

MOBIL PIPE LINE COMPANY

HYDROSTATIC PRESSURE TEST

647 Miles / 20" Crude Pipe Line, Patoka, IL to Corsicana, TX

**Test Section 1
Oakdale, IL
MP 604.98 - MP 647.73**

November 23, 2005

Memorandum

Date: 3/17/06

Subject: Hydrotest Review & Endorsement

To: <Hydrotest Report and HCA
Baseline Assessment File>

cc: <>

From: <Chris Gorman>

I've completed the review of the hydrostatic test report for Test Section - 1 (H1) for the Corsicana to Patoka Crude Line. It is consistent with my knowledge of the testing operations and facility and confirms we had a good test. The hydrotest and report documentation are accurate and thorough and will satisfy our needs for Data Integration, Risk & Threat Analysis, and Preventive & Mitigative Measures Analysis needed to comply with the HCA regulations and the testing requirements of DOT CFR Title 49, Part 195, Subpart E.

Metallurgical root cause failure analysis was performed on the four ERW seam failures in this section. Their date, location, and calculated failure pressures at their location were as follows:

11/5/05, MP-638.5, 1126 psig.
11/6/05, MP-629.3, 1204 psig.
11/11/05, MP-637.3, 1149 psig.
11/20/05, MP-624.7, 1131 psig.

Results of the analysis indicated all to be caused by original factory/mill defects that failed after being tested to higher pressures than they had ever seen before. No fatigue, selective corrosion, or other time dependant defects were observed.

There were two pin hole leaks in girth welds found during testing at MP-635.8 (sta-33572+38 ft, ILI Odometer-865057.44 ft & GW# -19809) and MP-629.2 (sta.-33221+83 ft, ILI Odometer-829868.88 ft & GW# - 19087). Cause of the pin holes was inadequate penetration of the weld bead at the 6:00 o'clock position where the two weld passes overlapped creating an internal pocket where corrosive elements could accumulate. Both were repaired in place with a permanent weld sleeve. Review of the 2001 ILI log did not reveal any tell-tale signs of internal or external metal loss/corrosion at these welds.



Chris D. Gorman
Pipeline Risk & Integrity Specialist
ExxonMobil Pipeline Company
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MOBIL PIPE LINE COMPANY

647 Miles /20" Crude Line, Patoka, IL to Corsicana, TX

Test Section 1 MP 604.98 - MP 647.73

Date and Time:

Nov 23, 2005, from 7:45 AM to 11:45 AM. (Strength Test)

Nov 23, 2005, from 2:00 PM to 6:00 PM. (Leak Test)

Facility Tested:

The test section consisted of 42.75 miles of 20" x 0.312" W.T., X-42 ERW pipe

Personnel Present:

Conducted by: S.C. Hong - Test Engineer - BJ Process & Pipeline Services

Witnessed by: M.E. Marshall - Inspector - EMPCO Representative

Procedure:

The piping was filled with water and the air was allowed to bleed through 2" valves. The test section was pressurized to approximately 600 psig with BJ's positive-displacement pump at a rate of 15 psi / minute, and was allowed to stabilize over night. The test manifold, pressure recorder, and deadweight tester were connected to the test section as shown in the attached sketch.

The test section was pressurized at a rate of 10 psi / minute with a positive-displacement pump. Pressurization was halted for 15 minutes to allow for stabilization and to check for leaks. The test section was then pressurized at a rate of 5 Psi/min to test pressure. The pressure stabilized.

Conclusion:

The strength test started at 7:45 PM on Nov 23, 2005 and was held for 4 hours starting at a pressure of 1005 psi. Over the duration of the strength test, there was no pressure drop. The leak test started at 14:00 PM on Nov 23, 2005 and was held for 4 hours starting at a pressure of 906 psi. Over the duration of the leak test, there was a 1 psig pressure drop attributable to compressed air cooling in the line from the previous test breaks. At this point the leak test was deemed successful. Overnight T & P charts from the previous 2 days also support the test section to be leak free.

The pressure trends over the duration of the leak test are within the accuracy of the instrumentation or within calculated fluctuations caused by temperature changes. The tests were deemed successful.

Therefore, in my judgment, this constitutes a valid pressure test meeting the requirements of the Department of Transportation Code of Federal Regulations Title 49, Part 195 Subpart E.

David T. Edge

BJ Process & Pipeline Services

CERTIFICATION OF PIPE LINE HYDROSTATIC PRESSURE TEST

CARRIER NAME Mobil Pipeline CompanyTESTING COMPANY NAME BJ Process & Pipeline ServicesPRESSURE TEST NUMBER Test Section 1 - Strength Test DATE 11/23/2005

THIS IS TO CERTIFY THAT THE PIPE LINE OR PIPELINE SECTION DESCRIBED BELOW WAS HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH THE FOLLOWING PROCEDURE:

PIPE LINE 20" Crude FROM Patoka, IL TO Corsicana, TXDESCRIPTION OF FACILITY TESTED Test Section 1 MP 604.98 - MP 647.73SECTION LENGTH 42.75 miles PIPE O.D. 20" WALL THICKNESS 0.312" GR. X-42 TYPE ERWLOCATION OF TEST PRESSURE RECORDER CONNECT MP 604.98 (See attached sketch)LOCATION OF TEMPERATURE RECORDER BULB MP 604.98 (See attached sketch)INITIAL PRESSURE AT POINT OF TEST 1005 psig TIME 7:45 AMINITIAL TEMPERATURE OF TEST SECT. 49 °F ELEV. AT POINT OF TEST 520 ft MSLINITIAL PRESSURE AT LOWEST ELEVATION POINT IN SECTION 1048.3 PSIG;ELEVATION 420 ft MSL; MP. 625.9 THE PRESSURE WAS ☐ MEASURED ☒ CALCULATEDINITIAL PRESSURE AT HIGHEST ELEVATION POINT IN SECTION 984.2 PSIG;ELEVATION 568 ft MSL; MP. 610.8 THE PRESSURE WAS ☐ MEASURED ☒ CALCULATEDFINAL PRESSURE AT POINT OF TEST 1005 PSIG TIME 11:45 AMFINAL TEMPERATURE OF TEST SECT. 49 °FTOTAL FLUID INJ. N/A GAL. TOTAL FLUID WITHDRAWN N/A GAL.NET CHANGE IN VOLUME OF THE TEST SECT. N/A GAL.LENGTH OF TEST 4 HRS. 0 MIN; TESTING FLUID Water SPEC. GVTY. 1.00 TEMP. 60 °FINITIAL PRESSURE 77 % OF SMYS AT THE TEST SITE 75 % AT HIGH POINT 80 % AT LOW POINTMINIMUM TEST PRESSURE DURING A SELECTED 4 HOUR PERIOD (TEST PRESSURE) 1005 PSIGMAXIMUM ALLOWABLE OPERATING PRESSURE 804 PSIG. at test site BASED ON 80% SMYS
OR 80% of minimum test pressure at the test siteWERE THERE ANY LEAKS? ☐ YES ☒ NO; IF YES, EXPLAIN There were previous test breaks at MP 638.7, MP 637.3, MP 629.3 and MP 624.7 in the ERW seam which were replaced with new pipe.WAS EVERY COMPONENT THAT WILL BE SUBJECTED TO THE SYSTEM WORKING PRESSURE
HYDROSTATICALLY TESTED? ☒ YES ☐ NO; IF NO, EXPLAIN _____PRESSURE RECORDER MAKE AND SERIAL N Chandler 25601 ITT Barton 242E-51492TEMPERATURE RECORDER MAKE AND SERIAL N ITT Barton 242E-51492 ITT Barton 242E-41526REMARKS: Tested in accordance with D.O.T. CFR Title 49 Part 195 Subpart E.CONDUCTED BY Sam Hong TITLE BJ PPS Test EngineerCERTIFIED BY Chris Johnson TITLE EMPCO Risk & Integrity SpecialistWITNESSED BY Mark Marshall TITLE EMPCO Test Site InspectorWITNESSED BY Chris Johnson TITLE R&INOTE: SEE DOT LIQUIDS MANUAL on site & for confirmation

CERTIFICATION OF PIPE LINE HYDROSTATIC PRESSURE TEST

CARRIER NAME Mobil Pipeline CompanyTESTING COMPANY NAME BJ Process & Pipeline ServicesPRESSURE TEST NUMBER Test Section 1 - Leak Test DATE 11/23/2005

THIS IS TO CERTIFY THAT THE PIPE LINE OR PIPELINE SECTION DESCRIBED BELOW WAS HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH THE FOLLOWING PROCEDURE:

PIPE LINE 20" Crude FROM Patoka, IL TO Corsicana, TXDESCRIPTION OF FACILITY TESTED Test Section 1 MP 604.98 - MP 647.73SECTION LENGTH 23.73 miles PIPE O.D. 20" WALL THICKNESS 0.312" GR. X-42 TYPE ERWLOCATION OF TEST PRESSURE RECORDER CONNECT MP 604.98 (See attached sketch)LOCATION OF TEMPERATURE RECORDER BULB MP 604.98 (See attached sketch)INITIAL PRESSURE AT POINT OF TEST 906 psig TIME 2:00 PMINITIAL TEMPERATURE OF TEST SECT. 49 °F ELEV. AT POINT OF TEST N/A ft MSLINITIAL PRESSURE AT LOWEST ELEVATION POINT IN SECTION N/A PSIG;ELEVATION N/A ft MSL; MP. N/A THE PRESSURE WAS ☐ MEASURED ☐ CALCULATEDINITIAL PRESSURE AT HIGHEST ELEVATION POINT IN SECTION N/A PSIG;ELEVATION N/A ft MSL; MP. N/A THE PRESSURE WAS ☐ MEASURED ☐ CALCULATEDFINAL PRESSURE AT POINT OF TEST 905 PSIG TIME 6:00 PMFINAL TEMPERATURE OF TEST SECT. 49 °FTOTAL FLUID INJ. N/A GAL. TOTAL FLUID WITHDRAWN N/A GAL.NET CHANGE IN VOLUME OF THE TEST SECT. N/A GAL.LENGTH OF TEST 4 HRS. 0 MIN; TESTING FLUID Water SPEC GVTY. 1.00 TEMP. 60 °FINITIAL PRESSURE N/A % OF SMYS AT THE TEST SITE N/A % AT HIGH POINT N/A % AT LOW POINT.MINIMUM TEST PRESSURE DURING A SELECTED 4 HOUR PERIOD (TEST PRESSURE) 906 PSIGMAXIMUM ALLOWABLE OPERATING PRESSURE 804 PSIG. BASED ON 80 % SMYSOR 80% of minimum test pressure of 1005 psig at the test site during 4 hour strength testWERE THERE ANY LEAKS? ☐ YES ☒ NO; IF YES, EXPLAIN _____

WAS EVERY COMPONENT THAT WILL BE SUBJECTED TO THE SYSTEM WORKING PRESSURE

HYDROSTATICALLY TESTED? ☒ YES ☐ NO; IF NO, EXPLAIN _____PRESSURE RECORDER MAKE AND SERIAL N Chandler 25601 ITT Barton 242E-51492TEMPERATURE RECORDER MAKE AND SERIAL N ITT Barton 242E-51492 ITT Barton 242E-41526REMARKS: Tested in accordance with D.O.T. CFR Title 49 Part 195 Subpart E.CONDUCTED BY Sam Hong TITLE BJ PPS Test EngineerCERTIFIED BY Chris Roman TITLE EMPCO Risk & Integrity SpecialistWITNESSED BY Mark Marshall TITLE EMPCO Test Site InspectorWITNESSED BY Chris Roman TITLE R+INOTE: SEE DOT LIQUIDS MANUAL on site and teleconference

DEADWEIGHT TESTER MAKE & SERIAL NUMBER Chandler 25601

INJECTION AND WITHDRAWAL DATA

TOTAL INJECTED N/A GAL. TOTAL WITHDRAWAL N/A GAL.

