

01-18-017-18W4M
SALES GAS COOLER
A0421859
REPORT # A#0421859_GRADY INSPECTION LTD VE UT INSP_31MAR2022

DATE 3/31/2022
CLIENT CNRL

Phone:403-793-7697

8 Sarah King Crt E Brooks, Alberta, T1R 0J8
grady.rustebakke@gmail.com

GRADY
INSPECTION LTD



RESULTS OF INSPECTION:

VE Inspection:
Fit For Service. Vessel is in good visual condition.
NCR. PSV service seal is broken
UT Inspection:
No corrosion was found with the ultrasonic inspection.

PRESSURE EQUIPMENT							AB-506 INTERVAL						
DISTRICT	AB - OIL & NATURAL GAS				SHELL	TUBE		Air cooled heat exchangers					
FACILITY	Armada Gas Plant			MAWT	200		F	GRADE	YEARS			REG	
A#	A0421859		YR	1997	MAWP	1350			Equip	PSV	UT		
SERIAL #									3	10	6		10
CRN	N6257.2				PSV	1100		INSPECTION TYPE					
EQUIP#					PSV CRN	01832.568		VE	VI	MT	PT	ET	UT
					SERVICED	9/9/2020		X					X
STATUS	IN SERVICE			UNIT				INSPECTION RESULT:					
MANUFACTURER	PROCESS ENERGY TECHNOLOGIES						NCR-OPERATIONS						
DH LSD					L	Ft	OD	.82	Ft	NCR-REGULATORY/ADMIN			
REPAD	UNIQUE ID						ACTION ITEM RAISED						
							REPAIR REQUIRED						
							SUITABLE FOR SERVICE				X		
							RECOMMENDATIONS:						
							VE Inspection: Service PSV						

SIGN OFF		API 510	EXP.	IPV	EXP.	INSPECTOR - PRIMARY	INSPECTOR - REVIEW	CLIENT SIGN OFF
INSPECTED BY	ToddM Mckenzie	97445	12/31/2022	00133	7/13/2026			
REVIEWED BY	Ashley Rustebakke	60285	7/31/2024	966	6/16/2026			

Ultrasonic Report

LSD01-18-017-18W4M

DH-LSD

Juristiction #A0421859

Serial #

Ultrasonic Report #:A#0421859_GRADY INSPECTION LTD VE UT INSP_31MAR2022

Date

3/30/2022

Facility

Armada Gas Plant

Field

Red Deer District

Phone:403-793-7697

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ULTRASONIC SET			COMPONENT DETAILS				CODE					
EQUIPMENT	CALIBRATION DUE	SERIAL NUMBER	MATERIAL GRADE	SURFACE PREP		TEMP	THICKNESS	CALIBRATION	EVALUATION			
EPOCH 600	2/25/2023	120388107	Carbon Steel	Painted		0C		ASME V	ASME VIII Div 1			
CALIBRATION BLOCK		PROBE							COUPLING		METHOD	
TYPE	SERIAL#	REF dB	SCAN dB	FREQ.	SIZE.	ANGLE	SERIAL #	TYPE	COUPLANT	CABLE	TECHNIQUE	PROCEDURE
10 Step Metric	14-2065	60	66	5 Mhz	0.25 "	0	15B00DU3	Dual	UT-X	6' BNC to Micro	LW Dual	UT01T1R4
SCOPE	As requested by Dustin Rumohr an ultrasonic inspection was completed on the AERIAL COOLER											
LIMITATIONS	Previous ultrasonic inspection data not obtained by Grady Inspection Ltd.											
RESULTS	No corrosion was found with the ultrasonic inspection.											

