

01-18-017-18W4M  
GAS/GAS EXCHANGER  
A0190932 84C-3203-02A  
REPORT # A#0190932\_GRADY INSPECTION LTD VE VI UT INSP\_2MAY2022

DATE 5/2/2022  
CLIENT CNRL

Phone:403-793-7697  
PO Box 1173, Brooks,  
Alberta, T1R 19B  
grady.rustebakke@gmail.com




#### RESULTS OF INSPECTION:

VE Inspection:  
Fit For Service. Vessel is in good visual condition.  
UT Inspection:  
No corrosion was found with the ultrasonic inspection.  
VI Inspection:  
Fit For Service. Internal inspection conducted on channel sections only. No notable corrosion, erosion, mechanical damage or weld defects observed.  
Minor corrosion observed within the gasket sealing surface of the South blind flange. Discussed with maintenance personnel and it was determined that seal integrity would not be diminished.  
Minor visible solid build up in a few tubes. Will not affect process.


PRESSURE EQUIPMENT										AB-506 INTERVAL								
DISTRICT	AB - OIL & NATURAL GAS					SHELL	TUBE				Refrigeration Vessels							
FACILITY	Armada Gas Plant					MAWT	150	150	F	GRADE						YEARS		REG
A#	A0190932		YR	1984	MAWP	685	685	psi	3						Equip	PSV	UT	
SERIAL #	84C-3203-02A			PSV					psi	INSPECTION TYPE								
CRN	F0825.2			PSV CRN														
EQUIP#				SERVICED														
STATUS	OUT OF SERVICE				UNIT	Refridge				VE	VI	MT	PT	ET	UT			
MANUFACTURER	ALCO GAS & OIL PRODUCTION EQUIPMENT LTD.										INSPECTION RESULT:							
DH LSD						L	Ft	OD	2	Ft	NCR-OPERATIONS							
REPAD	UNIQUE ID										NCR-REGULATORY/ADMIN							
ACTION ITEM RAISED																		
REPAIR REQUIRED																		
SUITABLE FOR SERVICE																X		
RECOMMENDATIONS:																		
VE Inspection: Confirm Shell Side PG is suitable for PSV set pressure or replace with suitable gauge. Inspect PSV after installation to confirm suitability VI Inspection: Inspect the South blind flange gasket seal for leakage once the vessel is back in service																		


, mechanical damage or weld defects observed.  
maintenance personnel and it was determined that seal integrity would not be

SIGN OFF		API 510	EXP.	IPV	EXP.	INSPECTOR - PRIMARY	INSPECTOR - REVIEW	CLIENT SIGN OFF
INSPECTED BY	ToddM Mckenzie	97445	12/31/2023	001336	7/13/2026			
REVIEWED BY	Ashley Rustebakke	60285	7/31/2024	966	6/16/2026			

<b>Ultrasonic Report</b>		<b>Date</b>	3/28/2022	Phone: 403-793-7697 PO Box 1173, Brooks, Alberta, T1R 19B grady.rustebakke@gmail.com	
<b>LSD</b>	01-18-017-18W4M	<b>Facility</b>	Armada Gas Plant		
<b>DH-LSD</b>		<b>Field</b>	Red Deer District		
<b>Jurisdiction #</b>	A0190932				
<b>Serial #</b>	84C-3203-02A				
<b>Ultrasonic Report #:</b> A#0190932_GRADY INSPECTION LTD VE VI UT INSP_2MAY2022					


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 EXCHANGER										
LIMITATIONS		Previous ultrasonic inspection data not obtained by Grady Inspection Ltd.										
RESULTS		No corrosion was found with the ultrasonic inspection.										

