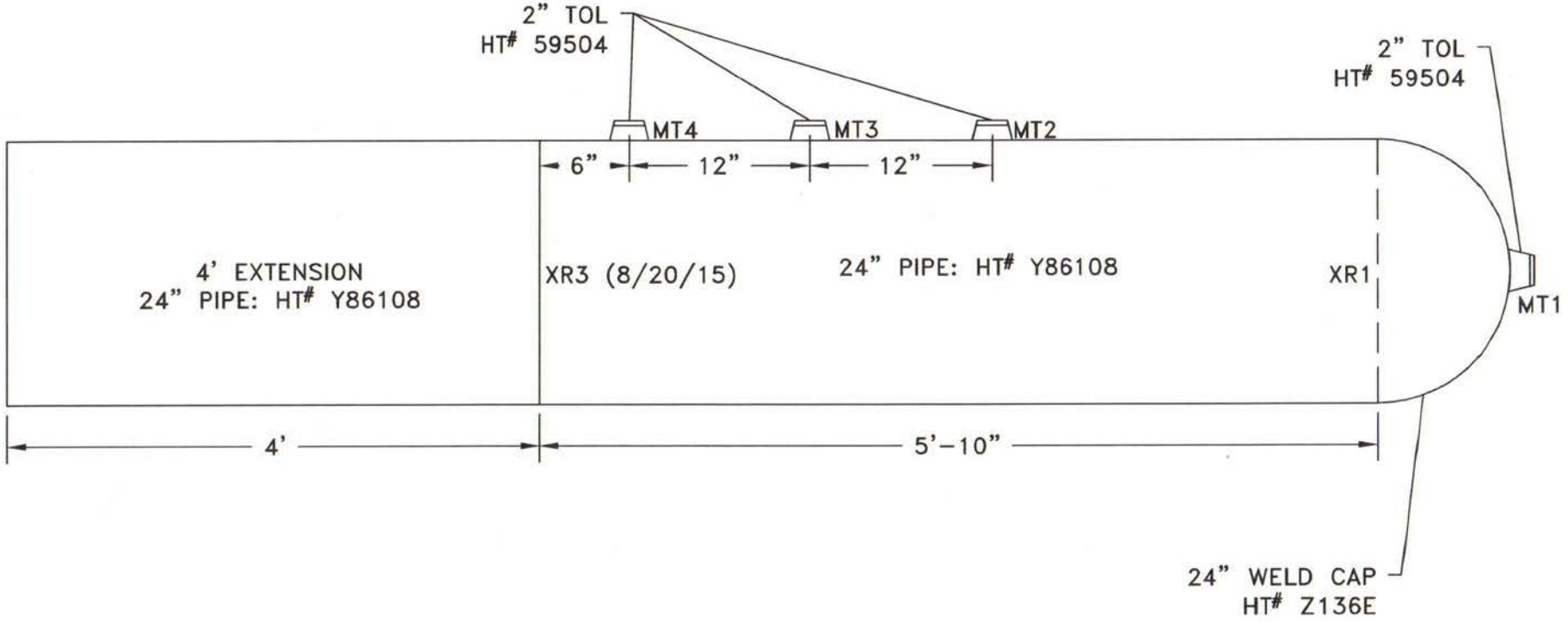
SN# 24TEST03



PIPE OD: 24.00"

PIPE WALL THICKNESS: 0.500"

PIPE GRADE: X-65

REV	DATE	DESCRIPTION		APPROVED
01	8/20/2015	EXTENSION ADDED		WFH
00	5/26/2015	INITIAL RELEASE		WFH

WELD-ON TEST HEADER	
RIDGE RUNNER REFERENCE DRAWING	
DESIGN FACTOR:	95% SMYS
MAX. HYDROSTATIC TEST PRESSURE:	2570 PSI
SCALE: N.T.S.	SHEET 1 OF 1

24" PIPE

STUPP CORPORATION

Certificate of Tests

STUPP JOB NUMBER: ER 9462 REVISION: 0 HEAT #: Y86108

12555 Rensdson Rd, Baton Rouge, LA

CUSTOMER

McJunkin Red Man Corporation
CUSTOMER ORDER S7K5682926

ORDER DESCRIPTION

MFW / Fine Grained Steel / Aluminum Killed / Continuously Cast / Melted and Manufactured in U.S.A.

