

TABLE OF CONTENTS

Tab #	Tag	Description	Reg #	Serial #	NB #
<u>PV-620 Treater Building</u>					
4	PV-620 Horizontal Treater				
	(a)	PV-620 Vessel	A0403457	97015-2-30	
	(b)	Outlet Piping			
	(c)	Outlet Piping			
	(d)	Outlet Piping			
	(e)	Outlet Piping			
	(f)	Inlet Piping			

CONDITION INDICATOR

Tab	TML	Description	Last Inspection Date	Nominal Thickness in	Thinnest Reading in	Critical Thickness in	Corrosion Rate in/yr	Condition Indicator Years
<u>PV-620 Treater Building</u>								
4 PV-620 Horizontal Treater								
(a) <u>PV-620 Vessel</u>								
	400	Bottom East Head	Nov 2014	0.500	0.499	0.437	0.000	100+
	405	Upper South Shell (west end)	Nov 2014	0.500	0.520	0.437	0.000	100+
	410	Lower South Shell (west end)	Nov 2014	0.500	0.518	0.437	0.000	100+
	415	Bottom South Shell (center)	Nov 2014	0.500	0.516	0.437	0.000	100+
	420	Bottom Shell (east end)	Nov 2014	0.500	0.522	0.437	0.000	100+
	425	Bottom Shell (west end)	Nov 2014	0.500	0.518	0.437	0.000	100+
(b) <u>Outlet Piping</u>								
	450	4" Outlet Elbow	Nov 2014	0.237	0.212	0.144	0.001	46.1
(c) <u>Outlet Piping</u>								
	460	Bottom of 2" Outlet Pipe	Nov 2014	0.218	0.163	0.128	0.003	11.0
(d) <u>Outlet Piping</u>								
	470	Bottom of 3" Pipe	Nov 2014	0.300	0.298	0.200	0.000	100+
	471	3" Outlet Elbow	Nov 2014	0.300	0.275	0.200	0.001	52.1
	472	Bottom of 3" Outlet Pipe	Nov 2014	0.300	0.298	0.200	0.000	100+
	473	Bottom of 3" Tee	Nov 2014	0.300	0.434	0.200	0.000	100+
	474	3" Outlet Elbow	Nov 2014	0.300	0.276	0.200	0.001	52.5
(e) <u>Outlet Piping</u>								
	480	2" Outlet Elbow	Nov 2014	0.154	0.157	0.072	0.000	100+
(f) <u>Inlet Piping</u>								
	490	3" Inlet Elbow	Nov 2014	0.300	0.323	0.200	0.000	100+
	492	Bottom of 3" Inlet Pipe	Nov 2014	0.300	0.282	0.200	0.001	75.0
	494	Bottom of 3" Inlet Pipe	Nov 2014	0.300	0.290	0.200	0.001	100+

COMMENT LIST

Tab Equipment

Date Inspected	Comments	Condition indicator
----------------	----------	---------------------