Technician Name

3ToddM

Certification Body


CGSB

Certification #

9234

Expiry

Technician Signature




Client Name

Dustin Rumohr

Company Name

CNRL

Client Signature

External Inspection - (Vessel)		Date	3/30/2022	Phone:403-793-7697	
LSD	01-18-017-18W4M	Facility	Armada Gas Plant	8 Sarah King Crt E Brooks, Alberta, T1R 0J8 grady.rustebakke@gmail.com	
DH-LSD		Field	Red Deer District		
Jurisdiction #	A0421859				

Fit For Service:	Fit For Service.
Inspection Summary:	Vessel is in good visual condition. NCR. PSV service seal is broken
Recommendations:	Service PSV

External Inspection Items	G/F/P	Comments
General Condition:	Good	No notable mechanical damage, areas of wear/fretting, distortion, misalignment, or visible weld defects.
External Coating:	Good	Paint is intact and well adhered to the vessel.
Insulation / Cladding:	N/A	Non insulated vessel
Nozzles, Piping and Connections:	Good	Nozzles and piping in good visual condition
Buried Vessels:	N/A	Above Ground
Ladders, Platforms and Walkways:	Good	Building secure
Foundations and Supports:	Good	Anchor bolts fully engaged
Shell:.	Good	No notable mechanical damage, areas of wear/fretting, distortion, misalignment or visible weld defects.
Saddles / Skirts:	N/A	
Grounding:	Good	Ground Wire is secure
Gauges and Instrumentation:	Good	<div>Shell Gauge (- @)Temp Gauge (- @)</div> <div>Digitally monitored</div>
Pressure Protection:	Poor	The PSV Set Pressure (1100 psi) is suitable for the MAWP (1350 psi) PSV seal broken/missing. - ABSA 524 AB 524 2017 3.0 Requirements Adjustable parts of PRDs shall be sealed at the time of servicing and remainsealed during the operation
NDE Summary:	Good	No corrosion was found with the ultrasonic inspection.
Manway Davits/Quick Closure:	N/A	No Manway
Nameplate:	Good	Nameplate is legible and readily accessible and securely affixed
Code Variance:		

PSV Data

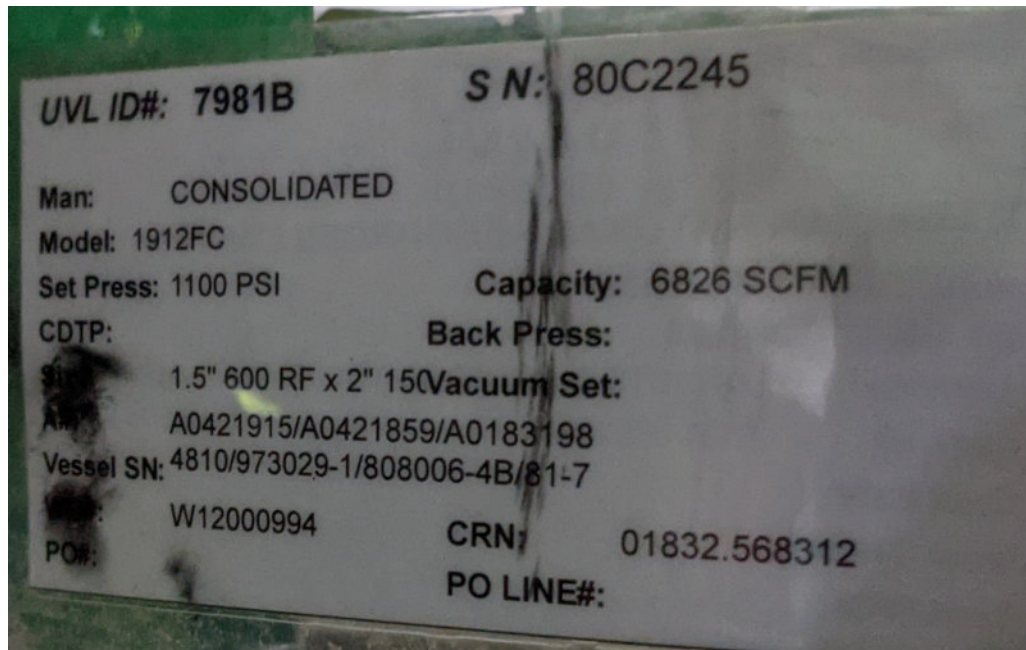
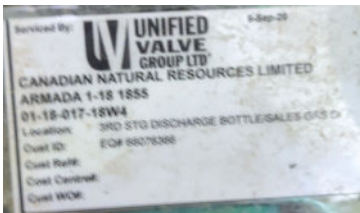
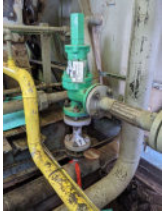
LSD