OD 24.000 Inches
WALL 0.500 Inch
GRADE API5L-X65M-PSL2
SPEC API-5L
VERSION 45th December 2012
QUANTITY
STEEL PO 6721-14

TEST PARAMETERS

HYDROSTATIC PRESSURE	HYDROSTATIC DURATION	ULTRASONIC DRILL HOLE	ULTRASONIC NOTCH	SEAM ANNEALED TEMP. MINIMUM
2,720 PSI	10 Seconds	0.125 In	N10	1,650° F

FRACTURE TOUGHNESS CRITERIA

CVN-20-32F (20 ft.lb. minimum per Full-size).

Flattening tests acceptable per specifications.

CHEMICAL FORMULA

CE=C+Mn/6+Cr/5+Mo/5+V/5+Ni/15+Cu/15

Pcm=C+Si/30+Mn/20+Cu/20+Cr/20+Ni/60+Mo/15+V/10+5B

CE Max=0.42% ; Pcm Max=0.25% ; Pipe manufactured, sampled, tested, and inspected in accordance with the specification(s) and meets requirements. Steel made and coils rolled at US Steel, Gary, IN. Pipe manufactured at Stupp Corporation, Baton Rouge, LA.

TENSILE TESTS (in PSI) SPECIMEN SIZE 12.0 In. X 2" (1.5" X 1")

COIL	PIPE	TEST TYPE	YIELD	TENSILE	ELONG%	Y/T Ratio
961	7	TRANS PIPE	72,100	90,700	35	0.79
961	7	TRANS PIPE WELD		87,300		

HARDNESS SURVEY

COIL	PIPE	TEST TYPE	BM	HAZ	WELD	HAZ	BM
961	7	VICKERS 10 KGF	211	194	190	183	198
961	7	VICKERS 10 KGF	209	200	202	211	197
961	7	VICKERS 10 KGF	205	210	200	216	183

CHARPY TESTS

COIL	PIPE	ORIENTATION	LOCATION	SIZE	TEMP	SHEAR PERCENT 1	2	3	AVG	ENERGY IN FT-POUNDS 1	2	3	AVG
961	7	TRANSVERSE	BODY	FULL	32°F	100	100	100	100	197	206	199	200.7
961	7	TRANSVERSE	WELD	FULL	32°F	40	50	50	47	68	94	91	84.3

DROP WEIGHT TESTS TRANSVERSE FULL SIZE

CHEMICAL TESTS

COIL	PIPE	CE	Pcm	TYPE	C	Mn	P	S	Si	Al	Cb	V	Ti	N	Cr	Mo	Cu	Ni	B	Ca	Sn
		0.304	0.139	LADLE	0.060	1.220	0.009	0.003	0.220	0.039	0.068	0.001	0.019	0.006	0.190	0.004	0.020	0.010	0.0001	0.0000	0.006
961	1	0.296	0.125	PROD	0.044	1.250	0.006	0.000	0.193	0.034	0.068	0.001	0.017	0.004	0.205	0.003	0.023	0.009	0.0000	0.0034	0.004
961	7	0.299	0.129	PROD	0.048	1.240	0.006	0.001	0.195	0.034	0.068	0.001	0.017	0.007	0.205	0.003	0.024	0.009	0.0000	0.0035	0.004

The undersigned, on behalf of Stupp Corporation, hereby certifies that the above materials have been inspected and tested in accordance with the methods prescribed in the applicable specifications, and the results of such inspection and tests are shown above. In determining properties or characteristics for which no methods of inspection or testing are prescribed by said specification, the standard mill inspection and testing practices of Stupp Corporation have been applied. Unless it appears otherwise in the results of such inspection and tests shown above, the undersigned employees of Stupp Corporation believes that said materials conform to said specification.

Jeff Jones
Stupp Corporation, Authorized Insp. Rep

4/3/2014
Appr:

24" CAP

CERTIFIED MATERIAL TEST REPORT
CERTIFICATE OF COMPLIANCE
CERTIFICATE # 22042

Tube Forgings of America, Inc.
5200 N.W. Front Avenue
Portland, OR 97210
ISO 9001 Certified

1/30/2015

Sold To:	McJunkin Red Man Corp #8ZF 224 North Main Street Horseheads, NY 14845
Customer ID:	24655HY2
TFA Sales Order :	305003\33-1
Customer PO Reference:	S8ZF785465

Ship To:	McJunkin Red Man #022 1000 Maronda Way Monessen, PA 15062

TFA Part ID:	90120
Description:	24 XH CAP Y-65
Quantity:	10
Customer Part ID:	1688-0701