<b>Technician Name</b>	<b>Certification Body</b>	<b>Certification #</b>	<b>Expiry</b>	Technician Signature			
3    ToddM	CGSB	9234	12/15/2030				
				<b>Client Name</b>			
				<b>Client Signature</b>			

<b>External Inspection - (Vessel)</b>		<b>Date</b>	3/28/2022	Phone:403-793-7697 PO Box 1173, Brooks, Alberta, T1R 19B grady.rustebakke@gmail.com	
<b>LSD</b>	01-18-017-18W4M	<b>Facility</b>	Armada Gas Plant		
<b>DH-LSD</b>		<b>Field</b>	Red Deer District		
<b>Jurisdiction #</b>		A0190932			

<b>Fit For Service:</b>	Fit For Service.
<b>Inspection Summary:</b>	Vessel is in good visual condition.
<b>Recommendations:</b>	Confirm Shell Side PG is suitable for PSV set pressure or replace with suitable gauge. Inspect PSV after installation to confirm suitability

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	Vessel is in good visual condition.
Insulation / Cladding:	Good	Insulation is in good visual condition.
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:	Good	Saddle is in good visual condition. Unable to view attachment to shell
Grounding:	Good	Grounding is achieved through the skid.
Gauges and Instrumentation:	Fair	<div>Shell Gauge ( 0 - 1000 @ )      Temp Gauge ( 0 - 250 @ )</div> <div>Tube Side Pressure gauge is suitable for MAWP Shell Side Pressure Gauge on LTS is not suitable for MAWP Tube side and Shell Side Temperature gauges are in good condition</div>
Pressure Protection:	N/A	PSV coverage through LTS. Out for service at time of inspection
NDE Summary:	Good	No corrosion was found with the ultrasonic inspection.
Manway Davits/Quick Closure:	Fair	Manway flange face corrosion in the sealing surface
Nameplate:	Good	Nameplate is legible and readily accessible and securely affixed
Code Variance:		

<b>Internal Inspection - (Vessel</b>		<b>Date</b>	5/2/2022	Phone:403-793-7697 PO Box 1173, Brooks, Alberta, T1R 19B grady.rustebakke@gmail.com	
<b>LSD</b>	01-18-017-18W4M	<b>FACILITY</b>	Armada Gas Plant		
<b>Jur #</b>	A0190932	<b>FIELD</b>	Red Deer District		
<b>Serial #</b>	84C-3203-02A				

<b>Fit For Service:</b>	Fit For Service.
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<b>Inspection Summary:</b> Overview of Inspection Findings	Internal inspection conducted on channel sections only. No notable corrosion, erosion, mechanical damage or weld defects observed. Minor corrosion observed within the gasket sealing surface of the South blind flange. Discussed with maintenance personnel and it was determined that seal integrity would not be diminished. Minor visible solid build up in a few tubes. Will not affect process.
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Internal Inspection Items		G/F/P	Comments
Inlet Area:		Good	No notable corrosion, erosion, mechanical damage or weld defects observed.
Internal Piping:		N/A	No internal piping.
Baffles, Deflector Plates, Weir, etc:		N/A	No baffles, weirs or deflector plates.
Trays:		N/A	No trays.
Demister Pad:		N/A	No demister pad.
Head (1):	North	Good	Blind flange. No erosion, corrosion or mechanical damage observed.
Head (2):	South	Fair	Blind flange. Minor corrosion observed within the gasket sealing surface. Discussed with maintenance personnel and it was determined that seal integrity would not be diminished.
Shell:		N/A	Fully insulated.
Tubesheet:		Good	Rolled attachment method. No erosion, corrosion or mechanical damage observed. Viewed from tube side only.
Channel Section:		Good	Both North and South channels are in good visual condition. No notable corrosion, erosion, mechanical damage or weld defects observed.
Bundle / Tubes:		Good	Minor visible solid build up in a few tubes. Will not affect process.
Nozzles / Manways:		Good	No notable corrosion, erosion, mechanical damage or weld defects observed.
Welds:		Good	No weld defects observed.
Vortex Breakers, Drains, etc:		N/A	
Internal Coating:	N/A	<input checked="" type="checkbox"/> NotCoated	

**Internal Inspection - (Vessel)****LSD** 01-18-017-18W4M**Jur #** A0190932**Serial #** 84C-3203-02A**Date**

5/2/2022

**FACILITY**

Armada Gas Plant

**FIELD**

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INSPECTION LTD

- ☐ Coated  
☐ CoatingFailure  
☐ Blisters  
☐ Cracks/Flake  
☐ Repaired  
☐ Replaced