01-18-017-18W4M

FACILITY Armada Gas Plant

FIELD Red Deer District

Phone:403-793-7697

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ASSOCIATED PRESSURE EQUIPMENT DATA

PV JUR/SER A0421859

SHELL

TUBE

MAWP

1350

psi

PSV FIT FOR SERVICE STATEMENT

Not Fit For Service.

PSV STATIC DATA

MODEL 1912FC

SERIAL 80C2245

MANUFACTURER CONSOLIDATED

TAG 7981B

CRN 01832.568312

SEAL N

SET PRES 1100

psi

CAPACITY 6826

SCFM

SERVICE DATE 9/9/2020

SERVICE COMPANY Unified Valve Group

T/F

UV

NB

F

UV

NB

SIZE

B VALVE

CARSEAL

INLET

1.5

N

OUTLET

2

N

PSV COMMENTS

Broken Service Seal. Service PSV. Spec Blind.
Confirm no ID restriction

Overview Photo

LSD 01-18-017-18W4M
Jur # A0421859
Serial #

Date

3/31/2022

FACILITY

Armada Gas Plant

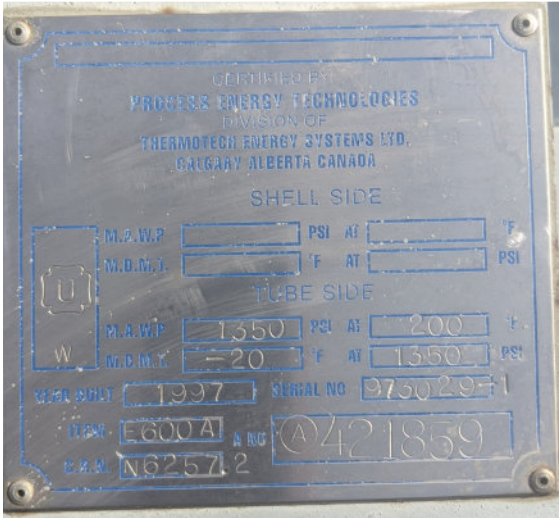
FIELD

Red Deer District

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Nameplate



Overview



Alternate Overview

Phone:403-793-7697

FACILITY Armada Gas Plant

FIELD Red Deer District

DWG 1

8 Sarah King Crt E Brooks, Alberta, T1R 0J8
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Inspection Dates and Thickness Values (mm)

Comp Type	Pipe Size
1	12
2	12
3	12
4	12
5	12
6	12
7	12
8	12
9	12
10	12
11	12
12	12
13	12
14	12
15	12
16	12
17	12
18	12
19	12
20	12
21	12
22	12
23	12
24	12
25	12
26	12
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41	12
42	12
43	12
44	12
45	12
46	12
47	12
48	12
49	12
50	12
51	12
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78	12
79	12
80	12
81	12
82	12
83	12
84	12
85	12
86	12
87	12
88	12
89	12
90	12
91	12
92	12
93	12
94	12
95	12
96	12
97	12
98	12
99	12
100	12