Heat Code:	Z136E
Grade:	Y65
Mill:	EVRAZ
Mill Heat :	NW9741
Process:	Y65-7

Heat Analysis Chemistry

C	Mn	P	S	Si	Mo	Cr	Ni	Cu	V	Cb	B	Ti	Al	N	Co	Ca	C.E.
0.16	1.30	0.013	0.004	0.32	0.00	0.00	0.05	0.01	0.07	0.005		0.00					0.39

Product Analysis Chemistry

C	Mn	P	S	Si	Mo	Cr	Ni	Cu	V	Cb	B	Ti	Al	N	Co	Ca	C.E.
0.15	1.30	0.013	0.003	0.33	0.02	0.02	0.05	0.01	0.07	0.010		0.01					0.39

Physical

ID	Type	Yield	Tensile	% Elong	Length	BHN *In-Process Test 1 Test 2*	Tensile Orientation	Test Bar Type
1	PSI	67,600	81,900	32.50	2"	182	LONGITUDINAL	FLAT

Charpy Test Results

	Impacts				Lateral Expansion			% Shear				V notch test at degrees F	Coupon Size	Charpy Orientation
	1	2	3	Avg	1	2	3	1	2	3	Avg			
1 FtLbs	142.00	252.50	206.00	200.17				70.00	85.00	85.00	80.00	+20F	10X10MM	TRANSVERSE

Notes/Comments

1. THIS MATERIAL WAS AUSTENITIZED AT 1650F,OIL QUENCHED, AND TEMPERED AT 1200F. 2. THIS MATERIAL IS OF SEAMLESS MANUFACTURE.

1) MATERIAL MEETS MSS-SP-75 - 2008. 2) MATERIAL MEETS NACE MR-01-75/ISO 15156, REGIONS 1, 2 AND 3 -2009 EDITION. ALSO MEETS NACE MR 0103-2010 EDITION 3) MANUFACTURED IN AN ISO 9001 CERTIFIED FACILITY-CERTIFICATE #30248 4) MATERIAL MEETS THE FOLLOWING ADDITIONAL SPECS: - ENERGY TRANSFER ETC-HY-WELD-FIT REV 0, DATED 1/14/2005- KINDER MORGAN 8120 REV 6-1-2010.- SEMPRA ENERGY (SOUTHERN CALIFORNIA GAS) SDGE 52-96 REV 10/01/2010.- WILLIAMS GAS 50.1207 DATED 6/1/2006.5) EXCEPTIONS: - CE TO BE .43% MAX. BEVELS PER MSS SP-75 AT 37.5 DEGREES - REFERENCE WILLIAMS GAS 50.1207.- FITTINGS ARE FULLY PAINTED AND WILL NOT HAVE THE SERVICE TEMPERATURE STAMPED ON THEM AS REQUIRED BY ENERGY TRANSFER.- FITTINGS WILL NOT HAVE THE STENCILING REQUIRED BY KINDER MORGAN 8120.- MATERIAL UNDER 16 NPS IS NOT IMPACT TESTED UNLESS REQUIRED BY MSS SP-75 (Y65 AND HIGHER YIELDS) . MATERIAL UNDER 16 NPS USES SAME TFA GRADES AND IMPACTS ARE GUARANTEED TO MEET MSS SP-75.-ID AT ENDS TO MSS NOT +-.060 AS REQUIRED BY ENERGY TRANSFER ETC HY WELD FIT REV 0 DATED 1-14-2005 PARA 6.0

Heat Code: Z136E Grade Y65

John Beachey, Mgr. Quality Assurance

BONNEY FORGE

MILL TEST REPORTS

Bonney Forge
14496 Croghan Pike
Mt. Union, PA 17066

CERTIFIED MILL TEST REPORT

MRC 5/18/2015

LOT NO.
59504

CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS

36-20 X 2" 3M A105 Thredolet™ Threaded

C	0.210	MN	0.970	P	0.011	S	0.024	SI	0.200
NI	0.030	CR	0.040	MO	0.004	CU	0.060	CO	0.003
V	0.004	AL	0.030	N	0.004	Nb	0.014		

CE(LONG FORMULA) = 0.387

T/S(PSI) 76021 Y/S(PSI) 49988 EL(%) 34.150 RA(%) 62.020

BRINELL HARDNESS 139, 139

Click here for Original Steel Mill Certification

1. CERTIFYING ASTM A105-14 / ASME SA105-13 EDITION.
2. THE MATERIAL SUPPLIED MEETS THE REQUIREMENTS OF NACE MR0175/ISO 15156-2.
3. THE MATERIAL SUPPLIED WAS INSPECTED AND MANUFACTURED IN ACCORDANCE WITH EN DIN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT.
4. THE ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

THIS DOCUMENT HAS BEEN ELECTRONICALLY SUBMITTED.

