  
 WOLTERS INDUSTRIAL PARK  
 MINERAL WELLS, TX 76067

Phone: 940-327-0800

Fax: 940-327-0801

Ship To:

PAM  
 NORTH TEXAS PRESSURE VESSELS I  
 301 TRAVIS STREET  
 WOLTERS INDUSTRIAL PARK  
 MINERAL WELLS, TX 76067

Phone:

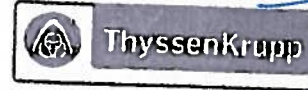
Fax:

Job #	Customer PO	Qty	Code/Lot	Material	Mill*	Heat No*	SLab/Pc No*
151966	7356	2	ZJL	SA516-70	THYSSENKRUPP	954024	29938
		3	ZJN	SA516-70	THYSSENKRUPP	482974	68695
20 X 3 H 1 20"OD X 3" NOM. HEMI 2.375"MIN SA516-70 7"IOH 5' 2 13/16" OSC 25 DEG OS BEVEL 1/16"LD 26 5/8"DIA 495# NORMALIZED IN HOT FORMING PER NACE MR0175 CHARPY IMPACT TESTED TO -20 DEG F (2) TEST COUPONS REQUIRED PER HEAT# * The items listed above were formed in strict accordance with all applicable requirements of the ASME Boiler and Pressure Vessel Code Section VIII, Div. 1. * We hereby certify that these parts comply with tolerances of UG-81 of ASME Section VIII, Div. 1. * We hereby certify that these heads were heated to 1650 degree F min, held for one hour per inch of thickness, hot formed and still air cooled.							

2-4-15

PO#45187 (IPC) 96x240x3" SA516-70N code: ZJN

ThyssenKrupp Steel Europe



Werk-Nr. Werk-No. No de usine	A08 3717518	Zaugs-Nr. Certificate-No. No de certificat	A03 1612567001	Bearungs-Nr. Document-No. No de envoi	44281932	Seite-Nr. Page-No. Page-No	1																																																																													
ThyssenKrupp Steel Europe AG - 47161 Duisburg A01				BESCHEINIGUNG ÜBER MATERIALPRÜFUNGEN DOCUMENT ON MATERIAL TESTS DOCUMENT DE CONTROL DES MATERIAUX																																																																																
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Bestell-Nr. Order-No. No de commande	4500036107  DHO-137476	A07.1-A07.5		<input type="checkbox"/> 2.8.2014 <input type="checkbox"/> 0203 52 75220 <input type="checkbox"/> 0203 52 75213 <input type="checkbox"/> abnahme_zaugnisse.grobblech@thyssenkrupp.com	dr		A05																																																																													
Werkstoff / Quality / Matériau / Lieferbedingungen / Specification / Conditions de livraison B02/B03 A516GR.70 MTLV ASTM 00.13 A20/S6 TOL.DI. ASTM A 20 TOLEBENH. EN10028 KL.6 OB EN 10183 KL.B/2																																																																																				
Kennzeichnung: MATERIAL, HEAT-NO., MANUFACTURING/SAMPLE-NO. Marking: Marque: B06				Zeichen des Lieferwerkes: Supplier's mark: Marque d'usine:																																																																																
B01 TYPE OF PRODUCT HEAVY PLATES, TRIMMED EDGES LIST OF MATERIAL IDENTIS <table border="1"> <thead> <tr> <th>ITEM</th> <th>B07 BUNDLE</th> <th>B07 PLATE-NO.</th> <th>B07 HEAT-NO.</th> <th>B08 NUMBER PIECES</th> <th>B13 WEIGHT Kg</th> </tr> </thead> <tbody> <tr> <td rowspan="2">010</td> <td>B09 x B10 x B11 76,2 x 2438,4 x 6096 [mm] 3 x 96 x 240 [ZOLL]</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>68665101 68695101</td> <td>482974 482974</td> <td>1 1</td> <td>9,085 9,085</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>* 2</td> <td>18,170</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>** 2</td> <td>18,170</td> </tr> </tbody> </table> TRANSPORT-NO. GENCO WARRIO  CHEMICAL COMPOSITION OF THE LADLE SAMPLES % C71-C99 <table border="1"> <thead> <tr> <th>B07 HEAT NO.</th> <th>C</th> <th>SI</th> <th>MN</th> <th>P</th> <th>S</th> <th>AL-G</th> <th>B-G</th> <th>CR</th> <th>CU</th> <th>MO</th> <th>N</th> </tr> </thead> <tbody> <tr> <td>482974</td> <td>,190</td> <td>,301</td> <td>1,150</td> <td>,014</td> <td>,0029</td> <td>,037</td> <td>,0004</td> <td>,229</td> <td>,015</td> <td>,004</td> <td>,0045</td> </tr> <tr> <td>482974</td> <td>NB</td> <td>NI</td> <td>TI</td> <td>V</td> <td>66</td> <td>85</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>,019</td> <td>,017</td> <td>,003</td> <td>,001</td> <td>,265</td> <td>,233</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> 66 = NI+CU+MO+CR 85 = CR+MO C70 HEAT PROCESS OXYGEN STEEL								ITEM	B07 BUNDLE	B07 PLATE-NO.	B07 HEAT-NO.	B08 NUMBER PIECES	B13 WEIGHT Kg	010	B09 x B10 x B11 76,2 x 2438,4 x 6096 [mm] 3 x 96 x 240 [ZOLL]						68665101 68695101	482974 482974	1 1	9,085 9,085					* 2	18,170					** 2	18,170	B07 HEAT NO.	C	SI	MN	P	S	AL-G	B-G	CR	CU	MO	N	482974	,190	,301	1,150	,014	,0029	,037	,0004	,229	,015	,004	,0045	482974	NB	NI	TI	V	66	85							,019	,017	,003	,001	,265	,233					
ITEM	B07 BUNDLE	B07 PLATE-NO.	B07 HEAT-NO.	B08 NUMBER PIECES	B13 WEIGHT Kg																																																																															
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	,019	,017	,003	,001	,265	,233																																																																														