Code

MOP

Baseline	Date	M
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n Ave

3rd Last
Date

Ave D

Min Ave

Date	Last	Min	Ave
------	------	-----	-----

of
Insp

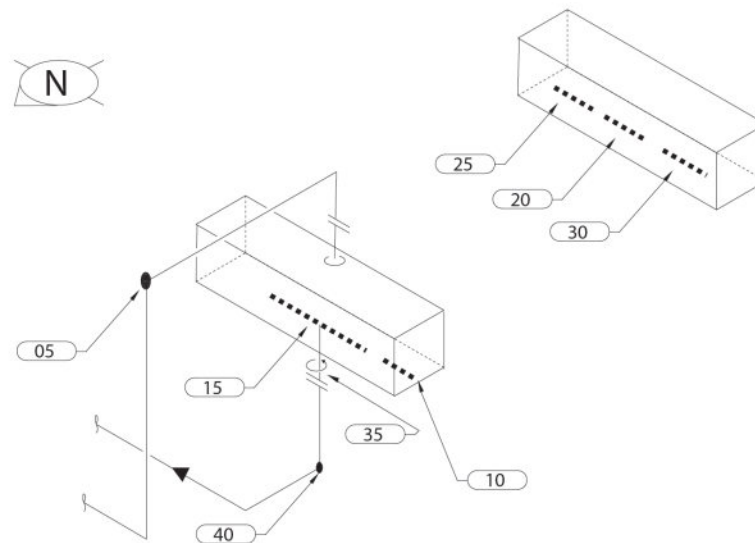
	% Nom Wall Loss
1	0.00
2	0.00
3	0.00
4	0.00
5	0.00
6	0.00
7	0.00
8	0.00
9	0.00
10	0.00
11	0.00
12	0.00
13	0.00
14	0.00
15	0.00
16	0.00
17	0.00
18	0.00
19	0.00
20	0.00
21	0.00
22	0.00
23	0.00
24	0.00
25	0.00
26	0.00
27	0.00
28	0.00
29	0.00
30	0.00
31	0.00
32	0.00
33	0.00
34	0.00
35	0.00
36	0.00
37	0.00
38	0.00
39	0.00
40	0.00
41	0.00
42	0.00
43	0.00
44	0.00
45	0.00
46	0.00
47	0.00
48	0.00
49	0.00
50	0.00
51	0.00
52	0.00
53	0.00
54	0.00
55	0.00
56	0.00
57	0.00
58	0.00
59	0.00
60	0.00
61	0.00
62	0.00
63	0.00
64	0.00
65	0.00
66	0.00
67	0.00
68	0.00
69	0.00
70	0.00
71	0.00
72	0.00
73	0.00
74	0.00
75	0.00
76	0.00
77	0.00
78	0.00
79	0.00
80	0.00
81	0.00
82	0.00
83	0.00
84	0.00
85	0.00
86	0.00
87	0.00
88	0.00
89	0.00
90	0.00
91	0.00
92	0.00
93	0.00
94	0.00
95	0.00
96	0.00
97	0.00
98	0.00
99	0.00
100	0.00

Corrosion Rates		
ST	LTn	LTi

Rem Life
DateRem
Life
(yrs)

Next
Insn Date

Insp
Int
|
(vrs)

Inspection
Comments

CML	Min	Yrs	Date
-----	-----	-----	------

Nominal (mm)	Pipe Tolerance 12% (mm) Corrosion Allowance (mm)
10	0.12
15	0.18
20	0.24
25	0.30
30	0.36
35	0.42
40	0.48
45	0.54
50	0.60
55	0.66
60	0.72
65	0.78
70	0.84
75	0.90
80	0.96
85	1.02
90	1.08
95	1.14
100	1.20
105	1.26
110	1.32
115	1.38
120	1.44
125	1.50
130	1.56
135	1.62
140	1.68
145	1.74
150	1.80
155	1.86
160	1.92
165	1.98
170	2.04
175	2.10
180	2.16
185	2.22
190	2.28
195	2.34
200	2.40
205	2.46
210	2.52
215	2.58
220	2.64
225	2.70
230	2.76
235	2.82
240	2.88
245	2.94
250	3.00
255	3.06
260	3.12
265	3.18
270	3.24
275	3.30
280	3.36
285	3.42
290	3.48
295	3.54
300	3.60
305	3.66
310	3.72
315	3.78
320	3.84
325	3.90
330	3.96
335	4.02
340	4.08
345	4.14
350	4.20
355	4.26
360	4.32
365	4.38
370	4.44
375	4.50
380	4.56
385	4.62
390	4.68
395	4.74
400	4.80
405	4.86
410	4.92
415	4.98
420	5.04
425	5.10
430	5.16
435	5.22
440	5.28
445	5.34
450	5.40
455	5.46
460	5.52
465	5.58
470	5.64
475	5.70
480	5.76
485	5.82
490	5.88
495	5.94
500	6.00
505	6.06
510	6.12
515	6.18
520	6.24
525	6.30
530	6.36
535	6.42
540	6.48
545	6.54
550	6.60
555	6.66
560	6.72
565	6.78
570	6.84
575	6.90
580	6.96
585	7.02
590	7.08
595	7.14
600	7.20
605	7.26
610	7.32
615	7.38
620	7.44
625	7.50
630	7.56
635	7.62
640	7.68
645	7.74
650	7.80
655	7.86
660	7.92
665	7.98
670	8.04
675	8.10
680	8.16
685	8.22
690	8.28
695	8.34
700	8.40
705	8.46
710	8.52
715	8.58
720	8.64
725	8.70
730	8.76
735	8.82
740	8.88
745	8.94
750	9.00
755	9.06
760	9.12
765	9.18
770	9.24
775	9.30
780	9.36
785	9.42