Cancel | Logout

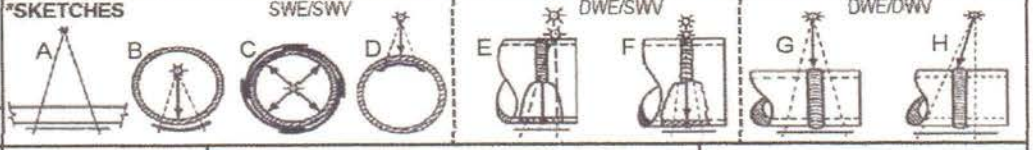
DATE: 1/4/2016	CLIENT: RIDGE RUNNER		
REPORT No: 1 of 2	JOB LOCALE- CITY, STATE: MAIDSVILLE, WV		
CLIENT PO No:		JANX JOB No: 0207	
CLIENT W/O No:		JANX PROCEDURE No: JX RT 1 REV 1	
CLIENT JOB No: TEST HEADERS		ACCEPTANCE CRITERIA: API 1104 20TH ED.	

Proc. #	Sketch*	Material	Pipe Dia. or Other	Object Thickness + Reinf.	Source to Object (SOD)	Object to Film (OFD)	IQI Note**	IQI Group Number & Size or Set	Essential Hole or Wire	IQI Side S / F	Shim Material & Thickness	Heat Shield Used	Film Brand & Type	Exp. Time (min)	Density Min.	Density Max.
1	C	C/S	24"	.562	11.5"	.600	B	ASTM B	.016	F	N/A	N/A	AGFA D-5	50 SEC	2.3	3.8

**IQI Note:
A- 1 IQI, In center of Readable Area (Area)
B- 2 IQIs, 1 within 1" of Area end & 1 at center
C- 4 IQIs, equally spaced around circumference
D: _____

Heat Shield Detail:

*SKETCHES



Source
- [x] Ir 192
- [ ] Co 60
- [ ] X-ray

Focal Spot: .120
Curies / kV: 59
milliamps:

Films per Cassette: 1

Screen Material: Pb
Front Thick.: .005
Back Thick.: .005

Processing: [x] Manual [ ] Automatic				
Drying: [x] Manual [ ] Automatic				
	Develop	Stop	Fixing	Rinse
Time (min.):	5 MIN	1	3	20
Temp. °F.:	68	68	68	68

Densitometer
Serial No.: 32099
Expire Date: 12/29/2016
Verification Checks:
- [x] Daily & Periodic Completed

ITEM ID	VIEW	No. EXP.	No. FILM	PIPE DIA.	WALL THICK.	IN CODE Y	IN CODE N	DEFECT EVALUATION KEY	WELDER ID, OTHER ID, REMARKS	Proc. #
24TEST03 XR-5	0-1-2-0	1	3	24	.500	X				1
24TEST03 XR-6	0-1-2-0	1	3	24	.500	X				1

EVALUATION KEY

1 – INADEQUATE PENETRATION
2 – INADEQUATE PENETRATION DUE TO HIGH-LOW
3 – INCOMPLETE FUSION
4 – SLAG INCLUSION
5 – INTERNAL UNDERCUT
6 – EXTERNAL UNDERCUT
7 – INTERNAL CONCAVITY
8 – POROSITY
9 – SCATTERED POROSITY
10 – CLUSTER POROSITY
11 – PIPING/WORMHOLE POROSITY
12 – CRACK
13 – LINEAR INDICATION
14 – ROUNDED INDICATION
15 – ARC BURN
16 – HOLLOW BEAD
17 – ACCUMULATION
18 – BURN THROUGH
19 – LOW CAP

BILLING ADDRESS

RIDGE RUNNER PIPELINE SERVICES 51 SCOTTS RUN ROAD
MAIDSVILLE, WV 26541

FILM SHEETS:

3.5"x10"		4.5"x10"		5" x 7"		7" x 17"	
3.5"x17"		4.5"x17"		8" x 10"		14" x 17"	