NET CHANGE IN VOLUME OF THE TEST SECT. _____ N/A GAL.

CONDUCTED BY Sam Hong TITLE BJ PPS Test Engineer

CERTIFIED BY Mark Marshall TITLE EMPCO Test Site Inspector

MOBIL PIPE LINE COMPANY

HYDROSTATIC PRESSURE TEST

647 Miles / 20" Crude Pipe Line, Patoka, IL to Corsicana, TX

Test Section 1

Cherokee Pass, MO

MP 604.98 - MP 629.20

Leaks - MP 635.80 & MP 629.20

December 10, 2005



**BJ Process and
Pipeline Services**

PRESSURISATION REPORT (AIR INCLUSION)

Page of

Project : CCGC	LINE#:	Job # : C0316-05	W.T.: 0.312
Client : Mobil Pipeline (EMPCO)		Date : 12-Nov-05	Gal./Ft.: 15.317442
Location : MP 604.98 (Test Section 1)		Nominal Diameter : 20 "	
Length : 225,720 Feet		Volume : 3,457,453 Gallons	

TIME	PRESSURE PSI	TOTAL VOLUME GALLONS	VOLUME DIFF GALLONS	TIME	PRESSURE PSI	TOTAL VOLUME GALLONS	VOLUME DIFF GALLONS
	0		0	8:28	285	7233	516
	15		0	8:30	300	7758	525
	30		0	8:32	315	8204	446
	45		0	8:34	330	8709	505
	60		0	8:38	345	9461	752
	75		0		360		-9461
	90		0	8:40	375	9994	9994
	105		0	8:41	390	10399	405
7:52	120	57	57	8:43	405	10768	369
7:58	135	1082	1025	8:44	420	11171	403
8:00	150	1398	316	8:46	435	11560	389
8:07	165	2516	1118	8:47	450	11937	377
8:14	180	3411	895	8:49	465	12312	375
8:15	195	3914	503	8:50	480	12662	350
8:16	210	4086	172	8:51	495	13012	350
8:19	225	4829	743				
8:21	240	5501	672				
8:24	255	6152	651				
8:25	270	6717	565				

Calculations :

$$Va = \frac{(AVp - TVp) \times 100}{FV}$$

Va Calc.=

0.3257

Va Extr.=

-1.0036

AVp is Actual volume to pressurize / FV is fill volume

TVp is Theoretical volume to pressurize / Va is % of air.

Acceptance :

	Name	Signature	Date
BJ-PPS:	Clint Jackson	<i>[Signature]</i>	11/16/2005 11-19-05
EMPCO:	MARK EMERSON	<i>[Signature]</i>	11-19-05
DWT +5' Above Ground			



**BJ Process and
Pipeline Services**

PRESSURISATION REPORT (To Test Pressure)

Page of

Project : CCGC	LINE#:	Job # : C0316-05	W.T.: 0.312
Client : Mobil Pipeline (EMPCO)		Date : 12-Nov-05	Gal./Ft.: 15.317442
Location : MP 604.98 (Test Section 1)		Nominal Diameter : 20 "	
Length : 225,720 Feet		Volume : 3,457,453 Gallons	

TIME	PRESSURE PSI	TOTAL VOLUME GALLONS	VOLUME DIFF GALLONS	TIME	PRESSURE PSI	TOTAL VOLUME GALLONS	VOLUME DIFF GALLONS
8:53	510	13394	13394	12:06	870	21728	286
8:54	525	13701	307	12:08	885	22019	291
8:56	540	14,055	354	12:10	900	22306	287
8:57	550	14407	352	12:14	915	22668	362
9:22	565	15101	694	12:18	930	22979	311
9:24	580	15427	326	12:21	945	23302	323
9:26	595	16838	1411	12:25	960	23583	281
9:29	610	16142	-696	12:28	975	23871	288
9:31	625	16446	304	12:32	990	24190	319
9:34	640	16766	320	12:35	1000	24467	277
9:36	655	17135	369		1030		-24467
9:38	670	17381	246		1045		0
9:40	685	17675	294		1060		0
9:43	700	17994	319		1075		0
9:45	715	18300	306		1090		0
9:47	730	18617	317		1105		0
9:50	745	18916	299				0
9:51	755	19133	217				0
11:50	765	19701	568				0
11:53	780	20012	311				0
11:55	795	20264	252				0
11:57	810	20552	288				0
11:59	825	20850	298				0
12:01	840	21153	303				0
12:04	855	21442	289				0

Acceptance :

	Name	Signature	Date
BJ-PPS:	Clint Jackson	<i>[Signature]</i>	11-19-05
ExxonMobil:	MARK E Marshall	<i>[Signature]</i>	11-19-05

DOT + 8' Above Ground



PRESSURISATION REPORT

(To Test Pressure)

Page of

Project : CCGC	LINE#:	Job # : C0316-05	W.T.:	0.312
Client : Mobil Pipeline (EMPCO)		Date : 13-Nov-05	Gal./Ft.:	15.317442
Location : MP 604.98 (Test Section 1)		Nominal Diameter :	20 "	
Length : 225,720 Feet		Volume :	3,457,453 Gallons	

Re-pressurization of pipeline section - 1 (MP - 604.98 to MP - 647.73)

TIME	PRESSURE PSI	TOTAL VOLUME GALLONS	VOLUME DIFF GALLONS	TIME	PRESSURE PSI	TOTAL VOLUME GALLONS	VOLUME DIFF GALLONS
8:55	625	24467	24467		1000		-31780
8:57	645	24546	79				0
8:58	660	24,896	350				0
9:01	675	25250	354				0
9:03	690	25609	359				0
9:05	705	25956	347				0
9:07	720	26287	331				0
9:09	735	26607	320				0
9:10	750	26823	216				0
9:12	765	27137	314				0
9:14	780	27463	326				0
9:16	795	27789	326				0
9:18	810	28112	323				0
9:20	825	28439	327				0
9:22	840	28754	315				0
9:24	855	29041	287				0
9:25	870	29333	292				0
9:27	885	29603	270				0
9:29	900	29920	317				0
9:33	915	30326	406				0
9:37	930	30608	282				0
9:40	945	31012	404				0
9:44	960	31352	340				0
9:48	975	31660	308				0
9:50	980	31780	120				0

Acceptance :

	Name	Signature	Date
BJ-PPS:	Clint Jackson	<i>[Signature]</i>	11-19-05
ExxonMobil:	MARK E Marshall SR	<i>[Signature]</i>	11-19-05

NOT +S' Alex GRAYD



**BJ Process and
Pipeline Services**

PRESSURISATION REPORT (AIR INCLUSION)

Page 1 of 3

Project : CCGC	LINE#: TS#1	Job # : C0316-05	W.T.: 0.312
Client : Mobil Pipeline (EMPCO)		Date : 14-Nov-05	Gal./Ft.: 15.317442
Location : MP 604.98 (Test Section 1)		Nominal Diameter : 20 "	
Length : 225,720 Feet		Volume : 3,457,453 Gallons	

Line pressure start @ 30 psi

TIME	PRESSURE PSI	TOTAL VOLUME GALLONS	VOLUME DIFF GALLONS	TIME	PRESSURE PSI	TOTAL VOLUME GALLONS	VOLUME DIFF GALLONS
	15		0	18:01	300	21446	613
16:57	30		0	18:05	315	21925	479
	45		0	18:07	330	22473	548
	60		0	18:08	345	22932	459
	75		0	18:09	360	23420	488
	90		0	18:11	375	23826	406
	105		0	18:12	390	24205	379
17:27	120	9115	9115	18:13	405	24520	315
	135	11238	2123	18:14	420	24876	356
	150	13135	1897	18:15	435	25356	480
	165	14633	1498	18:16	450	25694	338
	180	15750	1117	18:17	465	26111	417
	195	16782	1032	18:18	480	26490	379
17:45	210	17811	1029	18:19	495	26841	351
17:48	225	18472	661	18:20	510	27131	290
17:51	240	19161	689				
17:54	255	19845	684				
17:57	270	20445	600				
17:59	285	20833	388				

Calculations :

$$Va = \frac{(AVp - TVp) \times 100}{FV}$$

Va Calc.=

0.7340

Va Extr.=

0.4342

AVp is Actual volume to pressurize / FV is fill volume

TVp is Theoretical volume to pressurize / Va is % of air.

Acceptance :

	Name	Signature	Date
BJ-PPS:	Clint Jackson	<i>Clint Jackson</i>	11/14/2005 11-19-05
EMPCO:	MARK E MARSHALL SR.	<i>Mark Marshall</i>	11-18-05

DOT TS' Alex Brown



Page 2 of 3

TIME	PRESSURE PSI	TOTAL VOLUME GALLONS	VOLUME DIFF GALLONS	TIME	PRESSURE PSI	TOTAL VOLUME GALLONS	VOLUME DIFF GALLONS
18:21	525	27472	27472	19:27	900	35859	267
18:22	540	27960	488	19:28	905	36083	224
18:23	555	28,134	174		920		-36083
18:59	565	28782	648		935		0
19:00	580	28954	172		950		0
19:01	595	29469	515		965		0
19:02	610	29641	172		980		0
19:03	625	30114	473		995		0
19:04	640	30341	227		1010		0
19:05	655	30717	376		1025		0
19:06	670	30906	189		1040		0
19:07	685	31300	394		1055		0
19:08	700	31499	199		1070		0
19:10	715	32073	574		1085		0
19:11	730	32456	383		1100		0
19:12	745	32725	269		1115		0
19:14	760	33028	303				0
19:15	775	33373	345				0
19:16	790	33595	222				0
19:17	805	33971	376				0
19:19	820	34424	453				0
19:21	835	34714	290				0
19:23	850	35010	296				0
19:24	865	35315	305				0
19:25	880	35592	277				0

	Name	Signature	Date
BJ-PPS:	Clint Jackson	<i>[Signature]</i>	11/14/2005 11-19-05
ExxonMobil:	MARK E MARSHALL	<i>[Signature]</i>	11-19-05

11.27 + 5' Above Ground

MOBIL PIPE LINE COMPANY

HYDROSTATIC PRESSURE TEST

647 Miles / 20" Crude Pipe Line, Patoka, IL to Corsicana, TX

**Test Section 2
Oakdale, IL
MP 604.98 - MP 572.28**

November 2, 2005

Memorandum

Date: 3/17/06

Subject: Hydrotest Review & Endorsement

To: <Hydrotest Report and HCA
Baseline Assessment File>

cc: <>

From: <Chris Gorman>

I've completed the review of the hydrostatic test report for Test Section - 2 (H2) for the Corsicana to Patoka Crude Line. It is consistent with my knowledge of the testing operations and facility and confirms we had a good test. The hydrotest and report documentation are accurate and thorough and will satisfy our needs for Data Integration, Risk & Threat Analysis, and Preventive & Mitigative Measures Analysis needed to comply with the HCA regulations and the testing requirements of DOT CFR Title 49, Part 195, Subpart E.



