PSY State Data VESSEL INSPECTION Regort 7: 2024-01- 1972-01									
Client CNRL District Slave Lake Field: Binnel Add03456 Equipment Description: Treater Scala #: 200-061-22W4 Via #: NA Usp.: Scala #: 200-061-22W4 Marutacture: NA Date Removed From Service: Scala #: 200-061-30 Year Built: 1998 Marutacture: 120-061-22W4 Date Removed From Service: Scala #: 200-061-30 Year Built: 1998 MAXP Tube: 72 Psi 300 *F Heighnlength: 394 In. Code Stamp: Y EN MAXP Tube: 72 Psi Scala #: 200-061 Nominal Tub Date Removed From Service: Nominal Tub Code Stamp: Y EN Nominal Tub Scala #: 200-061 Nominal Tub Code Stamp: Y EN Nominal Tub Scala #: 200-061 Scala #: 200-0		TOI				DEOTION			
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Medicine Hat (403) 527-6284 Tulsa, OK (918) 446-8773			Red Deer	(403) 3	47-1742		Texas	s City, TX (4	90) 945-2262



Client:	CN	RL		LSD:	12-09-081-22W4	Jurisdiction	#:	A0403456
External Inspection Results	- VE							
Item	Υ	Ν	N/A	Condition	Comment	NCR	Action Iten	n Priority
Nameplate	\boxtimes			Accept				
Foundation and Supports	\square			Accept				
Anchor Bolts	\boxtimes			Accept				
Grounding	\boxtimes			Accept				
Insulation Condition	\boxtimes			Reject	Seal top shell insulation		\boxtimes	1
PSV	\boxtimes			Accept				
Shell & Heads	\boxtimes			Accept				
Metal Surfaces (Paint)	\boxtimes			Reject	Repaint nozz. & btm. shell		\square	1
Aux Equipment			\boxtimes					
Cathodic Protection	\boxtimes			Reject	Anode rollers deteriorated			1
Alignment	\boxtimes			Accept				
Flange Connections	\boxtimes			Accept				
Pressure Gauge	\boxtimes			Accept				
Piping from Vessel	\boxtimes			Accept	New piping installed			
Temperature Gauge	\boxtimes							
Sight Glass	\boxtimes			Accept				
Leaks	\boxtimes				Evidence of previous leak/spill		\boxtimes	0
Current UT Survey	\boxtimes					UT	Company:	Matrix
Previous UT Survey		\square				UT	Company:	
LEGEND:								

Priority 0 - General Recommendations

Priority 3 - Goal date is 1 Year from the activity date. Priority 4 - Goal date is 5 Years from the activity date.

Priority 1 - Goal date is 30 days from the activity date

Manual Review Required By Customer Representative -

Priority 2 - Goal date is 90 days from the activity date.

External Visual Observations

An external visual inspection was performed on Treater and the inspection findings are as follows:

The first spool of piping down-stream of the drain and bottom shell outlet nozzles were in the process of being replaced at the time of inspection.

The insulation is wet and the cladding corroded along the bottom shell around the nozzles. Upon request CNRL removed 6 inches of shell insulation around all of the bottom nozzles. No corrosion was observed on the shell. Mild to heavy external corrosion was noted on 5 nozzles. The two nozzles with the most significant wall losses were selected for weld repair.

For the purpose of this inspection and consequent repairs the nozzles on the bottom shell were identified N1 through N7. Refer to the attached drawing for nozzle orientation and depth of corrosion to each nozzle.

Nozzles N3 & N4 were selected for weld build up to the wasted areas. The area to be welded on N3 was approximately 200 degrees around the circumference and up to 1.5" longitudinally. The area to be welded on N4 was approximately 300 degrees around the circumference and up to 2.5" longitudinally. Refer to page 4 of this report for further repair details.

The top shell insulation is stained with oil below a nozzle with a blind flange connection and below the gas dome flanges. The staining appears old from a previous leak or spill.

The saddle supports are secure and level.

The sight glasses, temperature and pressure gauges are clear and visible.

- The ladder and platform are secure and level.
- External UT was carried out on the bottom shell nozzles with no significant internal wall losses noted.
- There is no access to the PSV. A boom lift or scaffold is required.
- Refer to the attached photos and drawing for details.