CLIENT SIGNATURE	JANX LEVEL II SIGNATURE	LEVEL II TECHNICIAN	OTHER EMPLOYEES & LEVEL
		BRYAN WATSON II	AARON STILES I

CLIENT REP NAME & PHONE NUMBER	TRAVEL MILES	TOTAL HOURS INCLUDING TRAVEL AND WORK	PER DIEM APPLICABLE	TOTAL ITEMS INSPECTED
	N/A	2	N/A	2

Form: RT Report 14-05

CLIENT'S SIGNATURE CERTIFIES THAT TIME AND MILEAGE ARE CORRECT AND MATERIALS AND INTERPRETATION ARE ACCEPTED.

JANX
(517) 531-8210
P.O. Box 190
Parma, MI 49269

DATE: 1/4/2016	CLIENT: **RIDGE RUNNER**	JANX
REPORT No: 2 of 2	JOB LOCALE- CITY, STATE: **MAIDSVILLE, WV**	
CLIENT PO No:	JANX JOB No: **0207**	
CLIENT W/O No:	JANX PROCEDURE No: **JX MT1 REV 0**	
CLIENT JOB No: **TEST HEADERS**	ACCEPTANCE CRITERIA: **API 1104 20TH ED**	

MAGNETIC PARTICLE TECHNIQUE - YOKE

Yoke Mfg: PARKER Yoke Model: DA 400
Serial No: 20834 Expire Date: 12/29/2016
Leg Spacing: 3-6" Coverage: 100%
☑ AC ☐ DC Two Opposing 90° Fields: ☑ Yes ☐ No
☑ Contrast Paint, Mfg & Product: MAGNAVIS
☑ Wet ☐ Dry ☑ Non-Fluorescent ☐ Fluorescent
Wet Particle Suspension: ☑ Oil Base ☐ Water Base
Particle Mfg / Batch: MAGNAVIS Color: **BLACK**
Particles Applied by:
☐ Blowing (Dry only) with excess removed by gentle air stream while maintaining the magnetizing current
☑ Spraying ☐ Flowing
☐ Procedure Demonstration Not Required by Customer
☐ Procedure Adequacy Demonstrated by:
☐ Lift Test of: ____ lbs. ☐ Field Indicator
☐ Other:
☐ Post Test Demag ☑ Demag Not Required

LIQUID PENETRANT TECHNIQUE

	Mfg. / Product	Batch No.	Temperature
Penetrant:			°F
Developer:			°F
Remover:			°F

☐ Visible Dye ☐ Solvent Removable
☐ Fluorescent Dye ☐ Water Washable
Extent of Test:
Precleaning Method: ☐ Spray ☐ Dip ☐ Brush
Penetrant Application: ☐ Spray ☐ Dip ☐ Brush
Developer Application: ☐ Spray ☐ Dip ☐ Brush
Excess Penetrant Removal: ☐ Water Wash ☐ Damp Towel
Preclean Dry Time: ____ minutes
Penetrant Dwell Time: ____ minutes
Dry Time After Penetrant Removal: ____ minutes
Developer Time: ____ minutes
Post Cleaning:
Notes:

Item Temperature: **50** °F Surface Condition: **AS WELDED** Surface Prep: **POWER BRUSHED**
Lighting Equipment: **NATURAL**
Light Intensity: ☑ > 100 fc White Light ☐ > uW/cm2 Black Light Black Light Warm-Up Time: ☐ > 5 mins.

ITEM ID (Note as MT or PT)	ITEM TYPE / SIZE / THICKNESS / MATERIAL	IN CODE Y	IN CODE N	DEFECT & LOCATION	REMARKS / WELDER ID
24 TEST03 MT-9	2" TOL	X			
24 TEST03 MT-10	2" TOL	X			
24 TEST03 MT-11	2" TOL	X			
24 TEST03 MT-12	2" TOL	X			

BILLING
ADDRESS: **SEE PAGE 1**

CLIENT SIGNATURE	JANX LEVEL II SIGNATURE		LEVEL II TECHNICIAN		OTHER EMPLOYEES & LEVEL
	Bw		**BRYAN WATSON II**		**AARON STILES I**
CLIENT REP NAME & PHONE NUMBER	TRAVEL MILES	TOTAL HOURS INCLUDING TRAVEL AND WORK	PER DIEM APPLICABLE	TOTAL ITEMS INSPECTED	
	PG 1	**SEE PAGE 1**	**N/A**	**4**	