

API 570 PIPING EXTERNAL INSPECTION

Company Name: Pure Energy	
Field/Facility Name: Evanston Yard	
Line Name/Number: All fixed piping on LH-0010	Eq/Circ. ID:
Service/System:	Piping Class
Operating Pressure/Temperature	Materials: (CS/SS)
P&ID#:	Flange Rating 10,000

Reason for Inspection: ☐ Initial API-570 on Stream Inspection ☒ Scheduled API-570 External Inspection
☐ Other

Testing Performed: ☒ Visual ☒ UT ☐ PT ☐ MT ☐ Other

Insulation Observations: ☒ Not insulated ☐ Damaged ☐ CUI identified ☐ Corrosion present (describe)

Coating Condition: ☒ Good ☐ Fair, some blistering/peeling ☐ Corrosion present (describe)

Loss of Containment: ☐ Fluid Loss(indicated how much) ☐ Seeping or evidence of past leakage

☐ Dripping.(size of drops/drops per minute) ☐ Leaking (size of stream, noise level, etc.)

None Identified.

Relief Device: ☐ PSV ☐ Rupture Disc ☐ Atmospheric ☒ No relief device identified for this equipment.

☐ Tag secure and legible ☐ Set pressure at or below MAWP ☐ Block valve not locked/cap sealed in open position ☐ Improper drain hole or weather cap on atmospheric discharge ☐ Obstruction (i.e. debris) ☐ Relief installed in a position other than horizontal or upright ☐ Other

Supports/Hangers: ☒ In serviceable condition ☐ Foundation is damaged ☐ Additional support needed
☐ Hanger/support is distorted/broken/missing ☐ Pipe slide or shoe is off of the support ☐ Makeshift support
☐ Loose support needs to be tightened ☐ Fireproofing missing or damaged ☐ Support/hanger is corroded

Flanged Connections: ☒ Bolting serviceable ☐ Short or missing bolting ☐ Nuts lack full engagement
☒ Flanges serviceable ☐ Flange material or rating inconsistent for system ☐ Flanges deformed or damaged
☐ Corrosion present (describe)

Bolting was removed from several spool pieces at the time of this inspection.

Mechanical Observations: ☐ Deadleg ☐ Damaged flex hose ☐ Crack ☐ Biological growth ☐ Threads exposed ☐ Threaded connections not seal welded ☐ Expansion joint issues ☐ Low point without drain
 No Issues.

Condition of Welds: ☒ Welds are full, smooth and well profiled ☐ Incomplete fusion/penetration ☐ Crack located near weld seam ☐ Weld does not appear to be original ☐ Other

Robert W. Menke

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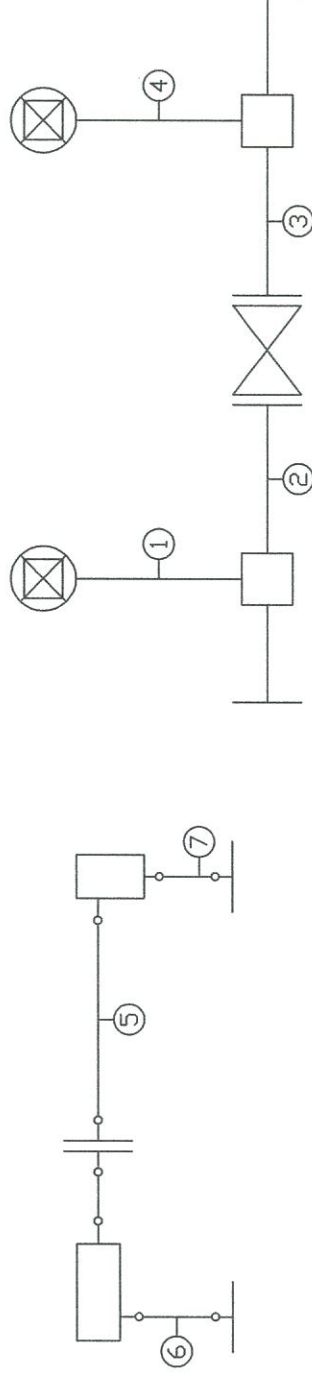
01/12/2011