5311 – 86 Street, Edmonton, Alberta T6E 5T8 Phone: (780) 437-2022 Fax: (780) 438-1436						
Calgary	(403) 279-6121	Cold Lake	(780) 594-1114	Corpus Christi, TX	(361) 888-4700	
Lloydminster	(780) 875-6455	Fort McMurray	(780) 743-1536	Deer Park, TX	(281) 476-4444	
Barhead	(780) 674-3018	High Level	(780) 956-4094	Matrix, Houston, TX	(713) 722-7177	
Nisku	(780) 955-7616	Red Deer	(403) 347-1742	Texas City, TX	(490) 945-2262	
		Medicine Hat	(403) 527-6284	Tulsa, OK	(918) 446-8773	



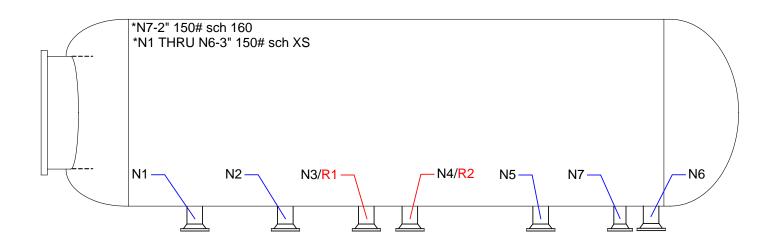
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Client:	C	NRL		LSD	: 12-0)9-081-22W4	Jurisdiction	n #:	A0403456
Internal Inspection Results -	- VI	Inter	nal Insp	pection Perfe	ormed				
ltem	Y	Ν	N/A	Condition		Comment	NCR	Action Iter	m Priority
Shell	\boxtimes			Accept	Approx. 5%	of shell not visible			
Heads	\boxtimes			Accept	Approx. 5%	of heads not visible			
Manway	\boxtimes			Accept					
Gasket Surfaces	\boxtimes			Accept					
Welds	\boxtimes			Accept	Approx. 5%	of shell not visible			
Refractory			\boxtimes						
Heating Coils			\boxtimes						
Demister Pad	\boxtimes			Accept					
Vane Pack			\boxtimes						
Baffles	\boxtimes			Accept					
Trays	\boxtimes			Accept					
Filter			\boxtimes						
Internal Coating			\boxtimes						
Tubesheet			\boxtimes						
Tube Bundle			\square						
LEGEND:Priority 0 - General Recommendations.Priority 3 - Goal date is 1 Year from the activity date.Priority 1 - Goal date is 30 days from the activity date.Priority 4 - Goal date is 5 Years from the activity date.Priority 2 - Goal date is 90 days from the activity date.Priority 4 - Goal date is 5 Years from the activity date.									
Internal Visual Observations Manual Review Required By Customer Representative -									
An internal visual inspection was performed on Treater and the inspection findings are as follows:									
 The fire tubes were removed for access to steam clean and inspect. The fire tubes were sent to Slave Lake for sandblasting and inspection. The de-sand trays on the bottom shell and internal piping were not removed for inspection access. Several areas inside the treater were not clean or visible. 2-3 inches of fluid is present on the bottom shell. Heavy product build up is present on isolated areas of the shell (5%) and throughout the structural steel & de-sand piping. The fire tube supports are bent slightly. The anode and bottom shell nozzles are dirty and not 100% visible. The anode rollers have deteriorated. The demister pad and associated supporting hardware is in good condition. One of the anchor bolts for the vortex breaker is broken. CNRL elected to remove the vortex breaker. No significant erosion, corrosion or pitting was observed on any visible areas. Internal UT thickness was carried out on the middle and upper shell to investigate for external corrosion under the insulation. All thicknesses recorded were within nominal thickness. The fire tubes are straight and free of any significant external corrosion. UT was carried out at random throughout the tube and a thickness range of 0.350"-0.369" was recorded (20" OD pipe). MT was carried out on all external welds on the product side of 									
the tube sheet. No rejectable indications were noted; refer to IRINDT report #137922-MT-WF-02 for details.									
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Clier	INSPE	LSD:	0	SSEL INSPECTIO	N diction #:	Report #: Inspect Date: Page: IRISNDT #: A04	137922-WF-1 08/22/2009 4 of 10 137922 03456
Attached to Vessel Inspection Report # Additional Attachments # of pages Specify NDE UT MT PT ET RT OTHER NDE Report #:							
 Replace the wooden anode support rollers. Clean and paint the bottom shell, nozzles and gas dome to assist surface condition. Seal the upper shell insulation to prevent moisture ingress, which is collecting on the bottom shell. Replace the insulation on the bottom shell as required. Remove the oil stains from the top shell insulation. 							
 The corroded areas to be welded were cleaned to sound metal and inspected with MT and UT prior to welding. No rejectable indications were noted; refer to IRISNDT report# 137922-MT-WF-01 & 137922-UT-WF-01 for details. Murland Projects Inc completed all repair work. The nozzle projections were preheated to 180F prior to welding. The weld overlay was completed with E-7018 electrodes. The weld cap was blended flush with the adjacent parent material of the nozzles. All repair work on the nozzles was visually acceptable. All welding was inspected with MT 12 hours after welding was completed. The MT was carried out by Team inspection. No rejectable indications were noted; refer to Team report #MT-262-BG for details. No hydrostatic test was required. Refer to the attached photos and drawing for details. 							
Meets Code Crite	eria: - Yes		Re-	Inspection Required - 1	No		
Recommender	Inspection Intervals	·					
VE Inspect.	Last Inspection:		Interval (yrs)		Next Ins	pection:	- 0
VI Inspect.	Last Inspection:		Interval (yrs)			-	- 0
UT Inspect.	Last Inspection:		Interval (yrs)			-	- 0
PSV Service	Last Inspection:	-	Interval (yrs)		Next Ins	pection:	- 0
In 00:00	Out <u>00:00</u>	Hrs Hrs Hrs	onsumables:	Inspector: Wes Farquhar (Print (Sign) Client Representative: I am in full agreement with report contents:	, ,		
		Fort High Red	d Lake (7 McMurray (7 h Level (7 Deer (4	780) 594-1114 780) 734-1536 780) 956-4094 403) 347-1742 403) 527-6284	Cor Dee Mat Tex	pus Christi, TX (; er Park, TX (; rix, Houston, TX (; as City, TX (;	361) 888-4700 281) 476-4444 713) 722-7177 490) 945-2262 918) 446-8773





