

Existing Equipment Integrity Assessment Report

Date July 2023

Page 1 of 1

Inspect Date: July 27, 2023	Client: Yoho Resources	District: Inga, BC	LSD: 10-19-087-23W6
Facility:	Client Ref #	IRM Ref #	P004
Equipment #:	Description: BPV-066731 – 2 nd Stg Aerial Cooler	Jur# A0552589	CRN: T4388.213
MFR: Air-X-Changers	Mfr S/N: 055572.4	Mfr Date:	Status: Operating

Fit for Service: Yes Suitable for Service: Yes PSV meets Code: Yes PSV set at or below MAWP: Yes
 Online PSV Inspection has been completed: Yes
 PSV Capacity Verified: N/A
 Repair / Alteration / PSV Calibration Required: No

Current Inspection Results

2023-07 VE UT completed by RJC
 VE | The caulking around the piping to building interface has failed.
 UT | No concerns noted
 PSV | No concerns noted
 MPI | NA

Assessment completed by Aaron Bischoff | UT readings above Nom-C.A and MIL tolerance Tmin (12.5%),. No issues on concerns noted. 5 year / 60 month acceptable. VE reviewed; no major concerns noted. AJB.
 VE reviewed; no major concerns noted. AJB.

Past PSV Servicing Results

Serviced by Unified Valve 09/03/2020 SN 889107-6-a10g . PSV Service report reviewed using PSV assessment calculator. PSV serviced by Unified Valve Fort St John. No issues or concerns at time of servicing, suggested interval of 5 years / 60 months. AJB

Past Inspection History Results

No historical inspections

NEXT NDE & Inspection Methods

<input checked="" type="checkbox"/> VE 2028	<input type="checkbox"/> VI	<input checked="" type="checkbox"/> UT 2028	<input type="checkbox"/> BW
<input type="checkbox"/> WF	<input type="checkbox"/> LF	<input type="checkbox"/> ET	<input type="checkbox"/> HIC
<input type="checkbox"/> CREEP	<input type="checkbox"/> BHN	<input type="checkbox"/> CDR	<input type="checkbox"/> MFL

Other:

Previous Inspection Plan

No historical ITP

Next Inspection Plan

Expected damage mechanisms and locations: General Erosion / Corrosion. Localized pitting possible.
 Primary Areas of degradation: Bottom head and piping elbows.
 NDE examinations (type & extent): VE on 5-year Interval – due July 2028
 UT on 5-year DUE July 2028
 Preparation for next inspection: None
 PSV: Last service September 2020, report reviewed. Next PSV service due September 2025

Qualified

Inspector: Aaron bischoff Qual: ibpv#644

Signature:



Report date: 17-Nov-2023 status:



Vessel External Inspection

Report No.:


Client	Yoho Resources			Inspector	Ryan Cadieux			Date	July 27, 2023						
District	Inga, BC		Surface LSD	10-19-087-23W6			Downhole LSD								
Vessel Data															
Vessel Description	BPV-066731 – 2 nd Stage Aerial Cooler			RT	No		PWHT	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Partial <input type="checkbox"/>							
A# / NB#	A0552589		Serial #	055572.4			CRN #	T4388.213							
Manufacturer	Air-X-Changers						Manway	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Size: <input type="text"/>							
Owner Tag	N/S		Skid	Comp Skid #050903			OD	Length <input type="text"/>							
MAWP 1	<input checked="" type="checkbox"/> Shell <input type="checkbox"/> Tube	1292	psi		kPa	MAWT		C	350	F	MDMT		C	-20	F
MAWP 2	<input type="checkbox"/> Shell <input type="checkbox"/> Tube		psi		kPa	MAWT		C		F	MDMT		C		F
Operating Pressure			psi		kPa	Operating Temp		C		F	Flange Rating #	600			
Process Conditions:	<input checked="" type="checkbox"/> Sweet <input type="checkbox"/> Sour				Internal Coating:			N/S							
Product:	<input checked="" type="checkbox"/> Gas <input type="checkbox"/> Water <input type="checkbox"/> Air <input type="checkbox"/> Effluent <input type="checkbox"/> Other:														
PSV #1 Data															
Owner ID/Tag	15 Yoho					PSV Location	Piping								
Manufacturer	Farris					Model #	26FA13-120								
Serial #	889107-6-A10/G					Mfg Date	10/17								
CRN #	0G8442.5R2CL					Code	UV/NB								
Set Pressure	800			<input checked="" type="checkbox"/> psi <input type="checkbox"/> kPa		Service Company	Unified								
Capacity	5220	scfm		gpm		Other	Service Date	09/2020	Service Tag #	40778F					
Inlet Size	1.5"	NPS	Type	<input type="checkbox"/> THD <input checked="" type="checkbox"/> FLG #	600	Outlet Size	2.0"	NPS	Type	<input type="checkbox"/> THD <input checked="" type="checkbox"/> FLG #	150				
Inlet Block Valve	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Locked/Sealed <input type="checkbox"/> Yes <input type="checkbox"/> No			Outlet Block Valve	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Locked/Sealed <input type="checkbox"/> Yes <input type="checkbox"/> No						
Seal Intact:				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Properly Supported				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
Drainage (i.e. pocketed, missing tailpipe):	Satisfactory														
Discharge Piped to (i.e. flare line, pop tank, FKO, atmosphere):	Flare														
PSV General Condition/Comments:	No issues noted.														
PSV #2 Data															
Owner ID/Tag						PSV Location									
Manufacturer						Model #									
Serial #						Mfg Date									
CRN #						Code									
Set Pressure				<input type="checkbox"/> psi <input type="checkbox"/> kPa		Service Company									
Capacity		scfm		gpm		Other	Service Date		Service Tag #						
Inlet Size		NPS	Type	<input type="checkbox"/> THD <input type="checkbox"/> FLG #		Outlet Size		NPS	Type	<input type="checkbox"/> THD <input type="checkbox"/> FLG #					
Inlet Block Valve	<input type="checkbox"/> Yes <input type="checkbox"/> No		Locked/Sealed <input type="checkbox"/> Yes <input type="checkbox"/> No			Outlet Block Valve	<input type="checkbox"/> Yes <input type="checkbox"/> No		Locked/Sealed <input type="checkbox"/> Yes <input type="checkbox"/> No						
Seal Intact:				<input type="checkbox"/> Yes <input type="checkbox"/> No		Properly Supported				<input type="checkbox"/> Yes <input type="checkbox"/> No					
Drainage (i.e. pocketed, missing tailpipe):															
Discharge Piped to (i.e. flare line, pop tank, FKO, atmosphere):															
PSV General Condition/Comments:															