Chris D. Gorman
Pipeline Risk & Integrity Specialist
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MOBIL PIPE LINE COMPANY

647 Miles / 20" Crude Line, Patoka, IL to Corsicana, TX

Test Section 2

MP 572.28 - MP 604.98

Date and Time:

Nov 2, 2005, from 1:15 PM to 9:15 PM.

Facility Tested:

The test section consisted of 32.70 miles of 20" x 0.312" wt., X-42 ERW pipe

Personnel Present:

Conducted by: S. C. Hong - Test Engineer - BJ Process & Pipeline Services

Witnessed by: M.E. Marshall- Inspector - EMPCO Representative

Procedure:

The piping was filled with water and the air was allowed to bleed through 2" valves.

The test section was pressurized at a rate of 10 psi / minute by injecting water with a positive-displacement pump. Pressurization was halted to allow for stabilization and to check for leaks. The test section was then pressurized at a rate of 5 Psi/min to test pressure of 1128 Psi. .

Conclusion:

The test started at 1:15 PM on November 2, 2005 and was held for 8 hours starting at a pressure of 1128 psi. Over the duration of the test, there was a pressure drop to 1122.5 psi. The 3 temperatures and pressure remained unchanged from 13:15 to 15:00. At 15:00 the ambient temperature began to drop as did the pressure. At 15:50 the ground temperature begins to rise from 59 to 61. The pipe temperature begins to drop at 15:50. The ambient and pipe temperature continue to drop until the end of the test at 21:15. During the test the ground temperature should not show a gain and the buried pipe temperature should not vary 4.50 degrees. The ground temperature appears irrelevant. The pressure was unchanged at 5 points during the test and appears to be influenced by the ambient temperature.

The pressure trends over the duration of the test are within the accuracy of the instrumentation or within calculated fluctuations caused by temperature changes. The test was deemed successful.

Therefore, in my judgment, this constitutes a valid pressure test meeting the requirements of the Department of Transportation Code of Federal Regulations Title 49, Part 195 Subpart E.

David T. Edge

BJ Process & Pipeline Services

CERTIFICATION OF PIPE LINE HYDROSTATIC PRESSURE TEST

CARRIER NAME Mobil Pipeline CompanyTESTING COMPANY NAME BJ Process & Pipeline ServicesPRESSURE TEST NUMBER Test Section 2 - Strength Test DATE 11/2/2005

THIS IS TO CERTIFY THAT THE PIPE LINE OR PIPELINE SECTION DESCRIBED BELOW WAS HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH THE FOLLOWING PROCEDURE:

PIPE LINE 20" Crude FROM Patoka, IL TO Corsicana, TXDESCRIPTION OF FACILITY TESTED Test Section 2 MP 572.28 - MP 604.98SECTION LENGTH 32.7 miles PIPE O.D. 20" WALL THICKNESS 0.312" GR. X-42 TYPE ERWLOCATION OF TEST PRESSURE RECORDER CONNECT MP 604.98 (See attached sketch)LOCATION OF TEMPERATURE RECORDER BULB MP 604.98 (See attached sketch)INITIAL PRESSURE AT POINT OF TEST 1128 psig TIME 1:15 PMINITIAL TEMPERATURE OF TEST SECT. 64.5 °F ELEV. AT POINT OF TEST 520 ft MSLINITIAL PRESSURE AT LOWEST ELEVATION POINT IN SECTION 1193.0 PSIG;ELEVATION 370 ft MSL; MP. 579.14 THE PRESSURE WAS ☐ MEASURED ☒ CALCULATEDINITIAL PRESSURE AT HIGHEST ELEVATION POINT IN SECTION 1096.8 PSIG;ELEVATION 592 ft MSL; MP. 576.34 THE PRESSURE WAS ☐ MEASURED ☒ CALCULATEDFINAL PRESSURE AT POINT OF TEST 1123 PSIG TIME 9:15 PMFINAL TEMPERATURE OF TEST SECT. 58 °FTOTAL FLUID INJ. N/A GAL. TOTAL FLUID WITHDRAWN N/A GAL.NET CHANGE IN VOLUME OF THE TEST SECT. N/A GAL.LENGTH OF TEST 8 HRS. 0 MIN; TESTING FLUID Water SPEC GVTY. 1.00 TEMP. 60 °FINITIAL PRESSURE 86 % OF SMYS AT THE TEST SITE 84 % AT HIGH POINT 91 % AT LOW POINT.MINIMUM TEST PRESSURE DURING A SELECTED 8 HOUR PERIOD (TEST PRESSURE) 1123 PSIGMAXIMUM ALLOWABLE OPERATING PRESSURE 898 PSIG. at test site. BASED ON 80% SMYS
OR 80% of minimum test pressure at the test siteWERE THERE ANY LEAKS? ☐ YES ☒ NO; IF YES, EXPLAIN _____

WAS EVERY COMPONENT THAT WILL BE SUBJECTED TO THE SYSTEM WORKING PRESSURE

HYDROSTATICALLY TESTED? ☒ YES ☐ NO; IF NO, EXPLAIN _____PRESSURE RECORDER MAKE AND SERIAL N Chandler 25601 ITT Barton 242E-51492TEMPERATURE RECORDER MAKE AND SERIAL N ITT Barton 242E-51492 ITT Barton 242E-41526REMARKS: Tested in accordance with D.O.T. CFR Title 49 Part 195 Subpart E.CONDUCTED BY Clint Jackson TITLE BJ PPS Test EngineerCERTIFIED BY Steve Gorman TITLE EMPCO Risk & Integrity SpecialistWITNESSED BY Mark Marshall TITLE EMPCO Test Site InspectorWITNESSED BY Steve Gorman TITLE R&ISNOTE: SEE DOT LIQUIDS MANUAL on site used table conference

CERTIFICATION OF PIPE LINE HYDROSTATIC PRESSURE TEST

PRESSURE RECORDER CALIBRATION - SECTION 2

CALIBRATION BEFORE TEST	
PRESSURE RECORDER	DEADWEIGHT TESTER

CALIBRATED

BY Clint Jackson

COMPARISON DURING TEST	
PRESSURE RECORDER	DEADWEIGHT TESTER

CHECKED

BY _____

COMPARISON AFTER TEST	
PRESSURE RECORDER	DEADWEIGHT TESTER
200	200
300	300
640	640
1000	1000

CHECKED

BY Clint JacksonDEADWEIGHT TESTER MAKE & SERIAL NUMBER Chandler 25601

INJECTION AND WITHDRAWAL DATA

FLUID INJECTED, GAL.	TIME

FLUID WITHDRAWN, GAL.	TIME

TOTAL INJECTED N/A GAL.TOTAL WITHDRAWAL N/A GAL.NET CHANGE IN VOLUME OF THE TEST SECT. N/A GAL.CONDUCTED BY Clint JacksonTITLE BJ PPS Test EngineerCERTIFIED BY Mark MarshallTITLE EMPCO Test Site Inspector

HYDROSTATIC PRESSURE TEST DATA SHEET

TEST NUMBER: Test Section 2

TIME: 1:15 PM | 9:15 PM

DEADWEIGHT TESTER NO.	Chandler	25601
PRESSURE RECORDER NO.	ITT Barton	242E-51492
TEMPERATURE RECORDER NO.	ITT Barton	242E-41526

TIME	PRESSURE	AMBIENT TEMP	PIPE TEMP	GALLONS INJECTED	GALLONS BLED OFF	COMMENTS
	(PSIG)	(°F)	(°F)	(GAL)	(GAL)	
01:15 PM	1128.0	69.0	64.5	N/A	N/A	Start 8 hour Strength Test
01:45 PM	1128.0	69.3	64.5	"	"	Reading
02:00 PM	1128.0	69.0	64.5	"	"	"
02:30 PM	1128.0	69.0	64.5	"	"	"
03:00 PM	1128.0	69.0	64.5	"	"	"
03:30 PM	1127.0	68.6	64.5	"	"	"
04:00 PM	1126.0	68.0	64.0	"	"	"
04:30 PM	1126.0	66.3	63.0	"	"	"
05:00 PM	1125.5	63.0	63.0	"	"	"
05:30 PM	1125.0	62.5	62.0	"	"	"
06:00 PM	1125.0	62.0	61.0	"	"	"
06:30 PM	1124.5	60.5	61.0	"	"	"
07:00 PM	1124.0	58.0	60.0	"	"	"
07:30 PM	1124.0	58.5	60.0	"	"	"
08:00 PM	1124.0	57.0	60.0	"	"	"
08:30 PM	1123.0	57.0	59.0	"	"	"
09:00 PM	1123.0	57.0	59.0	"	"	
09:15 PM	**1122.5	56.5	58.0			End 8 hour Strength Test
						A temperature change of 6.5 deg. F. is an excessive temp drop for buried pipe. Temp.
						probe is being affected by
**NOTE						ambient temp drop and by
Round to 1123 psig. Deadweight tester was in the Test Trailer						injection water being warmer
approximately 5 feet above ground and approximately 10 feet						than test section water. All
above top of buried pipeline. So actual final test pressure						subsequent tests show that
in the line was 4.3 psi higher. - cdg						pipe temp. should not vary
						more than a degree or two
						over the duration of the test.
						Overnight temp. chart for Sec
						2 also supports this, as does
						the chart on the other end of
						the test section. - cdg

MOBIL PIPE LINE COMPANY

HYDROSTATIC PRESSURE TEST

647 Miles / 20" Crude Pipe Line, Patoka, IL to Corsicana, TX

**Test Section 3
Oakdale, IL
MP 554.52 - MP 572.28**

November 8, 2005

Memorandum

Date: 3/17/06

Subject: Hydrotest Review & Endorsement

To: <Hydrotest Report and HCA
Baseline Assessment File>

cc: <>

From: <Chris Gorman>

I've completed the review of the hydrostatic test report for Test Section - 3 (H3) for the Corsicana to Patoka Crude Line. It is consistent with my knowledge of the testing operations and facility and confirms we had a good test. The hydrotest and report documentation are accurate and thorough and will satisfy our needs for Data Integration, Risk & Threat Analysis, and Preventive & Mitigative Measures Analysis needed to comply with the HCA regulations and the testing requirements of DOT CFR Title 49, Part 195, Subpart E.



