



<input type="checkbox"/> Installation <input type="checkbox"/> External <input checked="" type="checkbox"/> Internal			
Date:	Nov 26, 2015	Description:	<input checked="" type="checkbox"/> Vessel <input type="checkbox"/> Exchanger <input type="checkbox"/> Furnace <input type="checkbox"/> Boiler
Inspector:	Ed Tymensen	Unit #:	n/a Equip #: PV-610
Agent Co:	Streamline Inspection	Equip. Name:	Treater
Owner:	CNRL	Jurisdiction #:	A0403457 CRN #: L-0015.2
Region:	Slave Lake	Manufacturer:	RCI Resource Constructors (Canada) Inc
Area:	Brintnell	Year Built:	1998 S/N: 97015-2-30
Facility:	12-09 Battery	Location/LSD:	12-09-081-22w4m
Scope:	A visual internal (VI) inspection was performed on all accessible shell and head surfaces, nozzles, welds, etc.		
Access:	<input checked="" type="checkbox"/> Manway <input type="checkbox"/> Hand-hole <input type="checkbox"/> Inspection Nozzle		
Opening	Gasket Surfaces:	<input checked="" type="checkbox"/> Compliant with code	Comment No concerns noted
	Nozzle Tube:	<input checked="" type="checkbox"/> No pitting, erosion, etc.	Comment No concerns noted
Shell and Head Surfaces	Uniform Corrosion:	<input checked="" type="checkbox"/> Insignificant amount	Comment No uniform corrosion noted
	Pitting Corrosion:	<input checked="" type="checkbox"/> None noted	Comment No concerns noted
	Erosion:	<input checked="" type="checkbox"/> None noted	Comment No concerns noted
	Mechanical Damage:	<input checked="" type="checkbox"/> None noted	Comment No concerns noted
Welds	Uniform Corrosion:	<input checked="" type="checkbox"/> Insignificant amount	Comment No uniform corrosion on welds noted
	Pitting Corrosion:	<input checked="" type="checkbox"/> None noted	Comment
	Welding Defects:	<input checked="" type="checkbox"/> None noted	Comment
	<input checked="" type="checkbox"/> NDT was performed by: Streamline Inspection		Extent: UT on shell @ 6:00 position, on north head and on drain piping.
	Type: <input type="checkbox"/> MPI (<input type="checkbox"/> WF <input type="checkbox"/> B&W <input type="checkbox"/> Dry) <input type="checkbox"/> LPI <input checked="" type="checkbox"/> UT <input type="checkbox"/> RT <input type="checkbox"/> Other:		
Results: No erosion or corrosion was found on bottom shell or on north head. Erosion was noted on north 3" drain elbow (low 0.242", nominal 0.300") and on center shell 3" drain elbow (low 0.244", nominal 0.300"). See Streamline Inspection UT report UET-141126-1 (file name "A0403457_STREAMLINE_UT_MT_INSP_NOV2014").			
Nozzles	Obstructions:	<input checked="" type="checkbox"/> None noted	Comment
	Corrosion:	<input checked="" type="checkbox"/> None noted	Comment
	Erosion:	<input checked="" type="checkbox"/> None noted	Comment
Attachments	<input type="checkbox"/> Vortex breaker	<input type="checkbox"/> Secure <input type="checkbox"/> Good Condition	Comment
	<input checked="" type="checkbox"/> Impingement plate	<input checked="" type="checkbox"/> Secure <input checked="" type="checkbox"/> Good Condition	Comment inlet deflector - to be replaced by inlet horseshoe downcomer
	<input checked="" type="checkbox"/> Suction tube	<input checked="" type="checkbox"/> Secure <input checked="" type="checkbox"/> Good Condition	Comment
	<input checked="" type="checkbox"/> Demister	<input checked="" type="checkbox"/> Secure <input checked="" type="checkbox"/> Good Condition	Comment No signs of fouling
	<input checked="" type="checkbox"/> Other:	<input checked="" type="checkbox"/> Secure <input checked="" type="checkbox"/> Good Condition	Comment water jet desand lines, drain lines, firetube supports, baffle plates, weir plate, desand 'V' trough at 6:00 position
Inspection Summary	A visual internal inspection was conducted on Treater after it had been adequately cleaned. Internal access to the Hot End was through firetube nozzles. Internal access to Cold End was through side shell manway. Vessel is NOT coated.		
	HOT END: Firetube / Manway nozzles - No significant corrosion or damage noted on firetube / manway nozzle throats or on nozzle flange face gasket seating surfaces. Vessel head and shell within hot section was found to be in good condition, with no significant corrosion, pitting or mechanical damage noted. No weld defects or corrosion on welds were noted.		
Recommended Actions:			NCR/IDR
Maintain internal inspection intervals			
Monitor grating holding in demister pad at next internal inspection (starting to corrode away). Replace demister pad grating as required.			
VESSEL STATUS			
Integrity Status	Suitable for Continued Service <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Immediate Repairs Required <input type="checkbox"/> Future Repairs Required <input type="checkbox"/> Replace		
Inventory Status	<input checked="" type="checkbox"/> In Service <input type="checkbox"/> Out of Service <input type="checkbox"/> Surplus <input type="checkbox"/> Scrap <input type="checkbox"/> Action Items Completed		

