

Bay 5, 240040 Frontier Place SE
Rocky View, Alberta T1X 0N2



REPORT: UET-141126-1
DATE: 26-Nov-14
PAGE: 1 OF 2

ULTRASONIC EXAMINATION REPORT

CLIENT:	CNRL	CONTRACTOR:	
LOCATION NAME:	12-09 Brintnell Battery	STREAMLINE JOB#	14-501
LOCATION:	12-09-081-22w4m	CLIENT PO#:	
ITEMS EXAMINED:	PV-610 Treater A0403457		
PROCEDURE:	UT-1	ACCEPTANCE CRITERIA:	ASME VIII DIV. 1
		SPECIFICATION:	ASME V ART. 5

EQUIPMENT

EQUIPMENT TYPE:	DMS / USM GO	Serial #:	12116329	Cal Date:	30-Dec-13	Cable Length/Type:	6' / Lemo to Microdot	COUPLANT:	UT-X
CALIBRATION BLOCKS:	1.000" C/S Step SN 12-4684							UT INSPECTION MODE:	
REFERENCE REFLECTOR:	Type:	Size:	Depth:	Signal Respose Height: 80%			<input checked="" type="checkbox"/> ZERO DEGREE <input type="checkbox"/> SHEARWAVE		

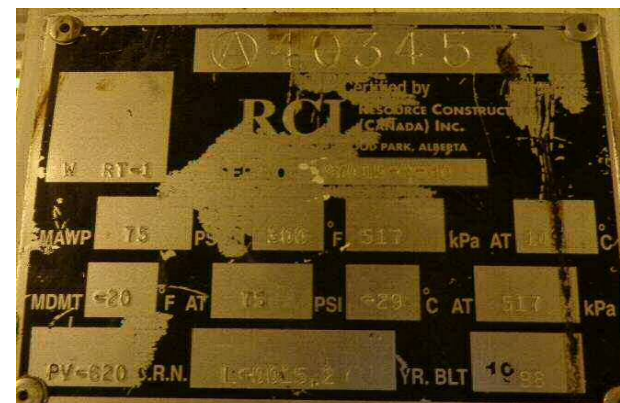
PROBE TYPE	ANGLE	WAVE	FREQ.	SIZE	MANUF.	SERIAL #	RANGE	REF. LEVEL (Db)	SCAN LEVEL (Db)
DUAL	0	LONG	5MHZ	0.250"	STRESSTEL	12L02H59	1.000"	64	70

SURFACE CONDITION: CLEAN BASE METAL AS GROUND WIRE WHEEL BUFFED AS WELDED PAINTED SAND BLAST Other: Material: C/S

EXAMINATION DETAILS AND RESULTS

A UT zero degree examination was conducted on treater bottom shell at the 6:00 position, and on all bottom drain nozzles and 1st drain piping spool. 3 existing and 5 new insulation cladding cutouts on bottom shell were scanned. UT examination was conducted on these areas as the presence of the internal desand V-trough prevented a visual inspection of the shell at the 6:00 position during vessel internal visual inspection. Scans were also done on btm shell and north head as this area behind the weir was not adequately cleaned to allow for visual inspection.

A0403457	MAWP 75psi
SN 97015-2-30	Max Temp 300F
CRN L-0015.2	MDMT -20F
Year 1998	C.A. 0.0625"
RCI Resource Constructors	
120" O.D.	



TECHNICIAN:	EDWIN TYMENSEN - CGSB/SNT-TC-1A UT II, MT II, PT II #11424		CLIENT:	Dylan Harrison
SIGNATURE:		API 510 #27479	APPROVAL:	
ASSISTANT:		API 653 #50947		
		AB IPV #000711		