**Weld Repairs:**

- ☐ Weld Repairs Required  
☒ None Required

**Internal Anodes:**

- ☐ Internal Anodes ☒ None

**Non-Conformances and Corrective Actions:****Preparatory Work Required for Next Inspection:****Recommendations for Next Inspection:** Inspect the South blind flange gasket seal for leakage once the vessel is back in service

Overview Photo

LSD 01-18-017-18W4M  
Jur # A0190932  
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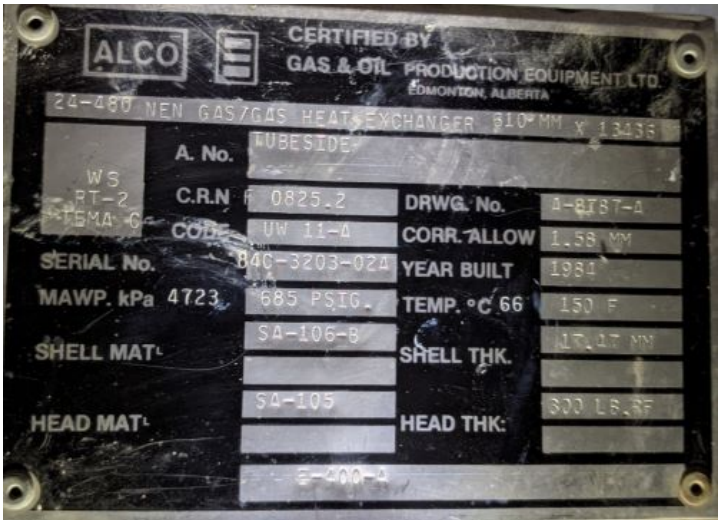
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Shell Side Nameplate



Overview



Tube Side Nameplate



Overview



Overview Photo

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Pressure Gauge



Temperature Gauge



North Overview



North Tubesheet

**Overview Photo**

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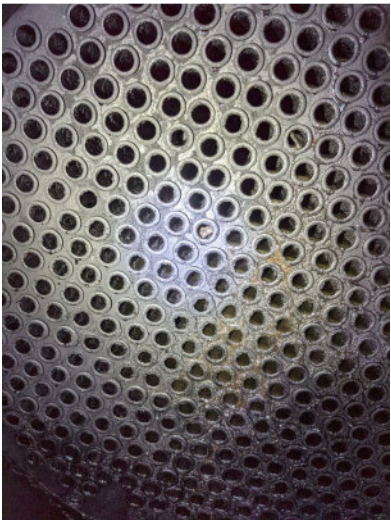
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North manway cover



Close Up of tubes



South Overview



South Tubesheet



**Overview Photo**

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South Manway Cover



Sealing Surface Corrosion



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DH-LSD FIELD Red Deer District  
Jur # A0190932 DWG 1 Location:  
Ser # 84C-3203-02A

Phone:403-793-7697

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Inspection Dates and Thickness Values (mm)																				% Nom Wall Loss			Corrosion Rates			Rem Life	Rem Life	Next	Insp	Inspection	
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	ST	LTn	LTi	Date	(yrs)	Insp Date	(yrs)	Int	Comments
3300	17.5	17.4	27.0		13.5	13.5	Shell		UG27ShellInt	685	5/2/22	16.1	16.4						1	8%		0.04				3/1/2096		4/29/2032	10.0		
3315	17.5	17.4	27.0		13.5	13.5	Shell		UG27ShellInt	685	11/30/17	16.5	16.6				5/2/22	16.5	16.8	2	6%						4/29/2032	10.0			
3320	17.5	17.4	27.0		13.5	13.5	Shell		UG27ShellInt	685	11/30/17	17.4	17.6				5/2/22	17.5	17.9	2	-0%						4/29/2032	10.0			
3330	7.1	6.2	3.3	2.8	2.9	2.9	Elbow	6" STD 40--(7.1mm)	API570	685	11/30/17	7.0	7.1				5/2/22	6.9	7.3	2	3%	0.02			11/25/2199		4/29/2032	10.0			
3340	7.1	6.2	3.3	2.8	2.9	2.9	Elbow	6" STD 40--(7.1mm)	API570	685	11/30/17	7.1	7.3				5/2/22	6.7	77.2	2	6%	0.09					4/29/2032	10.0			