ZJN

ThyssenKrupp Steel Europe AG

Abnahme

-FOLGESEITE-

Robert Pomic 12-11-14

2-4-15

ZJN

Works-Nr. No de usine <b>A08</b> <b>3717518</b>	Zeugnis-Nr. Certificate-No. No de certificat <b>A03</b> <b>1612567001</b>	Sendungs-Nr. Shipment-No. No de envoi <b>44281932</b>	Seite-Nr. Page-No. Page-No <b>2</b>
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**MECHANICAL CHARACTERISTICS TENSILE TEST**

B07 HEAT- NO.	C00 SAMPLE NO.	C01/ 02		B05	C10	C03 TEST- TEMP. °C	C11 R	C11 R	C12 Rm	C12 R/	C13 LO	C13 A	Rm*A
		POS.	STAT.										
482974	68665	0401	0004	0003	0006								
482974	68695	0401	0004	0003	0006	+20	352	RPO, 2%	509	69	203	36	18070
						+20	345	LRPO, 2%	517	67	203	35	18095

**MECHANICAL CHARACTERISTICS IMPACT TEST**

B07 HEAT- NO.	C00 SAMPLE NO.	C01/ 02		B05	C40	C41 B mm	C41 AGED	C03 TEST- TEMP. °C	C42	C42	C42	C43	ENERGY [Joule]
		POSIT	STAT.										
482974	68665	0104	0004	0010	10,00	0006		-29	145	156	133	145	
482974	68695	0104	0004	0010	10,00	0006		-29	99	88	124	104	

**HEAT TREATMENT PRODUCT**

Item	TEMP °C	HOLDTIME MIN.	COOL DOWN
010	920	7,00	AIR

**LEGENDS**

STAT.	POSIT (IST)
0004 = NORMALIZED	0104 = LONG, TOP 1/4 T.
	0401 = TRANS, TOP S.
AGED	TYPE TENSILE TEST
0006 = NOT AGED	0003 = FLAT TENSILE TEST
TYPE IMPACT TEST	
0010 = CHARPY- V ASME	

**STATUS PRODUCT**

010 NORMALIZED

**S02**  
 ABNAHMEBEAUFTRAGTER DES HERSTELLERS  
 THE MANUFACTURER'S AUTHORIZED INSPECTION REPRESENTATIVE  
 LE REPRÉSENTANT AUTORISÉ DU CONTRÔLEUR DU PRODUCTEUR

*Kern*

**S03** Prof. Dr.-Ing. Kern

*Robert Kern 12-11-14*

ThyssenKrupp Steel Europe AG  
Abnahme

Es wird bestätigt, dass die Lieferung den Vereinbarungen bei der Bestellung entspricht.  
 We hereby certify that the above mentioned materials have been delivered in accordance with the terms of order.  
 Nous attestons que les produits livrés sont conformes aux stipulations de la commande.