API 574 Table 7 Flag Tmin	Pressure Tmin Structural Tmin
100	100
150	150
200	200
250	250
300	300
350	350
400	400
450	450
500	500
550	550
600	600
650	650
700	700
750	750
800	800
850	850
900	900
950	950
1000	1000

%Nom -UT	10-20	20-30
	30-50	>50

Cor. Rates (mm/yr)	0.025 - 0.25	0.26 - 0.5
	0.501 - 1	>1.0

Calculated Failure (years)	3-5	2-3
	1-2	< 1

REPORT # A#0421859_GRADY INSPECTION LTD VE UT INSP_31MAR2022
LSD 01-18-017-18W4M FACILITY Armada Gas Plant
DH-LSD FIELD Red Deer District
Jur # A0421859 DWG 1 Location:
Ser #

Phone:403-793-7697

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Inspection Dates and Thickness Values (mm)																				% Nom Wall Loss	Corrosion Rates			Rem Life Date	Rem Life (yrs)	Next Insp Date	Insp Int (yrs)	Inspection Comments
CML#	Nom	CA/Tol	SFlag	STmin	PTmin	> Tmin	Comp Type	Pipe Size	Code	MOP	Baseline Date	Min Ave	3rd Last Date	Min Ave	2nd Last Date	Min Ave	Last Date	Min Ave	# of Insp		ST	LTn	LTi					
05	11.0	9.6	3.3	2.8	5.7	5.7	Elbow	6" XS 80--(11mm)	API570	1350	3/31/22	11.6 12.0							1	-5%						3/28/2032	10.0	
10	25.4	25.4	23.5		11.7	11.7	Shell		UG27ShellInt	1350	3/1/12	32.1 32.2			11/28/17	32.2	3/31/22	31.5 31.7	3	-24%	0.16		0.06			3/28/2032	10.0	
15	25.4	25.4	23.5		11.7	11.7	Shell		UG27ShellInt	1350	3/31/22	32.0 32.2							1	-26%						3/28/2032	10.0	
20	25.4	25.4	23.5		11.7	11.7	Shell		UG27ShellInt	1350	11/28/17	31.8 32.2					3/31/22	31.8 32.0	2	-25%						3/28/2032	10.0	
25	25.4	25.4	23.5		11.7	11.7	Shell		UG27ShellInt	1350	3/31/22	31.6 32.0							1	-24%						3/28/2032	10.0	
30	25.4	25.4	23.5		11.7	11.7	Shell		UG27ShellInt	1350	3/31/22	31.6 32.0							1	-24%						3/28/2032	10.0	
35	11.0			6.2		6.2	Nozzle	6" XS 80--(11mm)	UG45Nozzle	1350	3/1/12	11.2 11.5			11/28/17	11.3	3/31/22	10.5 11.0	3	5%	0.18		0.07	6/12/2045		3/28/2032	10.0	
40	11.0	9.6	3.3	2.8	5.7	5.7	Elbow	6" XS 80--(11mm)	API570	1350	3/1/12	11.1 11.3					3/31/22	10.5 11.0	2	5%	0.06					3/28/2032	10.0	