Chris D. Gorman
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MOBIL PIPE LINE COMPANY

647 Miles / 20" Crude Line, Patoka, IL to Corsicana, TX

Test Section 3

MP 554.52 - MP 572.28

Date and Time:

Nov 8, 2005, from 7:23 AM to 4:23 PM

Facility Tested:

The test section consisted of 17.76 miles of 20" x 0.312" wt., X-42 ERW pipe

Personnel Present:

Conducted by: Clint Jackson - Test Engineer - BJ Process & Pipeline Services

Witnessed by: M.E. Marshall- Inspector - EMPCO Representative

Procedure:

The piping was filled with water and the air was allowed to bleed through 2" valves. The test manifold, pressure recorder and deadweight tester were connected to the test section as shown in the attached sketch

The test section was pressurized at a rate of 10 psi / minute to approximately 80% of strength test pressure by injecting water with a positive-displacement pump. Pressurization was halted for 15 minutes to allow for stabilization and to check for leaks. The test section was then pressurized at a rate of 5 Psi/min to test pressure of 1105 Psi.

Conclusion:

The test started at 7:23 AM on November 8, 2005 and was held for 9 hours starting at a pressure of 1105 psi. Over the duration of the strength test, there was no pressure drop. At this point the test was deemed successful. The ground temperature had a 4.50 degree decrease followed by a 3.5 degree increase. The pipe temperature dropped 0.20 degrees and then increased 7.20 degrees. The ambient temperature had an 18 degree increase. It appears that the pipeline pressure was not affected by the temperature and that some of the temperature readings were not accurate. The inaccurate temperature readings are assumed to be due to the location of the recorder sensing bulb.

The pressure trends over the duration of the test are within the accuracy of the instrumentation or within calculated fluctuations caused by temperature changes. The test was deemed successful.

Therefore, in my judgment, this constitutes a valid pressure test meeting the requirements of the Department of Transportation Code of Federal Regulations Title 49, Part 195 Subpart E.

David T. Edge

BJ Process & Pipeline Services

CERTIFICATION OF PIPE LINE HYDROSTATIC PRESSURE TEST

CARRIER NAME Mobil Pipeline CompanyTESTING COMPANY NAME BJ Process & Pipeline ServicesPRESSURE TEST NUMBER Test Section 3 - Strength Test DATE 11/8/2005

THIS IS TO CERTIFY THAT THE PIPE LINE OR PIPELINE SECTION DESCRIBED BELOW WAS HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH THE FOLLOWING PROCEDURE:

PIPE LINE 20" Crude FROM Patoka, IL TO Corsicana, TXDESCRIPTION OF FACILITY TESTED Test Section 3 MP 554.52 - MP 572.28SECTION LENGTH 17.76 miles PIPE O.D. 20" WALL THICKNESS 0.312" GR. X-42 TYPE ERWLOCATION OF TEST PRESSURE RECORDER CONNECT MP 554.52 (See attached sketch)LOCATION OF TEMPERATURE RECORDER BULB MP 554.52 (See attached sketch)INITIAL PRESSURE AT POINT OF TEST 1105 psig TIME 7:23 AMINITIAL TEMPERATURE OF TEST SECT. 60 °F ELEV. AT POINT OF TEST 560 ft MSLINITIAL PRESSURE AT LOWEST ELEVATION POINT IN SECTION 1190 PSIG;ELEVATION 364 ft MSL; MP. 572.18 THE PRESSURE WAS ☐ MEASURED ☒ CALCULATEDINITIAL PRESSURE AT HIGHEST ELEVATION POINT IN SECTION 1048.7 PSIG;ELEVATION 890 ft MSL; MP. 557.19 THE PRESSURE WAS ☐ MEASURED ☒ CALCULATEDFINAL PRESSURE AT POINT OF TEST 1105 PSIG TIME 4:23 PMFINAL TEMPERATURE OF TEST SECT. 48 °FTOTAL FLUID INJ. N/A GAL. TOTAL FLUID WITHDRAWN N/A GAL.NET CHANGE IN VOLUME OF THE TEST SECT. N/A GAL.LENGTH OF TEST 8 HRS. 0 MIN; TESTING FLUID Water SPEC GVTY. 1.00 TEMP. 60 °FINITIAL PRESSURE 84 % OF SMYS AT THE TEST SITE 80 % AT HIGH POINT 91 % AT LOW POINT.MINIMUM TEST PRESSURE DURING A SELECTED 8 HOUR PERIOD (TEST PRESSURE) 1105 PSIGMAXIMUM ALLOWABLE OPERATING PRESSURE 884 PSIG. at test site. BASED ON 80 % SMYS
OR 80% of minimum test pressure at the test site.WERE THERE ANY LEAKS? ☐ YES ☒ NO; IF YES, EXPLAIN _____

WAS EVERY COMPONENT THAT WILL BE SUBJECTED TO THE SYSTEM WORKING PRESSURE

HYDROSTATICALLY TESTED? ☒ YES ☐ NO; IF NO, EXPLAIN _____PRESSURE RECORDER MAKE AND SERIAL N Chandler 25601 ITT Barton 242E-47061TEMPERATURE RECORDER MAKE AND SERIAL N ITT Barton 242E-47061 ITT Barton 242E-41526REMARKS: Tested in accordance with D.O.T. CFR Title 49 Part 195 Subpart ECONDUCTED BY Clint Jackson TITLE BJ PPS Test EngineerCERTIFIED BY Chris Johnson TITLE EMPCO E&I Integrity InspectionWITNESSED BY Mark Marshall TITLE EMPCO Test Site InspectorWITNESSED BY Chris Johnson TITLE R+I

NOTE: SEE DOT LIQUIDS MANUAL on test to be taken on pressure

CERTIFICATION OF PIPE LINE HYDROSTATIC PRESSURE TEST

PRESSURE RECORDER CALIBRATION - TEST SECTION 3

CALIBRATION BEFORE TEST	
PRESSURE RECORDER	DEADWEIGHT TESTER
250	250
500	500
1000	1000

CALIBRATED

BY Clint Walker

COMPARISON DURING TEST	
PRESSURE RECORDER	DEADWEIGHT TESTER

CHECKED

BY _____

COMPARISON AFTER TEST	
PRESSURE RECORDER	DEADWEIGHT TESTER
250	250
500	500
1000	1000
1200	1200

CHECKED

BY Clint WalkerDEADWEIGHT TESTER MAKE & SERIAL NUMBER Chandler 25601

INJECTION AND WITHDRAWAL DATA

FLUID INJECTED, GAL.	TIME

FLUID WITHDRAWN, GAL.	TIME

TOTAL INJECTED N/A GAL.TOTAL WITHDRAWAL N/A GAL.NET CHANGE IN VOLUME OF THE TEST SECT. N/A GAL.CONDUCTED BY Clint WalkerTITLE BJ PPS Test EngineerCERTIFIED BY Mark MarshallTITLE EMPCO Test Site Inspector

MOBIL PIPE LINE COMPANY

HYDROSTATIC PRESSURE TEST DATA SHEET

DATE: FROM 11/8/2005 TO 11/8/2005

TEST NUMBER: Test Section 3

TIME: 7:23 AM 4:23 PM

DESCRIPTION: 647 Miles / 20" Crude Pipe Line, Patoka, IL to Corsicana, TX
MP 554.52 - MP 572.28
Strength Test

DEADWEIGHT TESTER NO. Chandler 25601
PRESSURE RECORDER NO. ITT Barton 242E-47061
TEMPERATURE RECORDER NO. ITT Barton 242E-41526

TIME	PRESSURE (PSIG)	AMBIENT TEMP (°F)	PIPE TEMP (°F)	GALLONS INJECTED (GAL)	GALLONS BLED OFF (GAL)	COMMENTS
07:23 AM	1105	59.5	60.0	N/A	N/A	Start 8 hour Strength Test
07:53 AM	1105	60.0	60.0	"	"	
08:23 AM	1105	63.0	59.8	"	"	
08:53 AM	1105	63.0	60.0	"	"	
09:23 AM	1105	65.5	60.0	"	"	
09:53 AM	1105	66.0	60.0	"	"	
10:23 AM	1105	69.0	60.3	"	"	
10:53 AM	1105	71.0	61.5	"	"	
11:23 AM	1105	73.0	62.0	"	"	
11:53 AM	1105	73.0	63.0	"	"	
12:23 PM	1105	73.0	64.0	"	"	
12:53 PM	1105	74.0	64.0	"	"	
01:23 PM	1105	75.0	64.0	"	"	
01:37 PM	1105	75.0	64.5	"	"	Instrumentation and Test Line
01:42 PM	1105	75.0	65.0	"	"	Depressured and flushed.
01:47 PM	1105	75.0	65.0	"	"	
02:31 PM	1105	77.0	66.0	"	"	Repressured Test Instrumentation
02:36 PM	1105	77.0	66.0	"	"	
02:41 PM	1105	77.0	66.0	"	"	
02:53 PM	1105	77.5	66.0	"	"	
03:23 PM	1105	77.5	66.0	"	"	
03:53 PM	1105	77.5	67.0	"	"	
04:23 PM	1105	77.0	67.0	"	"	
Pipewall & ground temps located 5' from exposed section and do not reflect true test section temperatures. Pipe temperature is being driven by ambient temp. changes more than by actual test water or ground temp. changes						
Subsequent hydrotest had little or no temp. changes due to water having been stabilized for weeks to buried pipe temperature - cdg						

MOBIL PIPE LINE COMPANY

HYDROSTATIC PRESSURE TEST

647 Miles / 20" Crude Pipe Line, Patoka, IL to Corsicana, TX

Test Section 4

Perryville, MO

MP 554.52 - MP 544.50

November 9, 2005

Memorandum

Date: 3/17/06

Subject: Hydrotest Review & Endorsement

To: <Hydrotest Report and HCA
Baseline Assessment File>

cc: <>

From: <Chris Gorman>

I've completed the review of the hydrostatic test report for Test Section - 4 (H4) for the Corsicana to Patoka Crude Line. It is consistent with my knowledge of the testing operations and facility and confirms we had a good test. The hydrotest and report documentation are accurate and thorough and will satisfy our needs for Data Integration, Risk & Threat Analysis, and Preventive & Mitigative Measures Analysis needed to comply with the HCA regulations and the testing requirements of DOT CFR Title 49, Part 195, Subpart E.



Chris D. Gorman
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MOBIL PIPE LINE COMPANY

647 Miles /20" Crude Line, Patoka, IL to Corsicana, TX

Test Section 4 MP 554.52 - MP 544.50

Date and Time:

Nov 9, 2005, from 3:00 PM to 11:00 PM.