2-4-15

*Handwritten signature*



P.O. 7356-R1

PO# 45187(1pc) 96X48ØX3" SA516-7Ø code: ZJL



ThyssenKrupp Steel Europe

Werk-Nr. Works-No. No de l'usine	A08 3738773	Zug-Nr. Certificate-No. No de certificat	A03 1625814001	Sondung-Nr. Shipment-No. No de envoi	44409756	Seite-Nr. Page-No. Page-No	1				
ThyssenKrupp Steel Europe AG · 47161 Duisburg A01				BESCHEINIGUNG ÜBER MATERIALPRÜFUNGEN DOCUMENT ON MATERIAL TESTS DOCUMENT DE CONTROL DES MATERIAUX		EN 10204 EN 10204					
A06  THYSSENKRUPP STEEL NORTH AMERICA  22355 WEST ELEVEN MILE RO US 48033 SOUTHFIELD, MI				A02 INSPECTION CERTIFICATE 3.1							
Bestell-Nr. Order-No. No de commande	4500036445  DHO-138398	A07.1-A07.5		30.7.2014 0203 52 75220 0203 52 75213 abnahme_zeugnisse.grobbloch@thyssenkrupp.com	to	A05					
Werkstoff : Quality : Matériau / Lieferbedingungen ; Specification ; Conditions de livraison B02/B03 A516GR.70 MTLTV ASTM 00.13 A20/S5 TOL.DI. ASTM A 20 TOL.EBENH. EN10029 KL.S OB EN 10183 KL.B/2											
Kennzeichnung: MATERIAL, HEAT-NO., MANUFACTURING/SAMPLE-NO. Marking: Marque: B06				Zeichen des Lieferwerkes: Supplier's mark: Merque d'usine: ThyssenKrupp Steel							
B01 TYPE OF PRODUCT HEAVY PLATES, TRIMMED EDGES  LIST OF MATERIAL IDENTIS				ABNAHMEPRÜFSTAMP INSPECTOR'S STAMP POURCHU DU RÉCEPTIONNAIRE							
ITEM	B07 BUNDLE	B07 PLATE-NO.	B07 HEAT-NO.	B08 NUMBER PIECES	B13 WEIGHT						
007	B09 x 76,2 x 2438,4 x 5096 [mm] 3 x 96 x 240 [ZOLL]	B10 x 29938101	B11 954024	1	Kg 8,921						
				*	1	8,921					
				**	1	8,921					
TRANSPORT-NO. QUEEN FLOWER											
CHEMICAL COMPOSITION OF THE LADLE SAMPLES % C71-C99											
B07 HEAT NO.	C	SI	MN	P	S	AL-G	B-G	CR	CU	MO	N
954024	,178\	,322\	1,150\	,014\	,0022\	,039	,0002	,218\	,015\	,002\	,0054*
954024	NB ,014\	NI ,014\	TI ,005\	V ,001\	66 ,249	85 ,220					
66 = NI+CU+MO+CR 85 = CR+MO											
C70 HEAT PROCESS OXYGEN STEEL											

ZJL

ZJL

ThyssenKrupp Steel Europe AG

Abnahme

-FOLGESEITE-

Robert Harris 10-30-14

gpd  
2-4-15

P.O. 7356 R  
HT. ZJL

Works-Nr. Works-No. No de trabajo	A08 <b>3738773</b>	Zeugnis-Nr. Certificate-No. No de certiffical	A03 <b>1625814001</b>	Sendungs-Nr. Shipment-No. No de envio	44409756	Seite-Nr. Page-No. Page-No	2
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**MECHANICAL CHARACTERISTICS TENSILE TEST**

B07 HEAT- NO.	C00 SAMPLE NO.	C01/ 02 POS.	B05 STAT.	C10 TYPE	AGED	C03 TEST- TEMP. °C	C11 R MPa	R Art	C12 Rm MPa	R/ Rm %	L0 mm	C13 A %	Rm*A
954024	29938	0401	0004	0003	0006	+20	346	RP0,2%	513	67	203	37	18981

**MECHANICAL CHARACTERISTICS IMPACT TEST**

B07 HEAT- NO.	C00 SAMPLE NO.	C01/ 02 POSIT	B05 STAT.	C40 TYPE	B mm	C41 AGED	C03 TEST- TEMP. °C	C42 1	C42 2	C42 3	C43 ENERGY (Joule) M
954024	29938	0104	0004	0010	10,00	0006	-29	121	133	139	131

**HEAT TREATMENT PRODUCT**

Item	TEMP °C	HOLD TIME MIN.	COOL DOWN
007	920	7,00	AIR

**LEGENDS**

0004 = NORMALIZED	0104 = LONG. TOP 1/4 T.
0006 = NOT AGED	0401 = TRANS. TOP S.
0010 = CHARPY- V ASME	0003 = FLAT TENSILE TEST

**STATUS PRODUCT**

007 NORMALIZED

Z02  
ABNAHMEBEAUFTRAGTER DES HERSTELLERS  
THE MANUFACTURER'S AUTHORIZED INSPECTION REPRESENTATIVE  
LE REPRÉSENTANT AUTORISÉ DU CONTRÔLEUR DU PRODUCTEUR

*Kern*

Z03 Prof. Dr.-Ing. Kern

ZJL

ThyssenKrupp Steel Europe AG

Abnahme

*Robert Pann 10-30-14*

Es wird bestätigt, dass die Lieferung den Vereinbarungen bei der Bestellung entspricht.  
We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.  
Nous attestons que les produits livrés sont conformes aux stipulations de la commande.