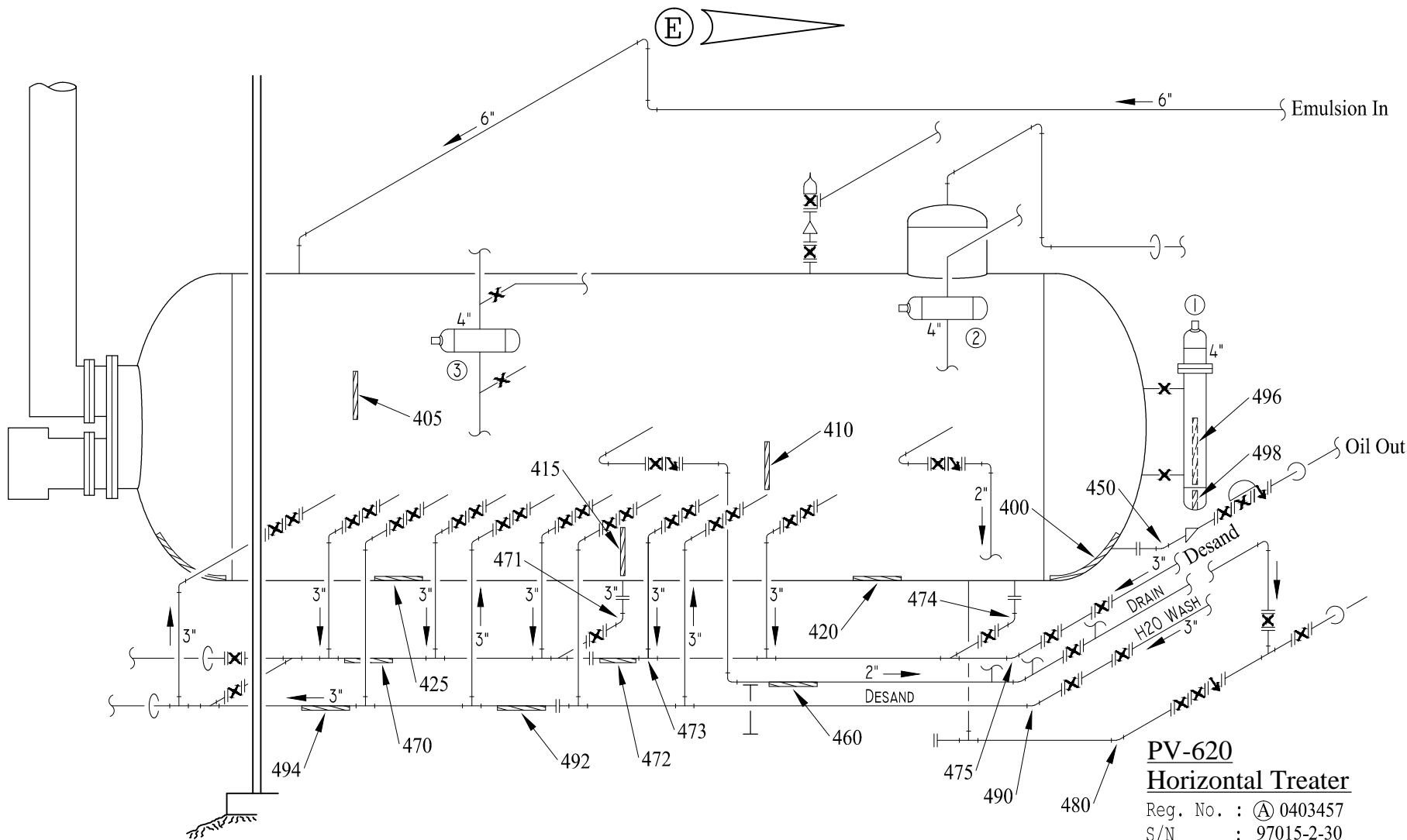
PV-620 Treater Building

4 PV-620 Horizontal Treater

(c) Outlet Piping

460 Bottom of 2" Outlet Pipe

Nov 2014	Possible indications of internal corrosion may be occurring in the bottom of the pipe to a low of .165". Nominal thickness is .218".	11.0
----------	--	------



**PV-620
Horizontal Treater**

Reg. No. : Ⓐ 0403457
 S/N : 97015-2-30
 CRN : L-0015.2
 Built : 1998
 MWP : 75 PSI @ 300°F
 Dia. : 120" OD
 C.A. :
 J.E. : RT-1 / 100%
 Shell :
 Head :
 Built By : Resource Constructors Inc.

Canadian Natural Resources Ltd
 Brintell 12-09 Battery
 12-09-081-22 W4M

SUMMIT Inspection Services Ltd.