Treater – A0403456



Nozzle No.	Wall Loss	Remaining Wall "t"	Repair Method
N1	0.020"	0.280"	N/A
N2	0.040"	0.260"	N/A
N3	0.090"	0.210"	Weld Overlay
N4	0.125"	0.175"	Weld Overlay
N5	0.010"	0.290"	N/A

*Note: No corrosion noted on nozzles N6 & N7. No corrosion noted on the shell adjacent to any of the nozzles.

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		Medicine Hat	(403) 527-6284	Tulsa, OK	(918) 446-8773



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Equipment Photographs:



Altered By NATCO CANADA LTD. Nisku, Alberta CRN NO. LOOM 0403456 PSI@ 300 F 517 KPA@ 113 PSI ______ KPA WCK(O(TArtaBan

Figure 001_Nameplate_22Aug10

Figure 002_Repair Nameplate_22Aug10





Figure 003_Treater_22Aug10

Figure 004_Gas Dome & Oil Stain_22Aug10

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Figure 005_Top Shell Nozzle & Oil Stain_22Aug10	Figure 006_Fire Tubes_22Aug10



Figure 007_Nozzle N1_22Aug10

Figure 008_Nozzle N2_22Aug10

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Figure 009_Nozzle N3_22Aug10	Figure 010_Nozzle N3_22Aug10

Figure 011_Nozzle N4_22Aug10

Figure 012_Nozzle N4_22Aug10

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Figure 013_Completed Repairs to Nozzles N3 & N4_22Aug10	Figure 014_Fluid on Bottom Shell_22Aug10
Figure 015_Product Between Weir Plates_22Aug10	Figure 016_Product on Shell_22Aug10

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Figure 017_Broken Anchor Bolt for Vortex Breaker_22Aug10

Figure 018_Bent Firetube Support_22Aug10

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Nisku	(780) 955-7616	Red Deer	(403) 347-1742	Texas City, TX	(490) 945-2262			
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