Additional Notes on continuation page: (Report C _____)

Inspection Interval: 5 yrs OR Changed to: _____ yrs. Signature of In-Service Inspector: _____

PSV Interval: _____ yrs OR Changed to: _____ yrs.

IPV/IBPV Certificate #: 000711 API 510 # 27479

VISUAL INSPECTION REPORT – Pressure Vessel

<input type="checkbox"/> Installation <input type="checkbox"/> External <input checked="" type="checkbox"/> Internal					
Date:	Nov 26, 2014	Description:	<input checked="" type="checkbox"/> Vessel <input type="checkbox"/> Exchanger <input type="checkbox"/> Furnace <input type="checkbox"/> Boiler		
Inspector:	Ed Tymensen	Unit #:	n/a	Equip #:	PV-610
Agent Co:	Streamline Inspection	Equip. Name:	Treater		
Owner:	CNRL	Jurisdiction #:	A0403457	CRN #:	L-0015.2
Region:	Slave Lake	Manufacturer:	RCI Resource Constructors (Canada) Inc		
Area:	Brintnell	Year Built:	1998	S/N:	97015-2-30
Facility:	12-09 Battery	Location/LSD:	12-09-081-22w4m		
Notes:	<p>Baffle plate dividing hot end from cold was found to be in good condition and securely attached. Firetube supports were found to be in good condition. Back firetube roller support was found to be slightly deformed, damage likely caused during firetube install - see pic.</p> <p>Inlet deflector was secure (inlet deflector to be removed due to the addition of inlet horseshoe downcomer shroud). All internal desand lines and drain lines were found to be in good condition overall, securely attached. Firetube overhead desand lines were removed at time of inspection (removed for inlet downcomer addition). was found to be deformed - see pic.</p> <p>Desand V-trough at the 6:00 position appears to be in good condition and is securely attached. The presence of the V-trough at 6:00 prevents a visual inspection of the shell at this location.</p> <p>All visually accessible nozzles, including anode nozzles, were found to be in good condition with no erosion or corrosion noted.</p> <p>COLD END:</p> <p>Manway nozzle throat, and flange / cover gasket seating surfaces on side shell are in good condition. No corrosion, pitting or mechanical damage was noted on shell or welds within cold end. Baffle plate dividing hot end from cold end, and far end wier plate were found to be in good condition and secure. All desand lines were securely attached and in good condition.</p> <p>Desand V-trough at the 6:00 position appears to be in good condition. The presence of the V-trough prevents a visual of the shell at the 6:00 position.</p> <p>Anode nozzles were found to be free of corrosion.</p> <p>Gas dome demister pad appears to be in fair condition, no significant fouling noted. The grating holding up the demister pad was found to be corroded away in areas (holes in the grating). Demister pad prevents visual inspection of gas dome surface.</p> <p>All visual accessible nozzles, including anode nozzles, were found to be in good condition, with no erosion or corrosion noted. Bottom shell / bottom of cold end head behind weir plate appears to be in good condition, no corrosion was evident. There was still some liquied at the 6:00 position. Visual behind weir was done looking over the weir, was not able to physically get access behind weir.</p> <p>There are 5 anode nozzles in this treater - 3 on hot end, 2 on cold end. Each rod has 2 anodes. All anodes were removed at time of inspection to allow for visual on anode nozzles. All anodes were found to be in fair condition with approx. 20% consumption. All anodes to be replaced during this outage.</p> <p>Due to the presence of the desand V-trough along the shell at 6:00 and the remaining liquid on bottom shell behind the weir plate, an extensive external UT examination was conducted on shell, cold end head and all nozzles / piping coming off of bottom shell. Inspection of the shell was done through 8 UT inspection ports cut out of vessel cladding. One port was scanned on cold end head.</p> <p>No corrosion or erosion was found on bottom shell or head.</p> <p>Erosion was noted on north 3" drain elbow (low 0.242", nominal 0.300").</p> <p>Erosion was noted on center shell 3" drain elbow (low 0.244", nominal 0.300").</p> <p>See Streamline Inspection UT report UET-141126-1 (file name "A0403457_STREAMLINE_UT_MT_INSP_NOV2014").</p> <p>Both firetubes were removed from vessel and are to be taken to Slave Lake for inspection / possible repairs. A spare set of firetubes that were previously were installed once treater alteration was complete.</p> <p>Exhaust stacks appear to be in good condition both externally and internally, with no significant corrosion or deformation noted. Flame arrested burners last serviced and flashback tested March 2013 by Superior Propane - in acceptable condition.</p>				
	This vessel is Fit for Service: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Insp. Summary	<p>After the visual internal inspection was completed vessel alterations were done:</p> <ul style="list-style-type: none"> - removal of inlet deflector - welding an inlet horseshoe downcomer onto shell / installing associated components <p>- see page 3 for details of alteration.</p>				
Recommended Actions:					NCR/IDR