Sketched: TC Date: 12/2014

AutoCad: DD/RR Revised:

Dwg: 4 Items: 400 - 498

DATA PAGE

Index: 4	PV-620 Horizontal Treater	Product:	JE: 100%
Component: (a) PV-620 Vessel		Drawing: 4	Dia: 120 (in) OD
TML: 400 Bottom East Head		MfgDate: Jan 1998	CA: 0.063 (in)
Registration: A0403457		Material:	Nominal: 0.500 (in)
CRN: L-0015.2		MWP: 75 psi @ 300 °F	T-min: 0.437 (in)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (in)	Loss Rate (in/yr)	Condition Indicator
Inspection Dates	Nov 2014														
Temperature °F	185														
Top	1	0.499											0.001	0.000	100+
	2	0.510													
	3	0.506													
	4	0.509													
	5	0.510													
	6	0.515													
	7	0.513													
Bottom	8	0.511													
Comments:															
Nov 2014	Band: Corrosion allowance is assumed to be 0.063" and should be confirmed.														
Nov 2014	Band: Nominal thickness is assumed to be 0.500" and should be confirmed.														
Scan Minimum (in)	0.499														
Avg Thickness (in)	0.509														
Avg Loss															
Avg Loss Rate															
Max Loss Rate	0.000														
Avg.Condition Indicator															
Min.Condition Indicator															

DATA PAGE

Index: 4	PV-620 Horizontal Treater	Product:	JE: 100%
Component: (a) PV-620 Vessel		Drawing: 4	Dia: 120 (in) OD
TML: 405 Upper South Shell (west end)		MfgDate: Jan 1998	CA: 0.063 (in)
Registration: A0403457		Material:	Nominal: 0.500 (in)
CRN: L-0015.2		MWP: 75 psi @ 300 °F	T-min: 0.437 (in)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (in)	Loss Rate (in/yr)	Condition Indicator
Inspection Dates	Nov 2014														
Temperature °F	185														
Top	1	0.521													
	2	0.520													
	3	0.522													
	4	0.522													
	5	0.521													
	6	0.522													
	7	0.522													
	8	0.522													
	9	0.521													
Bottom	10	0.525													
Comments:															
Nov 2014	Band: Corrosion allowance is assumed to be 0.063" and should be confirmed.														
Nov 2014	Band: Nominal thickness is assumed to be 0.500" and should be confirmed.														
Scan Minimum (in)	0.520														
Avg Thickness (in)	0.522														
Avg Loss															
Avg Loss Rate															
Max Loss Rate															
Avg.Condition Indicator															
Min.Condition Indicator															

DATA PAGE

Index: 4	PV-620 Horizontal Treater	Product:	JE: 100%
Component: (a) PV-620 Vessel		Drawing: 4	Dia: 120 (in) OD
TML: 410 Lower South Shell (west end)		MfgDate: Jan 1998	CA: 0.063 (in)
Registration: A0403457		Material:	Nominal: 0.500 (in)
CRN: L-0015.2		MWP: 75 psi @ 300 °F	T-min: 0.437 (in)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (in)	Loss Rate (in/yr)	Condition Indicator
Inspection Dates	Nov 2014														
Temperature °F	185														
Top	1	0.524													
	2	0.522													
	3	0.523													
	4	0.518													
	5	0.520													
	6	0.521													
	7	0.522													
	8	0.524													
	9	0.523													
Bottom	10	0.524													
Comments:															
Nov 2014	Band: Corrosion allowance is assumed to be 0.063" and should be confirmed.														
Nov 2014	Band: Nominal thickness is assumed to be 0.500" and should be confirmed.														
Scan Minimum (in)	0.518														
Avg Thickness (in)	0.522														
Avg Loss															
Avg Loss Rate															
Max Loss Rate															
Avg.Condition Indicator															
Min.Condition Indicator															