ULTRASONIC EXAMINATION REPORT

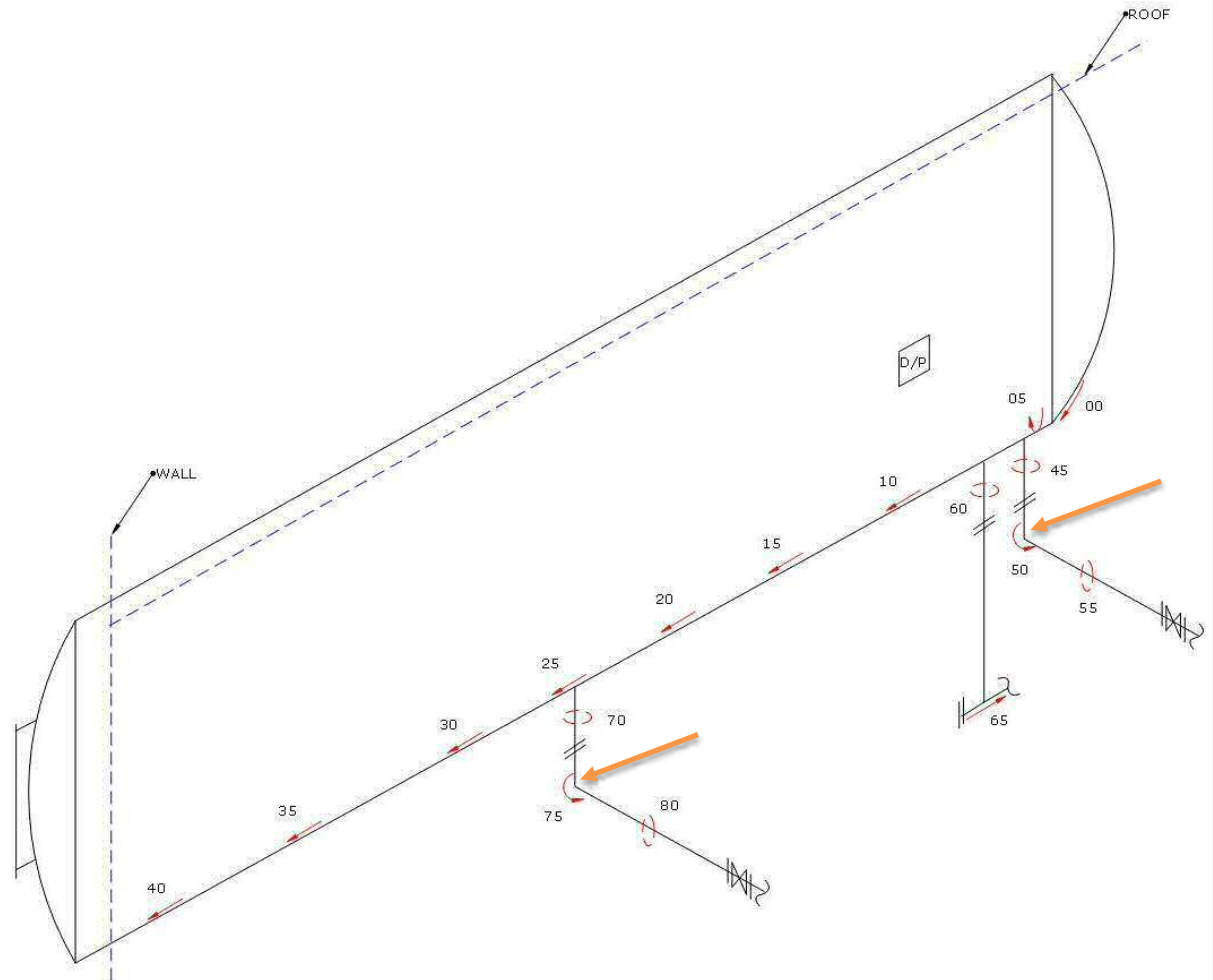
CLIENT:	CNRL	CONTRACTOR:	
LOCATION NAME:	12-09 Brintnell Battery	STREAMLINE JOB#	14-501
LOCATION:	12-09-081-22w4m	CLIENT PO#:	
ITEMS EXAMINED:	PV-610 Treater A0403457		