Additional Notes on continuation page:

(Total Added Pages _____)

IPV/IBPV Certificate #: 000711 API 510 # 27479

Signature of In-Service Inspector: 

VISUAL INSPECTION REPORT – Pressure Vessel

<input type="checkbox"/> Installation <input type="checkbox"/> External <input checked="" type="checkbox"/> Internal					
Date:	Nov 05, 2014	Description:	<input checked="" type="checkbox"/> Vessel <input type="checkbox"/> Exchanger <input type="checkbox"/> Furnace <input type="checkbox"/> Boiler		
Inspector:	Ed Tymensen	Unit #:	n/a	Equip #:	PV-610
Agent Co:	Streamline Inspection	Equip. Name:	Treater		
Owner:	CNRL	Jurisdiction #:	A0403457	CRN #:	L-0015.2
Region:	Slave Lake	Manufacturer:	RCI Resource Constructors (Canada) Inc		
Area:	Brintnell	Year Built:	1998	S/N:	97015-2-30
Facility:	12-09 Battery	Location/LSD:	12-09-081-22w4m		

Notes: VESSEL ALTERATION - Completed Nov 26 to Nov 30.

NOVEMBER 26
 - 2 x 2" wide bands where new inlet horseshoe downcomer is to be welded to shell were MPI'd and UT inspected. No indications were noted with either method.
 - Existing inlet deflector box and firetube overhead desand line support beam were cut off but not ground flush to shell (therefore no MPI was required at these locations)

NOVEMBER 27
 - Inlet horseshoe downcomer components were fit and tacked into place

NOVEMBER 28
 - Inlet downcomer shroud components fit into place.
 - Inlet horseshoe downcomer was welded into place following CNRL Procedure #TC-OVR-PRO-INT-000010.

NOVEMBER 29
 - Inlet horseshoe downcomer was welded into place following CNRL Procedure #TC-OVR-PRO-INT-000010.
 - Attachment fillet welds completed Nov 28 were MPI'd 12 hours after welding was completed. No indications were noted.
 - Inlet horseshoe downcomer panels and associated components were bolted into place

NOVEMBER 30
 - Attachment fillet welds completed Nov 29 were MPI'd 12 hours after welding was completed. No indications were noted.
 - Spare set of firetubes were installed


All NDE performed during vessel alteration (addition on inlet downcomer) documented on Streamline Inspection Report UET-141126-2, MET-141126 and MET-141130 (file name A0403457_STREAMLINE_UT_MT_INSP_NOV2014).