DATA PAGE

Index: 4	PV-620 Horizontal Treater	Product:	JE: 100%
Component: (a) PV-620 Vessel		Drawing: 4	Dia: 120 (in) OD
TML: 415 Bottom South Shell (center)		MfgDate: Jan 1998	CA: 0.063 (in)
Registration: A0403457		Material:	Nominal: 0.500 (in)
CRN: L-0015.2		MWP: 75 psi @ 300 °F	T-min: 0.437 (in)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (in)	Loss Rate (in/yr)	Condition Indicator
Inspection Dates	Nov 2014														
Temperature °F	150														
Top	1	0.519													
	2	0.519													
	3	0.518													
	4	0.519													
	5	0.517													
	6	0.516													
	7	0.517													
	8														
Bottom	9	0.517													
Comments:															
Nov 2014	Band: Corrosion allowance is assumed to be 0.063" and should be confirmed.														
Nov 2014	Band: Nominal thickness is assumed to be 0.500" and should be confirmed.														
Scan Minimum (in)	0.516														
Avg Thickness (in)	0.518														
Avg Loss															
Avg Loss Rate															
Max Loss Rate															
Avg.Condition Indicator															
Min.Condition Indicator															

DATA PAGE

Index: 4	PV-620	Horizontal Treater	Product:	JE: 100%
Component: (a)	PV-620 Vessel		Drawing: 4	Dia: 120 (in) OD
TML: 420	Bottom Shell (east end)		MfgDate: Jan 1998	CA: 0.063 (in)
Registration: A0403457			Material:	Nominal: 0.500 (in)
CRN: L-0015.2			MWP: 75 psi @ 300 °F	T-min: 0.437 (in)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (in)	Loss Rate (in/yr)	Condition Indicator
Inspection Dates	Nov 2014														
Temperature °F	150														
East	1	0.524													
	2	0.524													
	3	0.524													
	4	0.525													
	5	0.524													
	6	0.525													
	7	0.524													
	8	0.523													
West	9	0.522													
Comments:															
Nov 2014	Band: Corrosion allowance is assumed to be 0.063" and should be confirmed.														
Nov 2014	Band: Nominal thickness is assumed to be 0.500" and should be confirmed.														
Scan Minimum (in)	0.522														
Avg Thickness (in)	0.524														
Avg Loss															
Avg Loss Rate															
Max Loss Rate															
Avg.Condition Indicator															
Min.Condition Indicator															

DATA PAGE

Index: 4	PV-620 Horizontal Treater	Product:	JE: 100%
Component: (a) PV-620 Vessel		Drawing: 4	Dia: 120 (in) OD
TML: 425 Bottom Shell (west end)		MfgDate: Jan 1998	CA: 0.063 (in)
Registration: A0403457		Material:	Nominal: 0.500 (in)
CRN: L-0015.2		MWP: 75 psi @ 300 °F	T-min: 0.437 (in)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (in)	Loss Rate (in/yr)	Condition Indicator
Inspection Dates	Nov 2014														
Temperature °F	130														
East	1	0.522													
	2	0.523													
	3	0.520													
	4	0.518													
	5	0.520													
	6	0.520													
	7	0.521													
West	8	0.529													
Comments:															
Nov 2014	Band: Corrosion allowance is assumed to be 0.063" and should be confirmed.														
Nov 2014	Band: Nominal thickness is assumed to be 0.500" and should be confirmed.														
Scan Minimum (in)	0.518														
Avg Thickness (in)	0.521														
Avg Loss															
Avg Loss Rate															
Max Loss Rate															
Avg.Condition Indicator															
Min.Condition Indicator															

DATA PAGE

Index: 4	PV-620	Horizontal Treater	Product:	JE: 100%
Component: (b)	Outlet Piping		Drawing: 4	Dia: 4.500 (in) OD
TML: 450	4" Outlet Elbow		MfgDate: Jan 1998	CA: 0.063 (in)
Registration:			Material: SA 234 WPB	Nominal: 0.237 (in)
CRN:			MWP: 75 psi @ 300 °F	T-min: 0.144 (in)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (in)	Loss Rate (in/yr)	Condition Indicator
Inspection Dates	Nov 2014														
Temperature °F	200														
North	1	0.238													
	2	0.227											0.010	0.001	100+
	3	0.218											0.019	0.001	65.8
	4	0.218											0.019	0.001	65.8
	5	0.216											0.021	0.001	58.0
	6	0.215											0.022	0.001	54.6
	7	0.215											0.022	0.001	54.6
	8	0.213											0.024	0.001	48.7
West	9	0.212											0.025	0.001	46.0
Comments:															
Scan Minimum (in)	0.212														
Avg Thickness (in)	0.219														
Avg Loss	0.018														
Avg Loss Rate	0.001														
Max Loss Rate	0.001														
Avg.Condition Indicator	64.3														
Min.Condition Indicator	46.1														

