

**BOILERS AND PRESSURE VESSELS
REPAIR OR ALTERATION REPORT**

AB-40 (Side A) 2025-03

(A) #: 437295

OWNER EQUIP. NO.: Tube A G9244 BK473

REPAIR ORG. JOB NO.: 02474

REPAIR ☒

and/or

ALTERATION ☐

Partial ☐

Final ☒

1. Name of Organization doing Repair/Alteration Bromley Mechanical Services, A Division of Argo Sales LP,
Address 925-23 Street S.W., Medicine Hat, Alberta, T1A 8R1 AQP No. & Expiry Date AQP-1009, February 25, 2028
2. Name of Owner Rare Oilfield Services Corp
Address 502 Mitchell Street North East, Redcliff, Alberta T0J 2P0
Location of Installation LSD: 15-35-021-07 W4

3. Boiler/Pressure Vessel Description Horizontal Treater CRN N8993.23
Manufacturer's Name Universal Industries Ltd., Serial No. 97-11-73

4. Original Design Conditions:
- | | | | |
|-----------------------------|---------------------------------------------|---------------------|----------------------|
| a) Vessel/Shellside/Boiler: | Max Allowable Working Press. <u>75 Psig</u> | Min/Max Design Temp | <u>-20°F / 400°F</u> |
| b) Jacket/Tubeside: | Max Allowable Working Press. _____ | Min/Max Design Temp | <u>/</u> |
5. New Design Conditions:
- | | | | |
|-----------------------------|---------------------------------------------|---------------------|----------------------|
| a) Vessel/Shellside/Boiler: | Max Allowable Working Press. <u>75 Psig</u> | Min/Max Design Temp | <u>-20°F / 400°F</u> |
| b) Jacket/Tubeside: | Max Allowable Working Press. _____ | Min/Max Design Temp | <u>/</u> |

6. Description of Defects (location and types of deterioration that resulted in the repair/alteration):

Crack on pipe to mounting flange at the 9 to 12 O'clock position & crack on miter at the 9 O'clock position

7. Original Code Edition and Addenda ASME Sect. VIII Div 1 Year 1995 Addenda Dec 1996
8. Code Edition and Addenda used for performing the work ASME Sect. VIII Div 1 Year 2023 Addenda _____
9. Description of Work Performed (Step by step description of repair/alteration method used. Attach additional pages as required, and reference any additional documents used to provide the required information; such as repair or alteration procedures, drawings, and specifications.):

1. Baked out Fire Tube @ 750°F for 60 minutes.
2. Investigated indications on Fire Tube.
3. Removed all indications completely using a combination of grinding & MPI checks.
4. QCM inspected the prepared joint prior to welding.
5. Welded out the repairs & carried out NDE (RT) & (MPI).
6. Final inspection by AI/QC.
7. Signed off Travel Sheet & AB40.

10. Heat Treatment Preheat Temp 10°C Post Weld HT (Temp/Time) _____ Other _____

11. Non Destructive Examination (Specify type and extent):

~~Extent~~, 100% MPI on all butt welds, 100% RT on all butt welds

Visual 100% *AM*

12. Pressure Test
- | | | |
|----------------|------------------------------------|-----------------|
| | Vessel/Shellside/Boiler | Tubeside/Jacket |
| a) Hydrostatic | <u>Waiver accepted by ABSA SCO</u> | _____ |
| b) Other Test | _____ | _____ |

(A) #: 437295 OWNER EQUIP. NO.: Tube A G9244 BK473

13. Material List any material used in repair/alteration and any base material welded on:

Item	Material Specifications	Thickness / Schedule	Diameter	Item	Material Specifications	Thickness / Schedule	Diameter
Shell/Drums				Heads/ Ends			
Tubesheet				Tubes	SA53B	Sch. XS (0.500")	24"
Nozzles				Flanges/Fittings		Class	

14. Welding Procedures Alberta Registration Number WP- 0505.2

WPS Numbers used: BA-2A Rev.1

15. Welded Replacement Parts: Attached are Manufacturer's Partial Data Reports or Repair/Alteration Reports properly identified and signed by Authorized Inspector for the following items of this report: (Welded parts supplied by others).