Facility Tested:

The test section consisted of 10.08 miles of 20" x 0.312" W.T., X-42 ERW pipe

Personnel Present:

Conducted by: Clint Jackson- Test Engineer - BJ Process & Pipeline Services

Witnessed by: M.E. Marshall - Inspector - EMPCO Representative

Procedure:

The piping was filled with water and the air was allowed to bleed through 2" valves. The test manifold, pressure recorder, and deadweight tester were connected to the test section as shown in the attached sketch.

The test section was pressurized at a rate of 10 psi / minute to approximately 80% of strength test pressure by injecting water with a positive-displacement pump. Pressurization was halted for 15 minutes to allow for stabilization and to check for leaks. The test section was then pressurized to test pressure of 1189 Psi.

Conclusion:

The test started at 15:00 AM on November 9th, 2005 and ended at 2300 hour with no pressure loss. The test began at 1189-psig and maintained this pressure for the test period. The ground temperature had a 4-degree drop from 68 to 64. The pipe temperature had a 5-degree drop from 69-to 64 and from 15:30 to 23:00 the end of the test, mirrored the ground temperature. The ambient temperature dropped from 60 to 51 during the test period.

The pressure trends over the duration of the test are within the accuracy of the instrumentation or within calculated fluctuations caused by temperature changes. The test was deemed successful.

Therefore, in my judgment, this constitutes a valid pressure test meeting the requirements of the Department of Transportation Code of Federal Regulations Title 49, Part 195 Subpart E.

David T. Edge

BJ Process & Pipeline Services

CERTIFICATION OF PIPE LINE HYDROSTATIC PRESSURE TEST

CARRIER NAME Mobil Pipeline CompanyTESTING COMPANY NAME BJ Process & Pipeline ServicesPRESSURE TEST NUMBER Test Section 4 - Strength Test DATE 11/9/2005

THIS IS TO CERTIFY THAT THE PIPE LINE OR PIPELINE SECTION DESCRIBED BELOW WAS HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH THE FOLLOWING PROCEDURE:

PIPE LINE 20" Crude FROM Patoka, IL TO Corsicana, TXDESCRIPTION OF FACILITY TESTED Test Section 4 MP 544.52 - MP 544.50SECTION LENGTH 10.08 miles PIPE O.D. 20" WALL THICKNESS 0.312" GR. X-42 TYPE ERWLOCATION OF TEST PRESSURE RECORDER CONNECT MP 544.52 (See attached sketch)LOCATION OF TEMPERATURE RECORDER BULB MP 544.52 (See attached sketch)INITIAL PRESSURE AT POINT OF TEST 1189 psig TIME 3:00 PMINITIAL TEMPERATURE OF TEST SECT. 69? °F ELEV. AT POINT OF TEST 560 ft MSLINITIAL PRESSURE AT LOWEST ELEVATION POINT IN SECTION 1189.0 PSIG;ELEVATION 560 ft MSL; MP. 544.52 THE PRESSURE WAS ☐ MEASURED ☒ CALCULATEDINITIAL PRESSURE AT HIGHEST ELEVATION POINT IN SECTION 1019.3 PSIG;ELEVATION 952 ft MSL; MP. 544.61 THE PRESSURE WAS ☐ MEASURED ☒ CALCULATEDFINAL PRESSURE AT POINT OF TEST 1189 PSIG TIME 11:00 PMFINAL TEMPERATURE OF TEST SECT. 64 °FTOTAL FLUID INJ. N/A GAL. TOTAL FLUID WITHDRAWN 1.50 GAL.NET CHANGE IN VOLUME OF THE TEST SECT. -1.50 GAL.LENGTH OF TEST 8 HRS. 0 MIN; TESTING FLUID Water SPEC GVTY. 1.00 TEMP. 60 °FINITIAL PRESSURE 91 % OF SMYS AT THE TEST SITE 78 % AT HIGH POINT 91 % AT LOW POINT.MINIMUM TEST PRESSURE DURING A SELECTED 8 HOUR PERIOD (TEST PRESSURE) 1189 PSIGMAXIMUM ALLOWABLE OPERATING PRESSURE 943 PSIG. at test site. BASED ON 72 % SMYSOR can not use 80% of minimum test pressure ($0.8 \times 1189 = 951$) since it exceeds 72% SMYSWERE THERE ANY LEAKS? ☐ YES ☒ NO; IF YES, EXPLAIN _____

WAS EVERY COMPONENT THAT WILL BE SUBJECTED TO THE SYSTEM WORKING PRESSURE

HYDROSTATICALLY TESTED? ☒ YES ☐ NO; IF NO, EXPLAIN _____PRESSURE RECORDER MAKE AND SERIAL N Chandler 25601 ITT Barton 242E-51492TEMPERATURE RECORDER MAKE AND SERIAL N ITT Barton 242E-51492 ITT Barton 242E-41526REMARKS: Tested in accordance with D.O.T. CFR Title 49 Part 195 Subpart ECONDUCTED BY Clint Jackson TITLE BJ PPS Test EngineerCERTIFIED BY Steve Norman TITLE EMPCO Risk & Integrity SpecialistWITNESSED BY Mark Marshall TITLE EMPCO Test Site InspectorWITNESSED BY Steve Norman TITLE R+ISNOTE: SEE DOT LIQUIDS MANUAL on site + teleconference

CERTIFICATION OF PIPE LINE HYDROSTATIC PRESSURE TEST

PRESSURE RECORDER CALIBRATION - TEST SECTION 3

CALIBRATION BEFORE TEST	
PRESSURE RECORDER	DEADWEIGHT TESTER
250	250
500	500
1000	1000

CALIBRATED

BY Clint Walker

COMPARISON DURING TEST	
PRESSURE RECORDER	DEADWEIGHT TESTER

CHECKED

BY _____

COMPARISON AFTER TEST	
PRESSURE RECORDER	DEADWEIGHT TESTER
60	100
210	200
305	300
400	400
500	500
600	600
700	700
800	800
900	900
1000	1000

CHECKED

BY Clint WalkerDEADWEIGHT TESTER MAKE & SERIAL NUMBER Chandler 25601

INJECTION AND WITHDRAWAL DATA

FLUID INJECTED, GAL.	TIME

FLUID WITHDRAWN, GAL.	TIME

TOTAL INJECTED N/A GAL.TOTAL WITHDRAWAL N/A GAL.NET CHANGE IN VOLUME OF THE TEST SECT. N/A GAL.CONDUCTED BY Clint WalkerTITLE BJ PPS Test EngineerCERTIFIED BY Mark MarshallTITLE EMPCO Test Site Inspector

HYDROSTATIC PRESSURE TEST DATA SHEET

TEST NUMBER: Test Section 4

TIME: 3:00 PM | 11:00 PM

MP 554.52 - MP 544.50

Strength Test

DEADWEIGHT TESTER NO. Chandler 25601

PRESSURE RECORDER NO. ITT Barton 242E-51492

TEMPERATURE RECORDER NO. ITT Barton 242E-41526

Pipe and ground temperature drops are excessive for buried pipe that has had the test water stabilized for weeks to pipe/ground temperature. Subsequent tests support that little or no temperature variation should occur over the whole test section. These readings are being affected by ambient temperature drop and do not reflect actual pipe/ground temperature trends. - cdg 3/17/06

MOBIL PIPE LINE COMPANY

HYDROSTATIC PRESSURE TEST

647 Miles / 20" Crude Pipe Line, Patoka, IL to Corsicana, TX

Test Section 5

Cherokee Pass, MO

MP 529.84 - MP 544.44

November 29, 2005

Memorandum

Date: 3/17/06


Subject: Hydrotest Review & Endorsement

To: <Hydrotest Report and HCA
Baseline Assessment File>

cc: <>

From: <Chris Gorman>

I've completed the review of the hydrostatic test report for Test Section - 5 (H5) for the Corsicana to Patoka Crude Line. It is consistent with my knowledge of the testing operations and facility and confirms we had a good test. The hydrotest and report documentation are accurate and thorough and will satisfy our needs for Data Integration, Risk & Threat Analysis, and Preventive & Mitigative Measures Analysis needed to comply with the HCA regulations and the testing requirements of DOT CFR Title 49, Part 195, Subpart E.



Chris D. Gorman
Pipeline Risk & Integrity Specialist
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MOBIL PIPE LINE COMPANY

647 Miles /20" Crude Line, Patoka, IL to Corsicana, TX

Test Section 5 MP 529.84 - MP 544.44

Date and Time:

Nov 29, 2005, from 7:45 AM to 11:15 AM. (Strength Test)

Nov 29, 2005, from 1:15 PM to 5:15 PM. (Leak Test)

Facility Tested:

The test section consisted of 14.60 miles of 20" x 0.312" W.T., X-42 ERW pipe

Personnel Present:

Conducted by: S.C. Hong - Test Engineer - BJ Process & Pipeline

Services Witnessed by: M.E. Marshall - Inspector - EMPCO

Representative

Procedure:

On Jan 29, 2006, the piping was filled with water and the air was allowed to bleed through 2" valves. The test section was pressurized and was allowed to stabilize. The test manifold, pressure recorder, and deadweight tester were connected to the test section as shown in the attached sketch.

The test section was pressurized at a rate of 10 psi per minute. Pressurization was halted for 15 minutes to allow for stabilization and to check for leaks. The test section was then pressurized at a rate of 5 Psi/min. The pressure stabilized.

Conclusion:

The strength test started at 7:45 AM on January Nov-29th, 2005 and was held for 4 hours starting at a pressure of 1113 psi. Over the duration of the strength test, there was a pressure loss of 0-psi.

The leak test started at 13:15 PM on Nov-29, 2005 and was held for 4 hours starting at a pressure of 10 14 psi. Over the duration of the leak test, there was no pressure change. At this point the leak test was deemed successful.

The pressure trends over the duration of the leak test are within the accuracy of the instrumentation or within calculated fluctuations caused by temperature changes. The tests were deemed successful.

Therefore, in my judgment, this constitutes a valid pressure test meeting the requirements of the Department of Transportation Code of Federal Regulations Title 49, Part 195 Subpart E.