DATA PAGE

Index: 4	PV-620	Horizontal Treater	Product:	JE: 100%
Component: (c)	Outlet Piping		Drawing: 4	Dia: 2.375 (in) OD
TML: 460	Bottom of 2" Outlet Pipe		MfgDate: Jan 1998	CA: 0.063 (in)
Registration:			Material: SA 106 B	Nominal: 0.218 (in)
CRN:			MWP: 75 psi @ 300 °F	T-min: 0.128 (in)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (in)	Loss Rate (in/yr)	Condition Indicator
Inspection Dates	Nov 2014														
Temperature °F	170														
East	1	0.186											0.032	0.002	30.8
	2	0.185											0.033	0.002	29.4
	3	0.185											0.033	0.002	29.4
	4	0.191											0.027	0.002	39.6
	5	0.171											0.047	0.003	15.7
	6	0.187											0.031	0.002	32.3
	7	0.171											0.047	0.003	15.7
	8	0.164											0.054	0.003	11.5
	9	0.163											0.055	0.003	11.0
	10	0.169											0.049	0.003	14.4
	11	0.186											0.032	0.002	30.8
West	12	0.184											0.034	0.002	28.0

Comments:

Nov 2014 Band: Possible indications of internal corrosion may be occurring in the bottom of the pipe to a low of .165". Nominal thickness is .218".

Scan Minimum (in)	0.163
Avg Thickness (in)	0.179
Avg Loss	0.039
Avg Loss Rate	0.002
Max Loss Rate	0.003
Avg.Condition Indicator	15.3
Min.Condition Indicator	11.0

DATA PAGE

Index: 4	PV-620	Horizontal Treater	Product:	JE: 100%
Component: (d)	Outlet Piping		Drawing: 4	Dia: 3.500 (in) OD
TML: 470	Bottom of 3" Pipe		MfgDate: Jan 1998	CA: 0.063 (in)
Registration:			Material: SA 106 B	Nominal: 0.300 (in)
CRN:			MWP: 75 psi @ 300 °F	T-min: 0.200 (in)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (in)	Loss Rate (in/yr)	Condition Indicator
Inspection Dates	Nov 2014														
Temperature °F	90														
East	1	0.301													
	2	0.300													
	3	0.299											0.001	0.000	100+
	4	0.299											0.001	0.000	100+
	5	0.298											0.002	0.000	100+
	6	0.301													
	7	0.301													
	8	0.298											0.002	0.000	100+
	9	0.299											0.001	0.000	100+
	10	0.299											0.001	0.000	100+
West	11	0.301													
	12	0.300													
Comments:															
Scan Minimum (in)	0.298														
Avg Thickness (in)	0.300														
Avg Loss															
Avg Loss Rate															
Max Loss Rate	0.000														
Avg.Condition Indicator															
Min.Condition Indicator															

DATA PAGE

Index: 4	PV-620	Horizontal Treater	Product:	JE: 100%
Component: (d)	Outlet Piping		Drawing: 4	Dia: 3.500 (in) OD
TML: 471	3" Outlet Elbow		MfgDate: Jan 1998	CA: 0.063 (in)
Registration:			Material: SA 234 WPB	Nominal: 0.300 (in)
CRN:			MWP: 75 psi @ 300 °F	T-min: 0.200 (in)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (in)	Loss Rate (in/yr)	Condition Indicator
Inspection Dates	Nov 2014														
Temperature °F	90														
Top	1	0.295											0.005	0.000	100+
	2	0.275											0.025	0.001	52.1
	3	0.283											0.017	0.001	85.3
	4	0.293											0.007	0.000	100+
	5	0.290											0.010	0.001	100+
Bottom	6	0.285											0.015	0.001	99.3
	7	0.282											0.018	0.001	79.5
Comments:															
Scan Minimum (in)	0.275														
Avg Thickness (in)	0.287														
Avg Loss	0.013														
Avg Loss Rate	0.001														
Max Loss Rate	0.001														
Avg.Condition Indicator	95.2														
Min.Condition Indicator	52.1														