EXAMINATION DETAILS AND RESULTS

BAND #	DIA.	NOMINAL	nom - 12.5 % mill toll	LOW	AVG
00	120"	----		0.481	0.492
05	120"	0.500		0.502	0.507
10	120"	0.500		0.507	0.510
15	120"	0.500		0.496	0.499
20	120"	0.500		0.501	0.504
25	120"	0.500		0.499	0.505
30	120"	0.500		0.503	0.504
35	120"	0.500		0.500	0.504
40	120"	0.500		0.503	0.506
45	3"	0.300	0.263	0.270	0.294
50	3"	0.300	0.263	0.242	0.259
55	3"	0.300	0.263	0.276	0.299
60	2"	0.343	0.300	0.308	0.327
65	2"	0.154	0.135	0.167	0.191
70	3"	0.300	0.263	0.276	0.289
75	3"	0.300	0.263	0.244	0.267
80	3"	0.300	0.263	0.271	0.290

Note: assumed shell nominal.

Note: Erosion was noted on bands 50 & 75
No erosion or corrosion was noted on vessel shell or east head.



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ULTRASONIC EXAMINATION REPORT

CLIENT:	CNRL	CONTRACTOR:			
LOCATION NAME:	12-09 Brintnell Battery	STREAMLINE JOB#	14-501		
LOCATION:	12-09-081-22w4m	CLIENT PO#:			
ITEMS EXAMINED:	PV-610 Treater A0403457				
PROCEDURE:	UT-1	ACCEPTANCE CRITERIA:	ASME VIII DIV. 1	SPECIFICATION:	ASME V ART. 5

EQUIPMENT

EQUIPMENT TYPE:	DMS / USM GO	Serial #:	12116329	Cal Date:	30-Dec-13	Cable Length/Type:	6' / Lemo to Microdot	COUPLANT:	UT-X
CALIBRATION BLOCKS:	1.000" C/S Step SN 12-4684							UT INSPECTION MODE:	
REFERENCE REFLECTOR:	Type:	Size:	Depth:	Signal Respose Height: 80%			<input checked="" type="checkbox"/> ZERO DEGREE <input type="checkbox"/> SHEARWAVE		

PROBE TYPE	ANGLE	WAVE	FREQ.	SIZE	MANUF.	SERIAL #	RANGE	REF. LEVEL (Db)	SCAN LEVEL (Db)
DUAL	0	LONG	5MHZ	0.250"	STRESSTEL	12L02H59	1.000"	64	70

SURFACE CONDITION: CLEAN BASE METAL AS GROUND WIRE WHEEL BUFFED AS WELDED PAINTED SAND BLAST Other: **Material:** C/S

EXAMINATION DETAILS AND RESULTS

A UT zero degree examination was conducted on vessel shell from internal surface where an inlet horseshoe downcomer was to be welded onto shell to inspect for laminations.

Inspection was done on the area of the shell where the downcomer is to be welded around the shell in a 12" wide band, as marked out by welders.
- 2 x 12" wide bands around shell (one for each side of horseshoe downcomer).

Results:

No laminar indications or other defects were noted at time of examination. Shell within the areas to be welded on is acceptable as per code.
All wall thickness readings between 0.508" and 0.540"
(Shell nominal 0.500")

TECHNICIAN:	EDWIN TYMENSEN - CGSB/SNT-TC-1A UT II, MT II, PT II #11424		CLIENT:	Dylan Harrison
SIGNATURE:		API 510 #27479	CHARGES REF.	APPROVAL:
ASSISTANT:		API 653 #50947	JOB#	
		AB IPV #000711	14-501	

ULTRASONIC EXAMINATION REPORT

CLIENT:	CNRL	CONTRACTOR:	
LOCATION NAME:	12-09 Brintnell Battery	STREAMLINE JOB#	14-501
LOCATION:	12-09-081-22w4m	CLIENT PO#:	
ITEMS EXAMINED:	PV-610 Treater A0403457		

EXAMINATION DETAILS AND RESULTS



2 x 12" wide bands
UT'd for laminations
and other defects

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DATE: 26-Nov-14
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MAGNETIC PARTICLE EXAMINATION REPORT