David T. Edge

BJ Process & Pipeline Services

CERTIFICATION OF PIPE LINE HYDROSTATIC PRESSURE TEST

CARRIER NAME Mobil Pipeline CompanyTESTING COMPANY NAME BJ Process & Pipeline ServicesPRESSURE TEST NUMBER Test Section 5 - Strength Test DATE 11/29/2005

THIS IS TO CERTIFY THAT THE PIPE LINE OR PIPELINE SECTION DESCRIBED BELOW WAS HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH THE FOLLOWING PROCEDURE:

PIPE LINE 20" Crude FROM Patoka, IL TO Corsicana, TXDESCRIPTION OF FACILITY TESTED Test Section 5 MP 529.84 - MP 544.44SECTION LENGTH 14.6 miles PIPE O.D. 20" WALL THICKNESS 0.312" GR. X-42 TYPE ERWLOCATION OF TEST PRESSURE RECORDER CONNECT MP 529.84 (See attached sketch)LOCATION OF TEMPERATURE RECORDER BULB MP 529.84 (See attached sketch)INITIAL PRESSURE AT POINT OF TEST 1113 psig TIME 7:39 AMINITIAL TEMPERATURE OF TEST SECT. 49 °F ELEV. AT POINT OF TEST 740 ft MSLINITIAL PRESSURE AT LOWEST ELEVATION POINT IN SECTION 1159.8 PSIG;ELEVATION 632 ft MSL; MP. 538.2 THE PRESSURE WAS ☐ MEASURED ☒ CALCULATEDINITIAL PRESSURE AT HIGHEST ELEVATION POINT IN SECTION 980.9 PSIG;ELEVATION 1045 ft MSL; MP. 533.17 THE PRESSURE WAS ☐ MEASURED ☒ CALCULATEDFINAL PRESSURE AT POINT OF TEST 1113 PSIG TIME 11:45 AMFINAL TEMPERATURE OF TEST SECT. 49.5 °FTOTAL FLUID INJ. N/A GAL. TOTAL FLUID WITHDRAWN N/A GAL.NET CHANGE IN VOLUME OF THE TEST SECT. N/A GAL.LENGTH OF TEST 4 HRS. 0 MIN; TESTING FLUID Water SPEC GVTY. 1.00 TEMP. 60 °FINITIAL PRESSURE 85 % OF SMYS AT THE TEST SITE 75 % AT HIGH POINT 89 % AT LOW POINT.MINIMUM TEST PRESSURE DURING A SELECTED 4 HOUR PERIOD (TEST PRESSURE) 1113 PSIGMAXIMUM ALLOWABLE OPERATING PRESSURE 890 PSIG. at test site BASED ON 80 % SMYS
OR 80% of the minimum test pressure at the test site.WERE THERE ANY LEAKS? ☐ YES ☒ NO; IF YES, EXPLAIN _____

WAS EVERY COMPONENT THAT WILL BE SUBJECTED TO THE SYSTEM WORKING PRESSURE

HYDROSTATICALLY TESTED? ☒ YES ☐ NO; IF NO, EXPLAIN _____PRESSURE RECORDER MAKE AND SERIAL N Chandler 25602 ITT Barton 242E-51492TEMPERATURE RECORDER MAKE AND SERIAL N ITT Barton 242E-51492 ITT Barton 242E-41526REMARKS: Tested in accordance with D.O.T. CFR Title 49 Part 195 Subpart ECONDUCTED BY Sam Hong TITLE BJ PPS Test EngineerCERTIFIED BY Chris Forman TITLE EMPCO Risk & Integrity SpecialistWITNESSED BY Mark Marshall TITLE EMPCO Test Site InspectorWITNESSED BY Chris Forman TITLE R&INOTE: SEE DOT LIQUIDS MANUAL via teleconference

CERTIFICATION OF PIPE LINE HYDROSTATIC PRESSURE TEST

CARRIER NAME Mobil Pipeline CompanyTESTING COMPANY NAME BJ Process & Pipeline ServicesPRESSURE TEST NUMBER Test Section 5 - Leak Test DATE 11/29/2005

THIS IS TO CERTIFY THAT THE PIPE LINE OR PIPELINE SECTION DESCRIBED BELOW WAS HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH THE FOLLOWING PROCEDURE:

PIPE LINE 20" Crude FROM Patoka, IL TO Corsicana, TXDESCRIPTION OF FACILITY TESTED Test Section 5 MP 529.84 - MP 544.44SECTION LENGTH 14.6 miles PIPE O.D. 20" WALL THICKNESS 0.312" GR. X-42 TYPE ERWLOCATION OF TEST PRESSURE RECORDER CONNECT MP 529.84 (See attached sketch)LOCATION OF TEMPERATURE RECORDER BULB MP 529.84 (See attached sketch)INITIAL PRESSURE AT POINT OF TEST 1014 psig TIME 1:15 PMINITIAL TEMPERATURE OF TEST SECT. 49.8 °F ELEV. AT POINT OF TEST 740 ft MSLINITIAL PRESSURE AT LOWEST ELEVATION POINT IN SECTION N/A PSIG;ELEVATION N/A ft MSL; MP. N/A THE PRESSURE WAS ☐ MEASURED ☐ CALCULATEDINITIAL PRESSURE AT HIGHEST ELEVATION POINT IN SECTION N/A PSIG;ELEVATION N/A ft MSL; MP. N/A THE PRESSURE WAS ☐ MEASURED ☐ CALCULATEDFINAL PRESSURE AT POINT OF TEST 1014 PSIG TIME 5:15 PMFINAL TEMPERATURE OF TEST SECT. 49.8 °FTOTAL FLUID INJ. N/A GAL. TOTAL FLUID WITHDRAWN N/A GAL.NET CHANGE IN VOLUME OF THE TEST SECT. N/A GAL.LENGTH OF TEST 4 HRS. 0 MIN; TESTING FLUID Water SPEC GVTY. 1.00 TEMP. 60 °FINITIAL PRESSURE N/A % OF SMYS AT THE TEST SITE N/A % AT HIGH POINT N/A % AT LOW POINT.MINIMUM TEST PRESSURE DURING A SELECTED 4 HOUR PERIOD (TEST PRESSURE) 1014 PSIGMAXIMUM ALLOWABLE OPERATING PRESSURE 890 PSIG. at test site BASED ON 80 % SMYS

OR 80% of the minimum test pressure of 1113 psig at the test site during the 4 hour strength test.

WERE THERE ANY LEAKS? ☐ YES ☒ NO; IF YES, EXPLAIN _____

WAS EVERY COMPONENT THAT WILL BE SUBJECTED TO THE SYSTEM WORKING PRESSURE

HYDROSTATICALLY TESTED? ☒ YES ☐ NO; IF NO, EXPLAIN _____PRESSURE RECORDER MAKE AND SERIAL N Chandler 25602 ITT Barton 242E-51492TEMPERATURE RECORDER MAKE AND SERIAL N ITT Barton 242E-51492 ITT Barton 242E-41526REMARKS: Tested in accordance with D.O.T. CFR Title 49 Part 195 Subpart ECONDUCTED BY Sam Hong TITLE BJ PPS Test EngineerCERTIFIED BY Chris Norman TITLE Risk and Integrity SpecialistWITNESSED BY Mark Marshall TITLE EMPCO Test Site InspectorWITNESSED BY Chris Norman TITLE R+ISNOTE: SEE DOT LIQUIDS MANUAL for the reference

CERTIFICATION OF PIPE LINE HYDROSTATIC PRESSURE TEST

PRESSURE RECORDER CALIBRATION - TEST SECTION 5

CALIBRATION BEFORE TEST	
PRESSURE RECORDER	DEADWEIGHT TESTER
205	200
305	300
405	400
510	500
600	600
700	700
800	800
900	900
1000	1000

CALIBRATED

BY Sam Hong

COMPARISON DURING TEST	
PRESSURE RECORDER	DEADWEIGHT TESTER

CHECKED

BY _____

COMPARISON AFTER TEST	
PRESSURE RECORDER	DEADWEIGHT TESTER
210	200
310	300
410	400
495	500
610	600
700	700
800	800
900	900
1000	1000

CHECKED

BY Clint WalkerDEADWEIGHT TESTER MAKE & SERIAL NUMBER Chandler 25601

INJECTION AND WITHDRAWAL DATA

FLUID INJECTED, GAL.	TIME

FLUID WITHDRAWN, GAL.	TIME

TOTAL INJECTED N/A GAL.TOTAL WITHDRAWAL N/A GAL.NET CHANGE IN VOLUME OF THE TEST SECT. N/A GAL.CONDUCTED BY Sam HongTITLE BJ PPS Test EngineerCERTIFIED BY Mark MarshallTITLE EMPCO Test Site Inspector

MOBIL PIPE LINE COMPANY

HYDROSTATIC PRESSURE TEST

647 Miles / 20" Crude Pipe Line, Patoka, IL to Corsicana, TX

Test Section 6

Cherokee Pass, MO

MP 529.84 - MP 496.30

December 10, 2005

Memorandum

Date: 3/17/06

Subject: Hydrotest Review & Endorsement

To: <Hydrotest Report and HCA
Baseline Assessment File>

cc: <>

From: <Chris Gorman>

I've completed the review of the hydrostatic test report for Test Section - 6 (H6) for the Corsicana to Patoka Crude Line. It is consistent with my knowledge of the testing operations and facility and confirms we had a good test. The hydrotest and report documentation are accurate and thorough and will satisfy our needs for Data Integration, Risk & Threat Analysis, and Preventive & Mitigative Measures Analysis needed to comply with the HCA regulations and the testing requirements of DOT CFR Title 49, Part 195, Subpart E.

Metallurgical root cause failure analysis was performed on the ERW seam failure in this section. The date, location, and calculated failure pressure at it's location was as follows:

12/2/05, MP-528.2, 1031 psig.

Results of the analysis indicate the failure was caused by original factory/mill defects that failed after being tested to a higher pressure than they had ever seen before. No fatigue, selective corrosion, or other time dependant defects were observed.

There was one pin hole leak in a girth weld found during testing at MP-526.7 (sta-27810+13 ft, ILI Odometer-286749.34 ft & GW# -7035). Cause of the pin hole was inadequate penetration of the weld bead at the 6:00 o'clock position where the two weld passes overlapped creating an internal pocket where corrosive elements could accumulate. Weld was repaired in place with a permanent weld sleeve. Review of the 2001 ILI log did not reveal any tell-tale signs of internal or external metal loss/corrosion at this weld.



Chris D. Gorman
Pipeline Risk & Integrity Specialist
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903-654-5323
903-654-5302 fax
903-654-1324 cell

EXXONMOBIL PIPE LINE COMPANY

647 Miles /20" Crude Line, Patoka, IL to Corsicana,TX

Test Section 6 MP 529.84 – MP 496.30

Date and Time:

Dec 10, 2005, from 8:15 AM to 12:15 PM. (Strength Test)

Dec 10, 2005, from 1:30 PM to 5:30 PM. (Leak Test)

Facility Tested:

The test section consisted of 33.54 miles of 20" x 0.312" W.T., X-42 ERW pipe

Personnel Present:

Conducted by: S.C. Hong - Test Engineer - BJ Process & Pipeline Services

Witnessed by: M.E. Marshall- Inspector - EMPCO Representative

Procedure:

The piping was filled with water and the air was allowed to bleed through 2" valves. The test section was filled with water by moving water from previously hydrotested sections. The test section was pressurized with BJ's positive-displacement pump at a rate of 15 psi / minute, and was allowed to stabilize over night. The test manifold, pressure recorder, and deadweight tester were connected to the test section as shown in the attached sketch.

The test section was pressurized at a rate of 10 psi / minute (approximately 80% of strength test pressure) by injecting water with a positive-displacement pump. Pressurization was halted for 15 minutes to allow for stabilization and to check for leaks. The test section was then pressurized at a rate of 5 psi/minute to the test pressure of 1009 Psi.