DATA PAGE

Index: 4	PV-620	Horizontal Treater	Product:	JE: 100%
Component: (d)	Outlet Piping		Drawing: 4	Dia: 3.500 (in) OD
TML: 472	Bottom of 3" Outlet Pipe		MfgDate: Jan 1998	CA: 0.063 (in)
Registration:			Material: SA 106 B	Nominal: 0.300 (in)
CRN:			MWP: 75 psi @ 300 °F	T-min: 0.200 (in)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (in)	Loss Rate (in/yr)	Condition Indicator
Inspection Dates	Nov 2014														
Temperature °F	115														
East	1	0.300											0.000	0.000	100+
	2	0.300											0.000	0.000	100+
	3	0.303													
	4	0.307													
	5	0.306													
	6	0.304													
	7	0.304													
	8	0.298											0.002	0.000	100+
	9	0.300											0.000	0.000	100+
	10	0.307													
West	11	0.300											0.000	0.000	100+
	12	0.307													
Comments:															
Scan Minimum (in)	0.298														
Avg Thickness (in)	0.303														
Avg Loss															
Avg Loss Rate															
Max Loss Rate	0.000														
Avg.Condition Indicator															
Min.Condition Indicator															

DATA PAGE

Index: 4	PV-620	Horizontal Treater	Product:	JE: 100%
Component: (d)	Outlet Piping		Drawing: 4	Dia: 3.500 (in) OD
TML: 473	Bottom of 3" Tee		MfgDate: Jan 1998	CA: 0.063 (in)
Registration:			Material: SA 234 WPB	Nominal: 0.300 (in)
CRN:			MWP: 75 psi @ 300 °F	T-min: 0.200 (in)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (in)	Loss Rate (in/yr)	Condition Indicator
Inspection Dates	Nov 2014														
Temperature °F	120														
East	1	0.444													
	2	0.478													
	3	0.515													
	4	0.492													
West	5	0.445													
Comments:															
Scan Minimum (in)	0.434														
Avg Thickness (in)	0.475														
Avg Loss															
Avg Loss Rate															
Max Loss Rate															
Avg.Condition Indicator															
Min.Condition Indicator															

DATA PAGE

Index: 4	PV-620	Horizontal Treater	Product:	JE: 100%
Component: (d)	Outlet Piping		Drawing: 4	Dia: 3.500 (in) OD
TML: 474	3" Outlet Elbow		MfgDate: Jan 1998	CA: 0.063 (in)
Registration:			Material: SA 234 WPB	Nominal: 0.300 (in)
CRN:			MWP: 75 psi @ 300 °F	T-min: 0.200 (in)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (in)	Loss Rate (in/yr)	Condition Indicator
Inspection Dates	Nov 2014														
Temperature °F	85														
Top	1	0.282											0.018	0.001	75.0
	2	0.279											0.021	0.001	62.1
	3	0.280											0.020	0.001	66.0
	4	0.276											0.024	0.001	52.5
	5	0.276											0.024	0.001	52.5
Bottom	6	0.278											0.022	0.001	58.6
	7	0.279											0.021	0.001	62.1
Comments:															
Scan Minimum (in)	0.276														
Avg Thickness (in)	0.278														
Avg Loss	0.022														
Avg Loss Rate	0.001														
Max Loss Rate	0.001														
Avg.Condition Indicator	58.7														
Min.Condition Indicator	52.5														