Z01



*2-4-15*  
*954*



# BAKER TANKHEAD

INCORPORATED

BAKER TANKHEAD, INC.  
 P.O. BOX 77021  
 10405 NORTH FREEWAY  
 FORT WORTH, TX 76177  
 United States of America  
 Ph: 866-232-8030  
 Fax: 817-847-7244

*P.O. 7356 R1*  
*HEADS 20"OD X 3" HEM1*  
*HT ZJN*  
*SA-516-70N*  
*NACE*  
*IMPACT -20°F*

Cert # 86205

## Material Certification

Date :30-Jan-15

To:

NORTH TEXAS PRESSURE VESSELS I  
 \*EMAIL INVOICES\*  
 WOLTERS INDUSTRIAL PARK  
 MINERAL WELLS, TX 76067

Phone: 940-327-0800

Fax: 940-327-0801

Ship To:

PAM  
 NORTH TEXAS PRESSURE VESSELS I  
 301 TRAVIS STREET  
 WOLTERS INDUSTRIAL PARK  
 MINERAL WELLS, TX 76067

Phone:

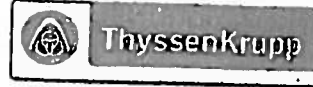
Fax:

Job #	Customer PO	Qty	Code/Lot	Material	Mill*	Heat No*	SLab/Pc No*
151967 7356		16	ZJN ✓	0962403000516	THYSSENKRUPP	482974	68695
20 X 3 H 1 ✓ 20"OD X 3"NOM. HEM1 ✓ 2.375"MIN SA516-70 ✓ 7"IOH 5' 2 13/16"OSC ✓ 25 DEG OS BEVEL 1/16"LD ✓ 26 5/8"DIA 495# ✓ NORMALIZED IN HOT FORMING ✓ PER NACE MR0175 ✓ CHARPY IMPACT TESTED TO -20 DEG F ✓ (2) TEST COUPONS REQUIRED PER HEAT# ✓ * The items listed above were formed in strict accordance with all applicable requirements of the ASME Boiler and Pressure Vessel Code Section VIII, Div. 1. * We hereby certify that these parts comply with tolerances of UG-81 of ASME Section VIII, Div. 1. * We hereby certify that these heads were heated to 1650 degree F min, held for one hour per inch of thickness, hot formed and still air cooled.							