API 570 Inspector Signature

API 570 Inspector Number

Date

EQUIP RETIREMENT DATE: 1/29/2089
NEXT INSPECTION IS DUE: 1/12/2012



#1. 01- STR-F 0. 787	#2. 04- STR-R 0. 780	#4. 03- STR-BK 0. 753	#6. 02- STR-L 0. 741
#1. 02- STR-L 0. 754	#3. 01- STR-T 0. 767	#4. 04- STR-R 0. 750	#6. 03- STR-BK 0. 756
#1. 03- STR-BK 0. 735	#3. 02- STR-L 0. 758	#5. 01- STR-T 0. 711	#6. 04- STR-R 0. 751
#1. 04- STR-R 0. 756	#3. 03- STR-BTM 0. 753	#5. 02- STR-F 0. 723	#7. 01- STR-F 0. 744
#2. 01- STR-T 0. 776	#3. 04- STR-R 0. 756	#5. 03- STR-BTM 0. 724	#7. 02- STR-L 0. 742
#2. 02- STR-L 0. 749	#4. 01- STR-F 0. 757	#5. 04- STR-BK 0. 713	#7. 03- STR-BK 0. 752
#2. 03- STR-BTM 0. 736	#4. 02- STR-L 0. 746	#6. 01- STR-F 0. 761	#7. 04- STR-R 0. 759

BUSINESS UNIT	PURE ENERGY
EQ/CIRC ID #	LH0010-P
EQUIP NAME	LH0010-P
DWG #	LH0010

FH2E-D

DESC: ASSOCIATED PIPING ON LINE HEATER 3
DWG#: LH0010-P-1.01-7.04

Corrosion Monitoring Eq/L ID Analysis Report

Hawkeye Inspection, LLC
1595 So. Hwy 150, Suite F
Evanston, WY 82930
(307)-789-3540

Report Date: 01/22/2011

(Report in Inches, Corrosion Rates in MPY)
Analysis: Straight Line

Unit: LH-0010
Eq/Circ ID: LH0010-P
Eq Type: VESSEL
Class:
CM RBI:
Design Code: B31.3

Flange Rating: 5734 lb/in²
Design Pressure: 10000 lb/in²
Design Temperature: 180 °F

Description: ASSOCIATED PIPING ON LINE HEATER 3

Summary:

Group Description:

Insp. Due Date = 01/12/2012

RCR = 6.6 MPY

Rem. Life (from last survey 01/12/2011) = 78.0 yrs

O C.A. Status: No

Total Caution TMLs = 0

TM L No	Location	Ctn	First Survey Thick	First Survey Nt	First Date	Previous Survey Thick	Previous Survey Nt	Previous Date	Last Survey Thick	Last Survey Nt	Last Date	Shrt Term Rate	Long Term Rate	Best Rate	Max Hist CR	Retirement Thickness	Rep TML CR	TM L Retirement Date	TM L Inspection Date
1.01	STR-F	N	0.767		06/17/2007	0.767 RR		09/11/2009	0.787	RR	01/12/2011	0	0	0	0	0.260 P	0.1	01/27/4011	01/12/2012
1.02	STR-L	N	0.753		09/11/2009			N/A	0.753 RR	RR	01/12/2011	N/A	0	N/A	0	0.260 P	0.1	01/27/4011	01/12/2012
1.03	STR-BK	N	0.732		09/11/2009			N/A	0.732 RR	RR	01/12/2011	N/A	0	N/A	0	0.260 P	0.1	01/27/4011	01/12/2012
1.04	STR-R	N	0.756		09/11/2009			N/A	0.756		01/12/2011	N/A	0	N/A	0	0.260 P	0.1	01/27/4011	01/12/2012
2.01	STR-T	N	0.781		06/17/2007	0.779		09/11/2009	0.776		01/12/2011	2.2	1.4	1.3	2.2	0.260 P	2.2	07/08/2245	01/12/2012
2.02	STR-L	N	0.746		09/11/2009			N/A	0.746 RR	RR	01/12/2011	N/A	0	N/A	0	0.260 P	0.1	01/27/4011	01/12/2012
2.03	STR-BTH	N *	0.750		09/11/2009			N/A	0.736		01/12/2011	N/A	10.5	N/A	10.5	0.260 P	10.5	05/08/2056	01/12/2012
2.04	STR-R	N	0.780		09/11/2009			N/A	0.780		01/12/2011	N/A	0	N/A	0	0.260 P	0.1	01/27/4011	01/12/2012
3.01	STR-T	N	0.767		06/17/2007	0.767		09/11/2009	0.767		01/12/2011	0	0	0	0	0.260 P	0.1	01/27/4011	01/12/2012
3.02	STR-L	N	0.756		09/11/2009			N/A	0.756 RR	RR	01/12/2011	N/A	0	N/A	0	0.260 P	0.1	01/27/4011	01/12/2012
3.03	STR-BTH	N	0.753		09/11/2009			N/A	0.753		01/12/2011	N/A	0	N/A	0	0.260 P	0.1	01/27/4011	01/12/2012
3.04	STR-R	N	0.756		09/11/2009			N/A	0.756		01/12/2011	N/A	0	N/A	0	0.260 P	0.1	01/27/4011	01/12/2012
4.01	STR-F	N *	0.765		06/17/2007	0.765		09/11/2009	0.757		01/12/2011	6.0	2.2	2.0	6.0	0.260 P	6.0	11/03/2093	01/12/2012
4.02	STR-L	N *	0.760		09/11/2009			N/A	0.746		01/12/2011	N/A	10.5	N/A	10.5	0.260 P	10.5	04/21/2057	01/12/2012
4.03	STR-BK	N *	0.760		09/11/2009			N/A	0.753		01/12/2011	N/A	5.2	N/A	5.2	0.260 P	5.2	19/04/2105	01/12/2012
4.04	STR-R	N	0.755		09/11/2009			N/A	0.750		01/12/2011	N/A	3.7	N/A	3.7	0.260 P	3.7	06/06/2143	01/12/2012
5.01	STR-T	N *	0.724		06/17/2007	0.701		09/11/2009	0.701 RR	RR	01/12/2011	0	6.4	6.8	10.3	0.260 P	6.4	12/01/2079	01/12/2012
5.02	STR-F	N	0.726		09/11/2009			N/A	0.723		01/12/2011	N/A	2.2	N/A	2.2	0.260 P	2.2	06/04/2221	01/12/2012
5.03	STR-BTH	N	0.725		09/11/2009			N/A	0.724		01/12/2011	N/A	0.7	N/A	0.7	0.260 P	0.7	09/11/2673	01/12/2012
5.04	STR-BK	N	0.715		09/11/2009			N/A	0.713		01/12/2011	N/A	1.5	N/A	1.5	0.260 P	1.5	12/10/2312	01/12/2012

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(307) -789-3540

Report Date: 01/22/2011

(Report in Inches, Corrosion Rates in MPY)
Analysis: Straight Line

Unit: LH-0010
Eq/Circ ID: LH0010-P
Eq Type: VESSEL
Class:
CM RBI:
Design Code: B31.3

Flange Rating: 5734 lb/in²
Design Pressure: 10000 lb/in²
Design Temperature: 180 °F