16. Responsibility Owner/Client. Identify below items that the owner/client has assumed responsibility for. Note (2)

a) Alteration Design Submission _____ b) Repair/Alteration Procedure: _____ c) Material Control _____

d) Welding Control _____ e) NDE _____ f) Heat Treatment _____ g) Pressure Test _____

Note 2: Owner/client must have a valid Alberta Quality Program (AQP), for the scope of work, to assume responsibility for function c, d, e, f, or g.

17. REMARKS:

Fire Tube Repair

18. CERTIFICATE OF COMPLIANCE

We certify that the statements made in this Report are correct and that all design, material, construction and workmanship on this repair/alteration conform to the requirements of the Alberta Safety Codes Act and Regulations and the AB-513.

a) For all items except for items identified in 16:

Bromley Mechanical Services, A Division of Argo Sales LP,

(Repair/Alteration Organization Name)

AQP-1009, February 25, 2028

(AQP Number & Expiry Date)

(Signature & Date)

Frank McHugh

(Print Name)

b) For items identified in 16 only:

(Owner/Client Organization Name)

(AQP Number & Expiry Date)

(Signature & Date)

(Print Name)

19. DATE WORK WAS COMPLETED: May 7, 2025

20. CERTIFICATE OF INSPECTION

I have inspected the repairs and/or alterations described in this report. To the best of my knowledge, this work has been done in accordance with the Safety Codes Act and Regulations and the requirements established in the AB-513.

a) In-service Inspector (ISI) Certification

(When the repair is inspected by an ISI per the requirements established in the AB-513)

b) ABSA Safety Codes Officer Certification

(When work is inspected by ABSA)

Owner-User/Inspection Company Name

AQP #

In-Service Inspector Signature & Date

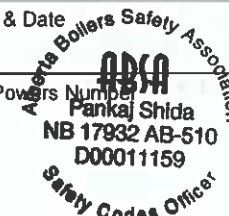
In-Service Inspector Name (Please Print)

In-Service Inspector Alberta Cert #

ABSA SCO Signature & Date

Print Name & Designation of Powers Number

MAY 07 2025



Report Reviewed and Accepted by ABSA SCO:

Print Name & Designation of Powers Number

ABSA SCO Signature & Date

BROMLEY MECHANICAL SERVICES

Repair Examination and Inspection Sheet

97-11-73
A Number: 437295 Serial: G9244-BK473 CRN: N-8993.23

OWNER: Rare Oilfield Services					LOCATION: 502 Mitchell Street SE Redcliff Alberta TOJ 2P0				
JOB NO: 02474			VESSEL TYPE: Fire Tube <i>HT</i>						
DRAWING NO.:			REVISION NO.: 0			A.I. REVIEW: <i>Amey</i> APR 03 2025			
Seq.	Item	Comments	Q.C.I.	Date	A.I. Hold Points	A.I.	Date	Owner	Date
1.	Repair Procedure Accepted by A.I.		<i>HT</i>	APR 03 2025	H	<i>Amey</i>	APR 03 2025		
2.	Heat Numbers Recorded	N/A	<i>HT</i>	APR 03 2025					
3.	MTRs Checked	N/A	<i>HT</i>	APR 03 2025					
4.	WPS(s) Checked	BAZA	<i>HT</i>	APR 03 2025	A	<i>Amey</i>	APR 07 2025		
5.	Welder(s) Qualified	ML	<i>HT</i>	APR 03 2025	R	<i>Amey</i>	APR 07 2025		
6.	Thicknesses Verified & Recorded	N/A	<i>HT</i>						
7.	Shell(s) & Head(s) Fit-up Inspection	N/A	<i>HT</i>						
8.	Nozzles & Fittings Fit-up Inspection	N/A	<i>HT</i>						
11.	Nozzle Orientation	N/A	<i>HT</i>						
12.	Nozzle & Flange Rating Checked	N/A	<i>HT</i>						
13.	Impact Tests	N/A	<i>HT</i>						
14.	Internals Checked		<i>HT</i>	APR 07 2025	H	<i>Amey</i>	APR 07 2025		
15.	Final Internal Inspection		<i>HT</i>	APR 07 2025	H	<i>Amey</i>	APR 07 2025		
16.	Weld Size Checked		<i>HT</i>	APR 07 2025					
17.	Welder I.D. Checked	ML	<i>HT</i>	APR 07 2025					
18.	Final External Inspection		<i>HT</i>	APR 07 2025	H	<i>Amey</i>	APR 07 2025		
19.	Radiography	100% OF REPAIR	<i>HT</i>	APR 07 2025	R	<i>Amey</i>	APR 07 2025		
20.	Other N.D.E.	MP 100% OF REPAIR	<i>HT</i>	APR 07 2025	R	<i>Amey</i>	APR 07 2025		
21.	Final Ext. Prior to P.W.H.T.	N/A	<i>HT</i>	APR 07 2025					
22.	PWHT Chart Checked	N/A	<i>HT</i>	APR 07 2025					
23.	Seeking Waiver HYDRO		<i>HT</i>	APR 07 2025					
24.	N.C.R. #	N/A	<i>HT</i>	APR 07 2025					
25.	Nameplate Stamping	N/A	<i>HT</i>	APR 07 2025					
26.	AB-40 Report Completed & Verified		<i>HT</i>	APR 07 2025	H	<i>Amey</i>	MAY 07 2025		
27.	Nameplate Installation	N/A							

* Denotes an A.I. Inspection Point ** Denotes an A.I. or Owner. Hold Point

A Number:437295

	Exam/Inspection Required	Comments	QC Inspector Sig. & Date	ABSA Inspector Sig. & Date	Owner Inspector Sig. & Date
1	Bake out @ 750°F for 60 mins.		Mar 31 (FMc)		
2	Investigate indications on Fire Tube see Attached drawing.		APL02		
3	Remove all indications completely using a Combination of grinding & MPI checks.		APR03		
4	Inspection of the prepared joints by the QCM prior to welding.		APR 04		
5	Weld out repairs & carry out NDE (RT/MPI) On the completed repairs.		APR 06		
6	Final inspection by AI/QCM.				
7	Sign off AB40.				

ATTACHMENT AND / OR NOZZLE MATERIAL THICKNESS VERIFICATION AND IDENTIFICATION						WELDER SYMBOLS / FIT-UP			
Mark	Mat. I.D.	Neck	Fitting	Flange	Repad or Attachment	Cat. B	Cat. C	Cat. D	Pad OD
	Spec.-Grd.								
	Thk./Rating								
	Heat# or ID								
	Spec.-Grd.								
	Thk./Rating								
	Heat# or ID								

	Spec.-Grd.								
	Thk./Rating								
	Heat# or ID								
	Spec.-Grd.								
	Thk./Rating								
	Heat# or ID								

	Welder Symbol	Date		Welder Symbol	Date
Laid out by			Inspected by Closing		
Checked by			Heat #'s/Weld Stamped		
			Vessel Free of Weld Defects		
			Final Check of QC		



MT / PT INSPECTION REPORT

SLICK INSPECTION LTD.
2038-12th AVE NW
Medicine Hat, AB, T1C 2A7
PH: 403-527-9854
FAX: 403-527-9867
office@slickinspection.com

Technician Sign:

Technician Certification:

JOHN MARTIN
CGSB Level II RT MT PT
SNT-TC-1A Level II RT MT PT
REG. #27301

Assistant:

Date:
Client:

MAR. 27, 2025

RARE OILFIELD

Location:

**RARE OILFIELD, REDCLIFF
AB**

Client Rep Signature:

Upon approval/acceptance by the Contractor the liability for the accuracy of final product becomes responsibility of the Contractor

Invoice #:

JM25094

Report #:

JM25094-M2

Page:

1 of 3

Acceptance Code:

ASME Sec.VIII, Div. 1 2023

Specification:

MT-Rev.8

Procedure:

MT 2 - Wet Visible, Black On White

Technique:

Contractor:

RARE OILFIELD

A.F.E.#:

Code.#:

P.O.#:

Project:

Job.#:

FIRE TUBES 'A' AND 'B'

VESSEL NAME PLATE:



FIRE TUBES:



PREFORMED MAG PARTICAL INSPECTION ON ALL PROCESS WELDS AND AREAS OF INTEREST OF FIRE TUBES 'A' AND 'B'.