Conclusion:

The strength test started at 8:15 AM on Dec 10, 2005 and was held for 4 hours starting at a pressure of 1009 psi. Over the duration of the strength test, there was a pressure loss of 1 psi, believed to be attributable to compressed air cooling in the pipeline from the previous test break and colder injection water temperature equalizing with the warmer test water temperature.

The leak test started at 13:30 PM on Dec 10, 2005 and was held for 4 hours starting at a pressure of 910 psi. Over the duration of the leak test, there was no pressure change. At this point the leak test was deemed successful

The pressure trends over the duration of the leak test are within the accuracy of the instrumentation or within calculated fluctuations caused by temperature changes. The tests were deemed successful

Therefore, in my judgment, this constitutes a valid pressure test meeting the requirements of the Department of Transportation Code of Federal Regulations Title 49, Part 195 Subpart E.

Samuel C. Hong
Testing
Engineer
BJ Process & Pipeline Services

CERTIFICATION OF PIPE LINE HYDROSTATIC PRESSURE TEST

CARRIER NAME Mobil Pipeline CompanyTESTING COMPANY NAME BJ Process & Pipeline ServicesPRESSURE TEST NUMBER Test Section 6 - Strength Test DATE 12-10/2005

THIS IS TO CERTIFY THAT THE PIPE LINE OR PIPELINE SECTION DESCRIBED BELOW WAS HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH THE FOLLOWING PROCEDURE:

PIPE LINE 20" Crude FROM Patoka, IL TO Corsicana, TXDESCRIPTION OF FACILITY TESTED Test Section 6 MP 529.84 - MP 496.30SECTION LENGTH 33.54 miles PIPE O.D. 20" WALL THICKNESS 0.312" GR. X-42 TYPE ERWLOCATION OF TEST PRESSURE RECORDER CONNECT MP 529.84 (See attached sketch)LOCATION OF TEMPERATURE RECORDER BULB MP 529.84 (See attached sketch)INITIAL PRESSURE AT POINT OF TEST 1009 psig TIME 8:15 AMINITIAL TEMPERATURE OF TEST SECT. 33.9 °F ELEV. AT POINT OF TEST 740 ft MSLINITIAL PRESSURE AT LOWEST ELEVATION POINT IN SECTION 1163.1 PSIG;ELEVATION 384 ft MSL; MP. 508.3 THE PRESSURE WAS ☐ MEASURED ☒ CALCULATEDINITIAL PRESSURE AT HIGHEST ELEVATION POINT IN SECTION 952.7 PSIG;ELEVATION 870 ft MSL; MP. 523.25 THE PRESSURE WAS ☐ MEASURED ☒ CALCULATEDFINAL PRESSURE AT POINT OF TEST 1008 PSIG TIME 12:15 PMFINAL TEMPERATURE OF TEST SECT. 34 °FTOTAL FLUID INJ. N/A GAL. TOTAL FLUID WITHDRAWN N/A GAL.NET CHANGE IN VOLUME OF THE TEST SECT. N/A GAL.LENGTH OF TEST 4 HRS. 0 MIN; TESTING FLUID Water SPEC GVTY. 1.00 TEMP. 60 °FINITIAL PRESSURE 77 % OF SMYS AT THE TEST SITE 73 % AT HIGH POINT 89 % AT LOW POINT.MINIMUM TEST PRESSURE DURING A SELECTED 4 HOUR PERIOD (TEST PRESSURE) 1008 PSIGMAXIMUM ALLOWABLE OPERATING PRESSURE 806 PSIG. at test site. BASED ON 80 % SMYS
OR 30% of minimum test pressure at the test site.WERE THERE ANY LEAKS? ☒ YES ☐ NO; IF YES, EXPLAIN There was a previous test break at MP 528.6 in the ERW seam which was replaced with new pipe

WAS EVERY COMPONENT THAT WILL BE SUBJECTED TO THE SYSTEM WORKING PRESSURE

HYDROSTATICALLY TESTED? ☒ YES ☐ NO; IF NO, EXPLAIN _____PRESSURE RECORDER MAKE AND SERIAL N Chandler 25601 ITT Barton 242E-51492TEMPERATURE RECORDER MAKE AND SERIAL N ITT Barton 242E-51492 ITT Barton 242E-41526REMARKS: Tested in accordance with D.O.T. CFR Title 49 Part 195 Subpart ECONDUCTED BY Sam Hong TITLE BJ PPS Test EngineerCERTIFIED BY Chris Norman TITLE Rec + Insp by Special Test EngWITNESSED BY Mark Marshall TITLE EMPCO Test Site InspectorWITNESSED BY Chris Norman TITLE R+INOTE: SEE DOT LIQUIDS MANUAL via field conference

CERTIFICATION OF PIPE LINE HYDROSTATIC PRESSURE TEST

CARRIER NAME Mobil Pipeline CompanyTESTING COMPANY NAME BJ Process & Pipeline ServicesPRESSURE TEST NUMBER Test Section 6 - Leak Test DATE 12/10/2005

THIS IS TO CERTIFY THAT THE PIPE LINE OR PIPELINE SECTION DESCRIBED BELOW WAS HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH THE FOLLOWING PROCEDURE:

PIPE LINE 20" Crude FROM Patoka, IL TO Corsicana, TXDESCRIPTION OF FACILITY TESTED Test Section 6 MP 529.84 - MP 496.30SECTION LENGTH 33.54 miles PIPE O.D. 20" WALL THICKNESS 0.312" GR. X-42 TYPE ERWLOCATION OF TEST PRESSURE RECORDER CONNECT MP 529.84 (See attached sketch)LOCATION OF TEMPERATURE RECORDER BULB MP 529.84 (See attached sketch)INITIAL PRESSURE AT POINT OF TEST 910 psig TIME 1:30 PMINITIAL TEMPERATURE OF TEST SECT. 37 °F ELEV. AT POINT OF TEST 740 ft MSLINITIAL PRESSURE AT LOWEST ELEVATION POINT IN SECTION 1064.1 PSIG;ELEVATION N/A ft MSL; MP. N/A THE PRESSURE WAS ☐ MEASURED ☐ CALCULATEDINITIAL PRESSURE AT HIGHEST ELEVATION POINT IN SECTION 853.7 PSIG;ELEVATION N/A ft MSL; MP. N/A THE PRESSURE WAS ☐ MEASURED ☐ CALCULATEDFINAL PRESSURE AT POINT OF TEST 910 PSIG TIME 5:30 PMFINAL TEMPERATURE OF TEST SECT. 38 °FTOTAL FLUID INJ. N/A GAL. TOTAL FLUID WITHDRAWN N/A GAL.NET CHANGE IN VOLUME OF THE TEST SECT. N/A GAL.LENGTH OF TEST 4 HRS. 0 MIN; TESTING FLUID Water SPEC GVTY. 1.00 TEMP. 60 °F N/AINITIAL PRESSURE N/A % OF SMYS AT THE TEST SITE N/A % AT HIGH POINT N/A % AT LOW POINT.MINIMUM TEST PRESSURE DURING A SELECTED 4 HOUR PERIOD (TEST PRESSURE) 910 PSIGMAXIMUM ALLOWABLE OPERATING PRESSURE 806 PSIG. at test site. BASED ON 80 % SMYS
OR 80% of minimum test pressure of 1008 psig at the test site during the 4 hour strength test.WERE THERE ANY LEAKS? ☐ YES ☒ NO; IF YES, EXPLAIN _____

WAS EVERY COMPONENT THAT WILL BE SUBJECTED TO THE SYSTEM WORKING PRESSURE

HYDROSTATICALLY TESTED? ☒ YES ☐ NO; IF NO, EXPLAIN _____PRESSURE RECORDER MAKE AND SERIAL N Chandler 25602 ITT Barton 242E-51492TEMPERATURE RECORDER MAKE AND SERIAL N ITT Barton 242E-51492 ITT Barton 242E-41526REMARKS: Tested in accordance with D.O.T. CFR Title 49 Part 195 Subpart ECONDUCTED BY Sam HongCERTIFIED BY Chris GormanWITNESSED BY Mark MarshallWITNESSED BY Chris GormanNOTE: SEE DOT LIQUIDS MANUAL in the complianceTITLE BJ PPS Test EngineerTITLE Risk & Integrity InspectionTITLE EMPCO Test Site InspectorTITLE R+I

CERTIFICATION OF PIPE LINE HYDROSTATIC PRESSURE TEST

PRESSURE RECORDER CALIBRATION - TEST SECTION 6

CALIBRATION BEFORE TEST	
PRESSURE RECORDER	DEADWEIGHT TESTER
205	200
305	300
405	400
510	500
600	600
700	700
800	800
900	900
1000	1000

CALIBRATED

BY Sam Hong

COMPARISON DURING TEST	
PRESSURE RECORDER	DEADWEIGHT TESTER

CHECKED

BY _____

COMPARISON AFTER TEST	
PRESSURE RECORDER	DEADWEIGHT TESTER
210	200
320	300
420	400
510	500
610	600
700	700
800	800
900	900
1000	1000

CHECKED

BY Sam HongDEADWEIGHT TESTER MAKE & SERIAL NUMBER Chandler 25601

INJECTION AND WITHDRAWAL DATA

FLUID INJECTED, GAL.	TIME

FLUID WITHDRAWN, GAL.	TIME

TOTAL INJECTED N/A GAL.TOTAL WITHDRAWAL N/A GAL.NET CHANGE IN VOLUME OF THE TEST SECT. N/A GAL.CONDUCTED BY Sam HongTITLE BJ PPS Test EngineerCERTIFIED BY Mark MarshallTITLE EMPCO Test Site Inspector

MOBIL PIPE LINE COMPANY

HYDROSTATIC PRESSURE TEST

647 Miles / 20" Crude Pipe Line, Patoka, IL to Corsicana, TX

Test Section 7

Doniphan, MO

MP 472.70 - MP 496.30

Doniphan **December 17, 2005**
Completed 12/18/05

Memorandum

Date: 3/17/06

Subject: Hydrotest Review & Endorsement

To: <Hydrotest Report and HCA
Baseline Assessment File>

cc: <>

From: <Chris Gorman>

I've completed the review of the hydrostatic test report for Test Section - 7 (H7) for the Corsicana to Patoka Crude Line. It is consistent with my knowledge of the testing operations and facility and confirms we had a good test. The hydrotest and report documentation are accurate and thorough and will satisfy our needs for Data Integration, Risk & Threat Analysis, and Preventive & Mitigative Measures Analysis needed to comply with the HCA regulations and the testing requirements of DOT CFR Title 49, Part 195, Subpart E.