This vessel is Fit for Service: Yes No

Insp. Summary

Recommended Actions:	NCR/IDR

Additional Notes on continuation page:

Signature of In-Service Inspector: 

(Total Added Pages _____)

IPV/IBPV Certificate #: 000711 API 510 # 27479

INSPECTION PHOTOGRAPHS



LSD SIGN



DATAPLATE



VESSEL TAG NUMBER



VESSEL OVERVIEW



ANODE APPROX 20% CONSUMED



HOT END INTERNAL OVERVIEW

INSPECTION PHOTOGRAPHS



HOT END SHELL OVERVIEW



HOT END HEAD



HOT END INTERNALS



DEFORMATION NOTED ON FIRETUBE BACK SUPPORT BEAM



DESAND 'V' TROUGH AT 6:00



INLET DEFECTOR - WAS REMOVED FOR ADDITION OF INLET HORSESHOE DOWNCOMER

INSPECTION PHOTOGRAPHS



EXHAUST STACKS



BURNERS



COLD END MANWAY



COLD END INTERNAL OVERVIEW LOOKING AT
BAFFLE PLATE



COLD END INTERNALS

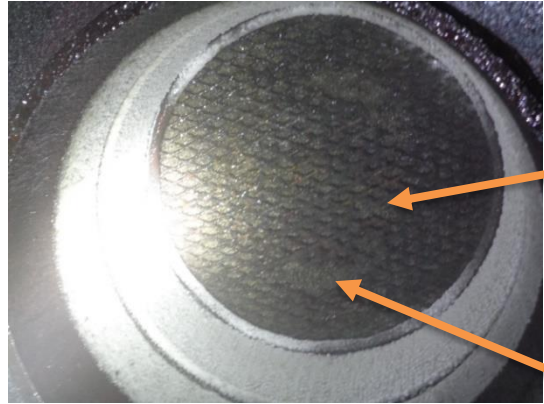


COLD END WEIR PLATE

INSPECTION PHOTOGRAPHS



BOTTOM SHELL / HEAD / SUCTION TUBE BEHIND WEIR PLATE



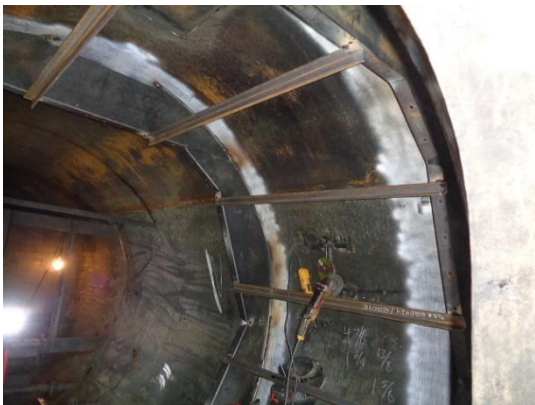
DEMISTER - GRATING IS STARTING TO CORRODE AWAY



2 x 12" WIDE BANDS WERE MPI AND UT INSPECTED WHERE NEW INLET HORSESHOE DOWNCOMER WAS TO BE WELDED ON SHELL



2 x 12" WIDE BANDS WERE MPI AND UT INSPECTED WHERE NEW INLET HORSESHOE DOWNCOMER WAS TO BE WELDED ON SHELL



DOWNCOMER TACKED INTO PLACE



DOWNCOMER TACKED INTO PLACE

INSPECTION PHOTOGRAPHS



FIRETUBE OVERHEAD DESAND LINE SUPPORT BEAM CUT OFF BUT NOT GROUND FLUSH TO SHELL



FIRETUBE OVERHEAD DESAND LINE SUPPORT BEAM CUT OFF BUT NOT GROUND FLUSH TO SHELL



OLD INLET DEFLECTOR CUT OFF BUT NOT GROUND FLUSH TO SHELL



MPI ON FINAL DOWNCOMER TO SHELL FILLET WELD (POST 12HRS)



MPI ON FINAL DOWNCOMER TO SHELL FILLET WELD (POST 12HRS)



MPI ON FINAL DOWNCOMER TO SHELL FILLET WELD (POST 12HRS)

INSPECTION PHOTOGRAPHS



MPI ON FINAL DOWNCOMER TO SHELL FILLET WELD (POST 12HRS)



MPI ON FINAL DOWNCOMER TO SHELL FILLET WELD (POST 12HRS) - HORSESHOE PANELS BOLTED IN



MPI ON FINAL DOWNCOMER TO SHELL FILLET WELD (POST 12HRS) - HORSESHOE PANELS BOLTED IN



INLET HORSESHOE DOWNCOMER SHROUD