CLIENT:	CNRL	CONTRACTOR:			
LOCATION NAME:	12-09 Brintnell Battery	STREAMLINE JOB#	14-501		
LOCATION:	12-09-081-22w4m	CLIENT PO#:			
ITEMS EXAMINED:	PV-610 Treater A0403457				
PROCEDURE:	MT-3	ACCEPTANCE CRITERIA:	ASME VIII DIV. 1	SPECIFICATION:	ASME V ART. 7

EQUIPMENT

<input checked="" type="checkbox"/> YOKE	<input checked="" type="checkbox"/> AC	<input type="checkbox"/> DC	<input checked="" type="checkbox"/> CONTINUOUS	<input type="checkbox"/> RESIDUAL	<input checked="" type="checkbox"/> 120Volt	<input type="checkbox"/> 12Volt	Serial #: 0231	Last Cal. Date: 24-Apr-14 Prod Spacing 3" - 8"
<input type="checkbox"/> 100 W TROUBLE LIGHT*	<input checked="" type="checkbox"/> 10 W YOKE LIGHT*	<input type="checkbox"/> HALOGEN LIGHT	<input type="checkbox"/> OTHER:			*Light Source Intensity Demonstrated: $\geq 100fc$		
<input type="checkbox"/> BLACKLIGHT	Serial #: 1Z11	Last Performance Check: 12-Feb-13		Minimum Black Light Intensity: $\geq 1000\mu W/cm^2$				
<input type="checkbox"/> LIGHT METER	Serial #: 4484/7968	Last Calibration Date: 13-Aug-12		Excess Particles Removed via Flow or Exhalation				

TEST MEDIUM MANUFACTURER:	Magnaflux	MEDIUM TYPE / SIZE:	7HF (<20 μ) / WCP-2			
<input type="checkbox"/> DRY	COLOR:	<input type="checkbox"/> FLUORESCENT	<input checked="" type="checkbox"/> BLACK ON CONTRAST WHITE	APPLICATION METHOD:	<input checked="" type="checkbox"/> SPRAY	<input type="checkbox"/> POWDER PUFFER

SURFACE CONDITION: CLEAN BASE METAL AS GROUND WIRE WHEEL BUFFED AS WELDED PAINTED SAND BLAST Other: **Material: C/S**


EXAMINATION DETAILS AND RESULTS

A Black on contrast white Magnetic Particle Examination was conducted on the following locations at the following steps during treater alteration (addition of horseshoe inlet downcomer):

- on shell where the horseshoe downcomer is to be welded, 2 x 12" wide bands were examined, one for either side of downcomer
- inlet deflector box was removed but not cut off / ground down flush to shell, therefore no additional MPI was required at this location
- firetube support angle beam was removed but not cut off / ground down flush to shell, therefore no additional MPI was required at these locations

RESULTS:

No visible surface indications were noted at time of examination.
All areas examined were found to be acceptable as per code.

TECHNICIAN:	EDWIN TYMENSEN - CGSB/SNT-TC-1A UT II, MT II, PT II #11424		CLIENT:	Dylan Harrison
SIGNATURE:		API 510 #27479	CHARGES REF.	APPROVAL:
ASSISTANT:		API 653 #50947	JOB#	
		AB IPV #000711	14-501	

MAGNETIC PARTICLE EXAMINATION REPORT

CLIENT:	CNRL	CONTRACTOR:	
LOCATION NAME:	12-09 Brintnell Battery	STREAMLINE JOB#	14-501
LOCATION:	12-09-081-22w4m	CLIENT PO#:	
ITEMS EXAMINED:	PV-610 Treater A0403457		

EXAMINATION DETAILS AND RESULTS



2 x 12" wide bands MPI'd where new inlet horseshoe downcomer is to be welded to shell

2 x 12" wide bands MPI'd where new inlet horseshoe downcomer is to be welded to shell



Bay 5, 240040 Frontier Place SE
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DATE: 30-Nov-14
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MAGNETIC PARTICLE EXAMINATION REPORT