Chris D. Gorman
Pipeline Risk & Integrity Specialist
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MOBIL PIPE LINE COMPANY

647 Miles /20" Crude Line, Patoka, IL to Corsicana, TX

Test Section 7 MP 472.70 - MP 496.30

Date and Time:

Dec 17, 2005, from 5:15 PM to 9:15 PM. (Strength Test)

Dec 17/18, 2005, from 11:15 PM to 03:15 AM. (Leak Test)

Facility Tested:

The test section consisted of 23.73 miles of 20" x 0.312" W.T., X-42 ERW pipe

Personnel Present:

Conducted by: S.C. Hong - Test Engineer - BJ Process & Pipeline Services

Witnessed by: M.E. Marshall - Inspector – EMPCO Representative

Procedure:

On December 15, 2005, the piping was filled with water and the air was allowed to bleed through 2" valves. The test section was filled with water by moving water from previously hydrotested sections. The test section was pressurized to approximately 600 psig with BJ's positive-displacement pump at a rate of 15 psi / minute, and was allowed to stabilize over night. The test manifold, pressure recorder, and deadweight tester were connected to the test section as shown in the attached sketch.

The test section was pressurized at a rate of 10 psi / minute to 862 psi (approximately 80% of strength test pressure) by injecting water at MP 472.70 with a positive-displacement pump. Pressurization was halted for 15 minutes to allow for stabilization and to check for leaks. The test section was then pressurized at a rate of 5 Psi/min to test pressure of 1081 Psi. The pressure stabilized at 17:15 of Dec 17, 05 to 1081 psi at the test point corresponding to 100.47% of the specified minimum Test Head Pressure.

Conclusion:

The strength test started at 5:15 PM on December 17th, 2005 and was held for 4 hours starting at a pressure of 1081 psi. Over the duration of the strength test, there was no pressure drop.

The leak test started at 11:15 PM on December 17th, 2005 and was held for 4 hours starting at a pressure of 982 psi. Over the duration of the leak test, there was no pressure change. At this point the leak test was deemed successful.

The pressure trends over the duration of the leak test are within the accuracy of the instrumentation or within calculated fluctuations caused by temperature changes. The tests were deemed successful.

Therefore, in my judgment, this constitutes a valid pressure test meeting the requirements of the Department of Transportation Code of Federal Regulations Title 49, Part 195 Subpart E.

Samuel C. Hong
Testing Engineer
BJ Process & Pipeline Services

CERTIFICATION OF PIPE LINE HYDROSTATIC PRESSURE TEST

CARRIER NAME Mobil Pipeline CompanyTESTING COMPANY NAME BJ Process & Pipeline ServicesPRESSURE TEST NUMBER Test Section 7 - Strength Test DATE 12/17/2005

THIS IS TO CERTIFY THAT THE PIPE LINE OR PIPELINE SECTION DESCRIBED BELOW WAS HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH THE FOLLOWING PROCEDURE:

PIPE LINE 20" Crude FROM Patoka, IL TO Corsicana, TXDESCRIPTION OF FACILITY TESTED Test Section 7 MP 472.70 - MP 496.30SECTION LENGTH 23.73 miles PIPE O.D. 20" WALL THICKNESS 0.312" GR. X-42 TYPE ERWLOCATION OF TEST PRESSURE RECORDER CONNECT MP 472.70 (See attached sketch)LOCATION OF TEMPERATURE RECORDER BULB MP 472.70 (See attached sketch)INITIAL PRESSURE AT POINT OF TEST 1081 psig TIME 5 15 PMINITIAL TEMPERATURE OF TEST SECT. 43.8 °F ELEV. AT POINT OF TEST 597 ft MSLINITIAL PRESSURE AT LOWEST ELEVATION POINT IN SECTION 1164.1 PSIG;ELEVATION 405 ft MSL; MP. 495.86 THE PRESSURE WAS ☐ MEASURED ☒ CALCULATEDINITIAL PRESSURE AT HIGHEST ELEVATION POINT IN SECTION 1006.1 PSIG;ELEVATION 770 ft MSL; MP. 482.25 THE PRESSURE WAS ☐ MEASURED ☒ CALCULATEDFINAL PRESSURE AT POINT OF TEST 1081 PSIG TIME 9 15 PMFINAL TEMPERATURE OF TEST SECT. 43.8 °FTOTAL FLUID INJ. N/A GAL. TOTAL FLUID WITHDRAWN N/A GAL.NET CHANGE IN VOLUME OF THE TEST SECT. N/A GAL.LENGTH OF TEST 4 HRS. 0 MIN; TESTING FLUID Water SPEC GVTY. 1.00 TEMP. 60 °FINITIAL PRESSURE 82 % OF SMYS AT THE TEST SITE 77 % AT HIGH POINT 89 % AT LOW POINT.MINIMUM TEST PRESSURE DURING A SELECTED 4 HOUR PERIOD (TEST PRESSURE) 1081 PSIGMAXIMUM ALLOWABLE OPERATING PRESSURE 865 PSIG. at test site BASED ON - % SMYS
OR 80% of the minimum test pressure at test site.WERE THERE ANY LEAKS? ☐ YES ☒ NO; IF YES, EXPLAIN _____

WAS EVERY COMPONENT THAT WILL BE SUBJECTED TO THE SYSTEM WORKING PRESSURE

HYDROSTATICALLY TESTED? ☒ YES ☐ NO; IF NO, EXPLAIN _____PRESSURE RECORDER MAKE AND SERIAL N Chandler 25601 ITT Barton 242E-51492TEMPERATURE RECORDER MAKE AND SERIAL N ITT Barton 242E-51492 ITT Barton 242E-41526REMARKS: Tested in accordance with D.O.T. CFR Title 49 Part 195 Subpart ECONDUCTED BY Sam Hong TITLE BJ PPS Test EngineerCERTIFIED BY Chris Norman TITLE EMPCO - Dist & Integrity InspectorWITNESSED BY Mark Marshall TITLE EMPCO Test Site InspectorWITNESSED BY Chris Norman TITLE R & I SNOTE: SEE DOT LIQUIDS MANUAL use for design purposes

CERTIFICATION OF PIPE LINE HYDROSTATIC PRESSURE TEST

CARRIER NAME ExxonMobil Pipeline CompanyTESTING COMPANY NAME BJ Process & Pipeline ServicesPRESSURE TEST NUMBER Test Section 7 - Leak Test DATE 12/17/18/2005

THIS IS TO CERTIFY THAT THE PIPE LINE OR PIPELINE SECTION DESCRIBED BELOW WAS HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH THE FOLLOWING PROCEDURE:

PIPE LINE 20" Crude FROM Patoka, IL TO Corsicana, TXDESCRIPTION OF FACILITY TESTED Test Section 7 MP 472.70 - MP 496.30SECTION LENGTH 23.73 miles PIPE O.D. 20" WALL THICKNESS 0.312" GR. X-42 TYPE ERWLOCATION OF TEST PRESSURE RECORDER CONNECT MP 472.70 (See attached sketch)LOCATION OF TEMPERATURE RECORDER BULB MP 472.70 (See attached sketch)INITIAL PRESSURE AT POINT OF TEST 982 psig TIME 11:15 PMINITIAL TEMPERATURE OF TEST SECT. 43.9 °F ELEV. AT POINT OF TEST 597 ft MSLINITIAL PRESSURE AT LOWEST ELEVATION POINT IN SECTION 1065.1 PSIG;ELEVATION 405 ft MSL; MP. 495.86 THE PRESSURE WAS ☐ MEASURED ☒ CALCULATEDINITIAL PRESSURE AT HIGHEST ELEVATION POINT IN SECTION 907.1 PSIG;ELEVATION 770 ft MSL; MP. 482.25 THE PRESSURE WAS ☐ MEASURED ☒ CALCULATEDFINAL PRESSURE AT POINT OF TEST 982 PSIG TIME 3:15 AMFINAL TEMPERATURE OF TEST SECT. 43.9 °FTOTAL FLUID INJ. N/A GAL. TOTAL FLUID WITHDRAWN N/A GAL.NET CHANGE IN VOLUME OF THE TEST SECT. N/A GAL.LENGTH OF TEST 4 HRS. 0 MIN; TESTING FLUID Water SPEC GVTY. 1.00 TEMP. N/A °FINITIAL PRESSURE N/A % OF SMYS AT THE TEST SITE N/A % AT HIGH POINT N/A % AT LOW POINT.MINIMUM TEST PRESSURE DURING A SELECTED 4 HOUR PERIOD (TEST PRESSURE) 982 PSIGMAXIMUM ALLOWABLE OPERATING PRESSURE 865 PSIG. at test site BASED ON - % SMYS
OR 80% of the minimum test pressure of 1081 psig at the test site during the 4 hour strength testWERE THERE ANY LEAKS? ☐ YES ☒ NO; IF YES, EXPLAIN _____

WAS EVERY COMPONENT THAT WILL BE SUBJECTED TO THE SYSTEM WORKING PRESSURE

HYDROSTATICALLY TESTED? ☒ YES ☐ NO; IF NO, EXPLAIN _____PRESSURE RECORDER MAKE AND SERIAL N Chandler 25601 ITT Barton 242E-51492TEMPERATURE RECORDER MAKE AND SERIAL N ITT Barton 242E-51492 ITT Barton 242E-41526REMARKS: Tested in accordance with D.O.T. CFR Title 49 Part 195 Subpart E.CONDUCTED BY Sam Hong TITLE BJ PPS Test EngineerCERTIFIED BY Chris Gorman TITLE EMPCO - Risk & Integrity SpecialistWITNESSED BY Mark Marshall TITLE EMPCO Test Site InspectorWITNESSED BY Chris Gorman TITLE R&ISNOTE: SEE DOT LIQUIDS MANUAL and the accompanying

CERTIFICATION OF PIPE LINE HYDROSTATIC PRESSURE TEST

PRESSURE RECORDER CALIBRATION - TEST SECTION 6

CALIBRATION BEFORE TEST	
PRESSURE RECORDER	DEADWEIGHT TESTER

CALIBRATED

BY Sam Hong

COMPARISON DURING TEST	
PRESSURE RECORDER	DEADWEIGHT TESTER

CHECKED

BY _____

COMPARISON AFTER TEST	
PRESSURE RECORDER	DEADWEIGHT TESTER
210	200
320	300
420	400
510	500
610	600
700	700
800	800
900	900
1000	1000

CHECKED

BY Sam HongDEADWEIGHT TESTER MAKE & SERIAL NUMBER Chandler 25601

INJECTION AND WITHDRAWAL DATA

FLUID INJECTED, GAL.	TIME

FLUID WITHDRAWN, GAL.	TIME

TOTAL INJECTED N/A GAL.TOTAL WITHDRAWAL N/A GAL.NET CHANGE IN VOLUME OF THE TEST SECT. N/A GAL.CONDUCTED BY Sam HongTITLE BJ PPS Test EngineerCERTIFIED BY Mark MarshallTITLE EMPCO Test Site Inspector

MOBIL PIPE LINE COMPANY

HYDROSTATIC PRESSURE TEST

647 Miles / 20" Crude Pipe Line, Patoka, IL to Corsicana, TX

Test Section 8

Doniphan, MO

MP 472.57 - MP 437.74

December 20, 2005