Description: ASSOCIATED PIPING ON LINE HEATER 3

Summary: Group Name:
Insp. Due Date = 01/12/2012
Pred. Ret. Date = 01/29/2089

Group Description:
RCR = 6.6 MPY

Rem. Life (from last survey 01/12/2011) = 78.0 yrs

0 C.A. Status: NO
Total Caution TMLs = 0

TML No	Location	Ctn	First Survey Thick	First Survey Nt	First Date	Previous Survey Thick	Previous Survey Nt	Previous Date	Last Survey Thick	Last Date	Shrt Term Rate	Long Term Rate	Best Rate	Max Hist CR	Retirement Thickness	Rep TML CR	TML Retirement Date	TML Inspection Date
6.01	STR-F	N	0.757	0.757	06/17/2007	0.757	RR	09/11/2009	0.761	01/12/2011	0	0	0	0	0.260	0.1	01/27/4011	01/12/2012
6.02	STR-L	N	0.745		09/11/2009			N/A	0.741	01/12/2011	N/A	3.0	N/A	0.260	P	3.0	04/27/2171	01/12/2012
6.03	STR-BK	N	0.761		09/11/2009			N/A	0.756	01/12/2011	N/A	3.7	N/A	0.260	P	3.7	01/18/2145	01/12/2012
6.04	STR-R	N	0.742		09/11/2009			N/A	0.742	RR	N/A	0	N/A	0.260	P	0.1	01/27/4011	01/12/2012
7.01	STR-F	N	0.749		06/17/2007	0.749	RR	09/11/2009	0.744	01/12/2011	3.7	1.4	1.3	0.260	P	3.7	10/21/2141	01/12/2012
7.02	STR-L	N	0.749		09/11/2009			N/A	0.742	01/12/2011	N/A	3.7	N/A	0.260	P	3.7	04/07/2141	01/12/2012
7.03	STR-BK	N	0.735		09/11/2009			N/A	0.735	RR	N/A	0	N/A	0.260	P	0.1	01/27/4011	01/12/2012
7.04	STR-R	N	0.760		09/11/2009			N/A	0.759	01/12/2011	N/A	0.7	N/A	0.260	P	0.7	09/12/2723	01/12/2012

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CM RBI:

Flange Rating: 5734 lb/in²
Design Pressure: 10000 lb/in²
Design Temperature: 180 °F

Description: ASSOCIATED PIPING ON LINE HEATER 3

TML Corrosion Rates are each the Maximum of:

(A) -- Calculated Corrosion Rates x 1.00 :
(B) -- Default Corrosion Rate : Varies
: 0.1 MPY

Representative Corrosion Rate is the Maximum of:

(A) -- Average Corrosion Rate x 1.00 : 2.3 MPY
(B) -- Average Max 25.0% of TMLs, Min of 2 : 6.6 MPY
(C) -- Formula Corrosion Rate (Sigma = 1.28) : 2.9 MPY
(D) -- Default Corrosion Rate : 0.1 MPY
Representative Corrosion Rate = 6.6 MPY

TML thickness readings have not been compensated for high Temperatures.
TML thickness readings have been compensated for growths.

TML Life calculations are based on the Representative TML Corrosion Rate using Short
Term and Long Term Corrosion Rates.

Nominal thickness is used for TML corrosion rate calculations with less than 3 surveys.

Minimum time between inspections required for corrosion rate calculation is 3 months.

TML Inspection Interval is:

(A) -- Minimum(TML Life / 2.00, 1.00 years)

Eq/Circ ID Last Survey Date is based on the LAST of the last 0% of TML survey dates (Min 1).

Eq/Circ ID Estimated life = 78.0 years from the most recent survey date.
(Estimated Life based on the ave of the earliest 0% (Min 6) TML retirement dates.)

Predicted Eq/Circ ID Retirement date is 01/29/2089

Recommended Eq/Circ UT/RT Inspection Date is 01/12/2012

UT/RT Inspection Interval is the minimum(Remaining life / 2.0, 1.00 years).

Caution TML Logic: TML Corrosion Rate > 15.0 MPY .OR. TML Remaining Life < 3.00 Years.
There are 0 Caution TMLs in this Eq/Circ ID.