CLIENT:	CNRL	CONTRACTOR:			
LOCATION NAME:	12-09 Brintnell Battery	STREAMLINE JOB#	14-501		
LOCATION:	12-09-081-22w4m	CLIENT PO#:			
ITEMS EXAMINED:	PV-610 Treater A0403457				
PROCEDURE:	MT-3	ACCEPTANCE CRITERIA:	ASME VIII DIV. 1	SPECIFICATION:	ASME V ART. 7

EQUIPMENT

YOKE AC DC CONTINUOUS RESIDUAL 120Volt 12Volt Serial #: 0231 Last Cal. Date: 24-Apr-14 Prod Spacing 3" - 8"
 100 W TROUBLE LIGHT* 10 W YOKE LIGHT* HALOGEN LIGHT OTHER: *Light Source Intensity Demonstrated: $\geq 100fc$
 BLACKLIGHT Serial #: 1Z11 Last Performance Check: 12-Feb-13 Minimum Black Light Intensity: $\geq 1000\mu W/cm^2$
 LIGHT METER Serial #: 4484/7968 Last Calibration Date: 13-Aug-12 Excess Particles Removed via Flow or Exhalation

TEST MEDIUM MANUFACTURER: Magnaflux MEDIUM TYPE / SIZE: 7HF (<20 μ) / WCP-2
 DRY COLOR: FLUORESCENT BLACK ON CONTRAST WHITE APPLICATION METHOD: SPRAY POWDER PUFFER

SURFACE CONDITION: CLEAN BASE METAL AS GROUND WIRE WHEEL BUFFED AS WELDED PAINTED SAND BLAST Other: Material: C/S

EXAMINATION DETAILS AND RESULTS


A Black on contrast white Magnetic Particle Examination was conducted on the following locations during treater alteration (addition of 'horseshoe inlet downcomer):

- on all inlet horseshoe downcomer to shell fillet welds 12 hours after welding was completed

Note: Inspection includes the width of welds and 1" to 2" on either side of welds

RESULTS:

No visible surface indications were noted at time of final examination.
All welds / areas examined were found to be acceptable as per code.

TECHNICIAN:	EDWIN TYMENSEN - CGSB/SNT-TC-1A UT II, MT II, PT II #11424		CLIENT:	Dylan Harrison
SIGNATURE:		API 510 #27479 API 653 #50947	CHARGES REF. JOB#	APPROVAL:
ASSISTANT:	Dave Skeard	AB IPV #000711	14-501	

MAGNETIC PARTICLE EXAMINATION REPORT

CLIENT:	CNRL	CONTRACTOR:	
LOCATION NAME:	12-09 Brintnell Battery	STREAMLINE JOB#	14-501
LOCATION:	12-09-081-22w4m	CLIENT PO#:	
ITEMS EXAMINED:	PV-610 Treater A0403457		

EXAMINATION DETAILS AND RESULTS



MPI on final inlet horsehoe downcomer to shell fillet welds 12 hours after welding was completed



MPI on final inlet horsehoe downcomer to shell fillet welds 12 hours after welding was completed



MPI on final inlet horsehoe downcomer to shell fillet welds 12 hours after welding was completed



MPI on final inlet horsehoe downcomer to shell fillet welds 12 hours after welding was completed



Firetube overhead desand line support beam cut off but not ground flush to shell



Old inlet deflector box cut off but not ground flush to shell

MAGNETIC PARTICLE EXAMINATION REPORT

CLIENT:	CNRL	CONTRACTOR:	
LOCATION NAME:	12-09 Brintnell Battery	STREAMLINE JOB#	14-501
LOCATION:	12-09-081-22w4m	CLIENT PO#:	
ITEMS EXAMINED:	PV-610 Treater A0403457		

EXAMINATION DETAILS AND RESULTS



MPI on final inlet horseshoe downcomer to shell fillet welds 12 hours after welding was completed



MPI on final inlet horseshoe downcomer to shell fillet welds 12 hours after welding was completed



MPI on final inlet horseshoe downcomer to shell fillet welds 12 hours after welding was completed



MPI on final inlet horseshoe downcomer to shell fillet welds 12 hours after welding was completed



Inlet horseshoe downcomer shroud after all components installed