Equipment & Consumables Used	Flourescent>	Black/White>	✓	Aerosol>	✓	Visible>	✓	Dry>	Puffer>
MT 2: Magnavis White Contrast Paint: WCP-2 / Magnavis Black Partical Suspension: 7HF		Calibration Block: West. Instruments S/N:6429 Cal Verified to 10lb Daily		Continues AC Current Mag Lead Time: 10 Seconds LED Flasfh light>		Sentenial Yoke: MP-A- 2L S/N: MP4083		Light Meter:XR-1000 Spectronics S/N:1752289 Cal Date: May 31,2024 Min Light Intensity: ≥ 100 FC Visible	



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Technician Sign:

Technician Certification:

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REG. #27301

Assistant:

Date:
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FIRE TUBE 'A'



Information On Above: ↓ Material:> Carbon Steel Surface Condition:> Base Metal

LINEAR INDICATIONS FOUND ON AREAS INDICATED IN ABOVE PHOTOS

FIRE TUBE 'A' INDICATION



Information On Above: ↓ Material:> Carbon Steel Surface Condition:> Base Metal

LINEAR INDICATIONS FOUND ON AREAS INDICATED IN ABOVE PHOTOS



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REG. #27301

Assistant:

Date: MAR. 27, 2025
Client:

RARE OILFIELD

Location: **RARE OILFIELD, REDCLIFF**
AB

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Code.#:

P.O.#:

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Job.#:

FIRE TUBE 'B'



FIRE TUBE 'B'




Information On Above: ↓ Material:> Carbon Steel Surface Condition:> Base Metal

NO RELEVANT INDICATIONS FOUND AT TIME OF INSPECTION

Information On Above: ↓ Material:> Carbon Steel Surface Condition:> Base Metal

NO RELEVANT INDICATIONS FOUND AT TIME OF INSPECTION

				Client: Rare		Report Number: RT-25-169		Radiographic Testing Report Inspection Procedure: NDT-RT-01-REV-03 ASME Radiography Procedure					
				Date: April 04 2025 JOB: WO# 02474-A		No of Film in Cassette: 1							
Radiation source: Ird-192 Effective Focal Spot Size(EFSS): 3.39mm single wall viewing Density 2.4 - 3.4				Code: ASME Sec VIII Div 1 / UW51-23		Screen Type: LEAD		SOD: minimum source-to-object distance(D)					
				SN# SN# 02474-A (24" firetube) final repair		Front: 0.010" Back: 0.010"		OFD: maximum object-to-film distance (D in T-274.1) plus reinforcement					
Location: Medicine Hat, AB								AC-Arc Burn BT-Burn through CK-Crack LC-Low cover EP-Excessive Penetration P-Porosity HB-Hollow Bead EUC-External Undercut IUC-Internal Undercut S-Slag IP-Incomplete Penetration LF-Lack of Fusion CB-Concave Bead GP-Gas Pocket HL- High/Low					
Weld I.D.#	Size	Thickness	Welder ID	Material	Film Type	RT Tech.	# of Exp.	IQI	SOD(in)	OFD(in)	Type & location of discontinuity Weld Discontinuity Severity: 1: Slight 2: Moderate 3: Severe(rejectable)	Accept	Reject
Note: x-rayed repair areas only													
C1 flange	24"	0.500"	ML	C.S.	Agfa D5	3	1	8f	11.5	0.70"	where accessible		
0-15												✓	
15-25											P-1	✓	
C2	24"	0.500"	ML	C.S.	Agfa D5	1	1	8f	25"	0.70"			
0-15												✓	