DATA PAGE

Index: 4	PV-620	Horizontal Treater	Product:	JE: 100%
Component: (e)	Outlet Piping		Drawing: 4	Dia: 2.375 (in) OD
TML: 480	2" Outlet Elbow		MfgDate: Jan 1998	CA: 0.063 (in)
Registration:			Material: SA 234 WPB	Nominal: 0.154 (in)
CRN:			MWP: 75 psi @ 300 °F	T-min: 0.072 (in)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (in)	Loss Rate (in/yr)	Condition Indicator
Inspection Dates	Nov 2014														
Temperature °F	130														
West	1	0.165													
	2	0.161													
	3	0.158													
	4	0.161													
North	5	0.157													
Comments:															
Scan Minimum (in)	0.157														
Avg Thickness (in)	0.160														
Avg Loss															
Avg Loss Rate															
Max Loss Rate															
Avg.Condition Indicator															
Min.Condition Indicator															

DATA PAGE

Index: 4	PV-620	Horizontal Treater	Product:	JE: 100%
Component: (f)	Inlet Piping		Drawing: 4	Dia: 3.500 (in) OD
TML: 490	3" Inlet Elbow		MfgDate: Jan 1998	CA: 0.063 (in)
Registration:			Material: SA 234 WPB	Nominal: 0.300 (in)
CRN:			MWP: 75 psi @ 300 °F	T-min: 0.200 (in)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (in)	Loss Rate (in/yr)	Condition Indicator
Inspection Dates	Nov 2014														
Temperature °F	70														
North	1	0.328	2	0.324	3	0.328	4	0.331	5	0.330	6	0.330			
West	7	0.328													
Comments:															
Scan Minimum (in)	0.323														
Avg Thickness (in)	0.328														
Avg Loss															
Avg Loss Rate															
Max Loss Rate															
Avg.Condition Indicator															
Min.Condition Indicator															

DATA PAGE

Index: 4	PV-620	Horizontal Treater	Product:	JE: 100%
Component: (f)	Inlet Piping		Drawing: 4	Dia: 3.500 (in) OD
TML: 492	Bottom of 3" Inlet Pipe		MfgDate: Jan 1998	CA: 0.063 (in)
Registration:			Material: SA 106 B	Nominal: 0.300 (in)
CRN:			MWP: 75 psi @ 300 °F	T-min: 0.200 (in)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (in)	Loss Rate (in/yr)	Condition Indicator
Inspection Dates	Nov 2014														
Temperature °F	85														
East	1	0.300											0.000	0.000	100+
	2	0.282											0.018	0.001	75.0
	3	0.299											0.001	0.000	100+
	4	0.312													
	5	0.311													
	6	0.310													
	7	0.300											0.000	0.000	100+
	8	0.306													
	9	0.300											0.000	0.000	100+
	10	0.304													
	11	0.304													
West	12	0.300											0.000	0.000	100+
Comments:															
Scan Minimum (in)	0.282														
Avg Thickness (in)	0.302														
Avg Loss															
Avg Loss Rate															
Max Loss Rate	0.001														
Avg.Condition Indicator															
Min.Condition Indicator	75.0														

DATA PAGE

Index: 4	PV-620	Horizontal Treater	Product:	JE: 100%
Component: (f)	Inlet Piping		Drawing: 4	Dia: 3.500 (in) OD
TML: 494	Bottom of 3" Inlet Pipe		MfgDate: Jan 1998	CA: 0.063 (in)
Registration:			Material: SA 106 B	Nominal: 0.300 (in)
CRN:			MWP: 75 psi @ 300 °F	T-min: 0.200 (in)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (in)	Loss Rate (in/yr)	Condition Indicator
Inspection Dates	Nov 2014														
Temperature °F	85														
East	1	0.314													
	2	0.311													
	3	0.311													
	4	0.310													
	5	0.312													
	6	0.296											0.004	0.000	100+
	7	0.301													
	8	0.312													
	9	0.312													
	10	0.310													
	11	0.311													
West	12	0.290											0.010	0.001	100+
Comments:															
Scan Minimum (in)	0.290														
Avg Thickness (in)	0.307														
Avg Loss															
Avg Loss Rate															
Max Loss Rate	0.001														
Avg.Condition Indicator															
Min.Condition Indicator															