*2-4-15*  
*[Signature]*

PO#45187 (IPC) 96x240x3" SA516-70N code: ZJN

ThyssenKrupp Steel Europe



Werk-Nr. Works-No. No de usine	A08 3717518	Zaugg-Nr. Certificate-No. No de certificat	A03 1612567001	Sendungs-Nr. Shipment-No. No de envoi	44281932	Seite-Nr. Page-No. Page-No	1																																																																																	
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Kennzeichnung: MATERIAL, HEAT-NO., MANUFACTURING/SAMPLE-NO. Marking: Marque: B06						Zeichen des Lieferwerkes: Supplier's mark: Marque d'usine:																																																																																		
						A04																																																																																		
<p>B01 TYPE OF PRODUCT HEAVY PLATES, TRIMMED EDGES</p> <p>LIST OF MATERIAL IDENTIS</p> <table border="1"> <thead> <tr> <th>ITEM</th> <th>B07 BUNDLE</th> <th>B07 PLATE-NO.</th> <th>B07 HEAT-NO.</th> <th>B08 NUMBER PIECES</th> <th>B13 WEIGHT Kg</th> </tr> </thead> <tbody> <tr> <td rowspan="4">010</td> <td>B09 x B10 x B11 76,2 x 2438,4 x 6096 [mm] 3 x 96 x 240 [ZOLL]</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>68665101</td> <td>482974</td> <td>1</td> <td>9.085</td> </tr> <tr> <td></td> <td>68695101</td> <td>482974</td> <td>1</td> <td>9.085</td> </tr> <tr> <td></td> <td></td> <td></td> <td>2</td> <td>18.170</td> </tr> <tr> <td></td> <td></td> <td></td> <td>**</td> <td>2</td> <td>18.170</td> </tr> </tbody> </table> <p>TRANSPORT-NO. GENCO WARRIO</p> <p>CHEMICAL COMPOSITION OF THE LADLE SAMPLES % C71-C99</p> <table border="1"> <thead> <tr> <th>B07 HEAT NO.</th> <th>C</th> <th>SI</th> <th>MN</th> <th>P</th> <th>S</th> <th>AL-G</th> <th>B-G</th> <th>CR</th> <th>CU</th> <th>MO</th> <th>N</th> </tr> </thead> <tbody> <tr> <td>482974</td> <td>,190 \</td> <td>,301 \</td> <td>1,250 \</td> <td>,014 \</td> <td>,0029 \</td> <td>,037</td> <td>,0004</td> <td>,229 \</td> <td>,015 \</td> <td>,004 \</td> <td>,0045 *</td> </tr> <tr> <td>482974</td> <td></td> <td>NB</td> <td>NI</td> <td>TI</td> <td>V</td> <td>66</td> <td>85</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>,019 \</td> <td>,017 \</td> <td>,003 \</td> <td>,001 \</td> <td>,265</td> <td></td> <td>,233</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>66 = NI+CU+MO+CR 85 = CR+MO C70 HEAT PROCESS OXYGEN STEEL</p>								ITEM	B07 BUNDLE	B07 PLATE-NO.	B07 HEAT-NO.	B08 NUMBER PIECES	B13 WEIGHT Kg	010	B09 x B10 x B11 76,2 x 2438,4 x 6096 [mm] 3 x 96 x 240 [ZOLL]						68665101	482974	1	9.085		68695101	482974	1	9.085				2	18.170				**	2	18.170	B07 HEAT NO.	C	SI	MN	P	S	AL-G	B-G	CR	CU	MO	N	482974	,190 \	,301 \	1,250 \	,014 \	,0029 \	,037	,0004	,229 \	,015 \	,004 \	,0045 *	482974		NB	NI	TI	V	66	85						,019 \	,017 \	,003 \	,001 \	,265		,233				
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ZJN

ThyssenKrupp Steel Europe AG

Abnahme

-FOLGESEITE-

Robert Pamic 12-11-14



ZJN

MECHANICAL CHARACTERISTICS TENSILE TEST

B07 HEAT- NO.	C00 SAMPLE NO.	C01/ 02	B05	C10	AGHD	C03 TEST- TEMP. °C	C11 R	R	C12 Rm	R/ Rm	L0	A	Rm*A
		POS.	STAT.	TYPE			MPa	Art	MPa	%	mm	%	
482974	68665	0401	0004	0003	0006	+20	352	RP0,2%	509	69	203	36	18070
482974	68695	0401	0004	0003	0006	+20	345	RP0,2%	517	67	203	35	18095

MECHANICAL CHARACTERISTICS IMPACT TEST

B07 HEAT- NO.	C00 SAMPLE NO.	C01/ 02	B05	C40	C41	AGHD	C03 TEST- TEMP. °C	C42	C42	C42	C42	C43
		POSIT	STAT.	TYPE	B mm							ENERGY [Joule]
482974	68665	0104	0004	0010	10,00	0006	-29	145	156	133	145	M
482974	68695	0104	0004	0010	10,00	0006	-29	99	88	124	104	M

HEAT TREATMENT PRODUCT

Item	TEMP °C	HOLDTIME MIN.	COOL DOWN
010	920	7,00	AIR

LEGENDS

- 0004 = NORMALIZED
- 0006 = NOT AGED
- 0010 = CHARPY- V ASME
- 0104 = LONG. TOP 1/4 T.
- 0401 = TRANS. TOP S.
- 0003 = FLAT TENSILE TEST

STATUS PRODUCT

010 NORMALIZED

ABNAHMEBEAUFTRAGTER DES HERSTELLERS  
THE MANUFACTURER'S AUTHORIZED INSPECTION REPRESENTATIVE  
LE REPRÉSENTANT AUTORISÉ DU CONTRÔLEUR DU PRODUCTEUR

*Kern*

003 Prof. Dr.-Ing. Kern

*Robert Kern 12-11-14*

ThyssenKrupp Steel Europe AG  
Abnahme

Es wird bestätigt, dass die Lieferung  
den Vereinbarungen bei der Bestellung entspricht.  
We hereby certify that the above mentioned materials  
have been delivered in accordance with the terms of order.  
Nous attestons que les produits livrés sont conformes  
aux stipulations de la commande.