Vessel External Inspection

Report No.:

External Inspection	Good	Fair*	Poor*	N/A	External Inspection	Good	Fair*	Poor*	N/A
Skid Foundation/Supports	X				Ladder(s)/Platforms				X
Insulation/Cladding		X			Gauges				X
Vessel Nameplate	X				Valves				X
Vessel Saddle/Skirt/Supports/Bolts	X				Piping	X			
Vessel Paint/Coating	X				Flanges/Bolting (per Code)	X			
Vessel Shell				X	Piping Support	X			
Vessel Head	X				Catadyne Heaters (zip ties)				X
Nozzles	X				Surface Staining of Ground	X			
Pig Traps (ie evidence of hammering)				X	Signage (i.e. stand alone)				X
Regulators Vented	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				Vessel/Skid Grounded	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			

* Fair and Poor selections require comments

Comments:				
1. The caulking at the outlet piping to building interface has failed.				
<input checked="" type="checkbox"/> In Service <input type="checkbox"/> Idle <input type="checkbox"/> Blinded/Disconnected	Signature		Date	July 27, 2023

Vessel External Inspection

PHOTOS

Report No.:



Vessel External Inspection

Report No.:



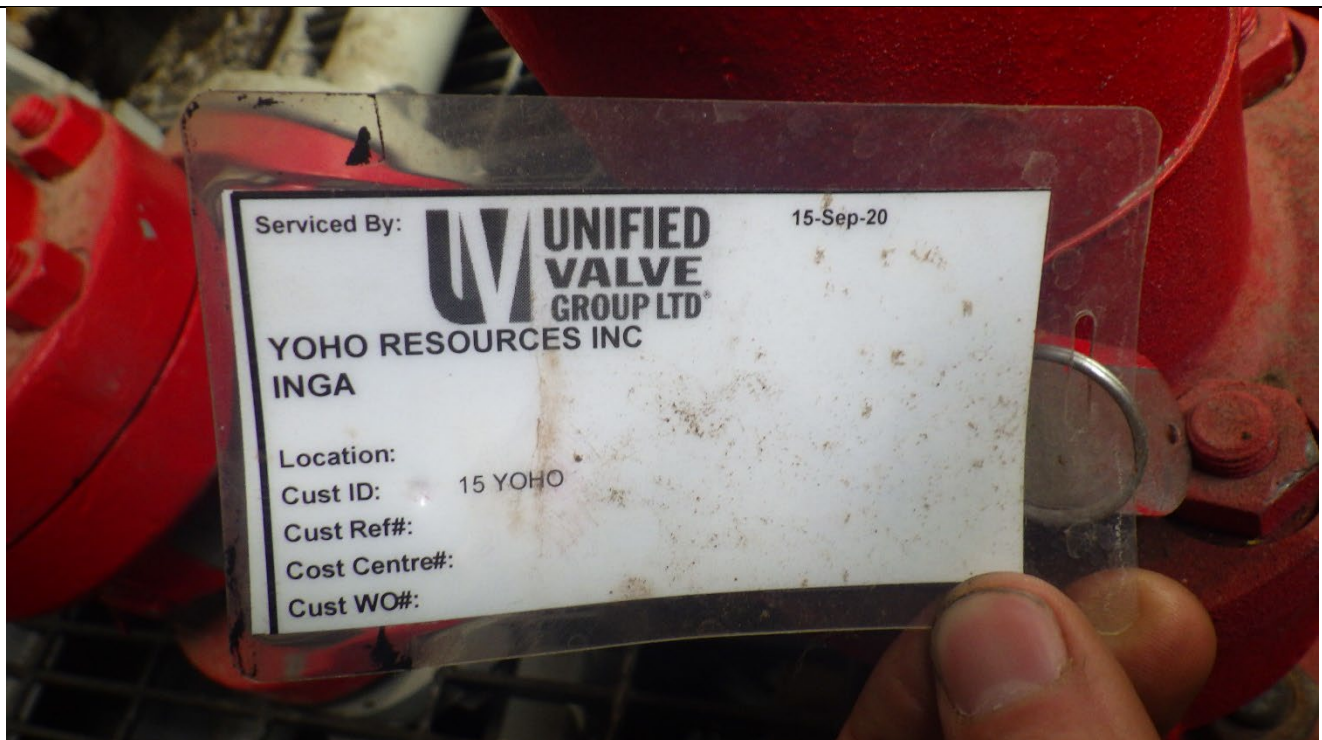
Vessel External Inspection

Report No.:



Vessel External Inspection

Report No.:



Vessel External Inspection

Report No.:



UT readings above Nom-C.A and MIL tolerance Tmin (12.5%),. No issues on concerns noted. 5 year / 60 month acceptable. VE reviewed; no major concerns noted. AJB.



Corrosion Survey Report

(780) 242-2204
RyanC@RJCIntegrity.com
www.RJCIntegrity.com

Client: Yoho Resources	A0552589 - UT - 001 - RC
Date: Thursday, July 27, 2023	

Work Location: Inga, BC	Scanning Surface: O.D.	Job No.: 2023-0033
Examination Standard: ASME V Article 4 - 2021	Material: Carbon Steel	P.O. No.:
Acceptance Standard: Client's Spec.	Surface Condition: Painted	W.O. No.:
RJC Procedure: RJC-UT-001 Rev.0	Temperature: Ambient	Other:

Instrument: Olympus	Couplant: UTX
Model: Epoch 600	Calibration Block: C.S. Step Wedge Serial No. 3886-20
Serial No.: 140708306	Calibration Block:
Cal Due Date: Monday, January 15, 2024	Scanning Limitation: See comments below

Probe	Ser. No.	Angle	MHz	Crystal Size / Type	Primary Ref. Reflector / Amp. / Distance / dB	Scan Sens.	Calibrated Range
V-110	180002	0°	5 MHz	0.500" / Single	1st Back wall	As required	0.100" - 1.000"

Purpose: To perform an ultrasonic thickness survey.																															
Results: Refer to attached pages for recorded data.																															
Notes: 1. Thickness readings do NOT include paint thickness. 2. * = Assumed nominal thickness 3. Piping wall loss between 12.6% - 30% = Caution 4. Piping wall loss greater then 30% = Urgent	<table><tr><th colspan="6">VESSEL DATA</th></tr><tr><td colspan="6">Vessel Description: 2nd Stage Aerial Cooler</td></tr><tr><td>A No.:</td><td>0552589</td><td>Vessel ID:</td><td>N/S</td><td>Manufacturer:</td><td>Air-X-Changers</td></tr><tr><td>CRN No.:</td><td>T4388.213</td><td>Year Built:</td><td>2005</td><td>District:</td><td>Inga, BC</td></tr><tr><td>Serial No.:</td><td>055572.4</td><td>C.A.:</td><td>N/S</td><td>LSD:</td><td>10-19-087-23W6</td></tr></table>	VESSEL DATA						Vessel Description: 2nd Stage Aerial Cooler						A No.:	0552589	Vessel ID:	N/S	Manufacturer:	Air-X-Changers	CRN No.:	T4388.213	Year Built:	2005	District:	Inga, BC	Serial No.:	055572.4	C.A.:	N/S	LSD:	10-19-087-23W6
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Serial No.:	055572.4	C.A.:	N/S	LSD:	10-19-087-23W6																										

Interpretation is in accordance with the above mentioned standards, to the best of my professional ability.					
Print:	Ryan Cadieux	CGSB/SNT Level:	II/II	Reg. No.:	18219
				Sign:	<i>Ryan Cadieux</i>
Client Representative:					
Print:				Date:	
				Sign:	

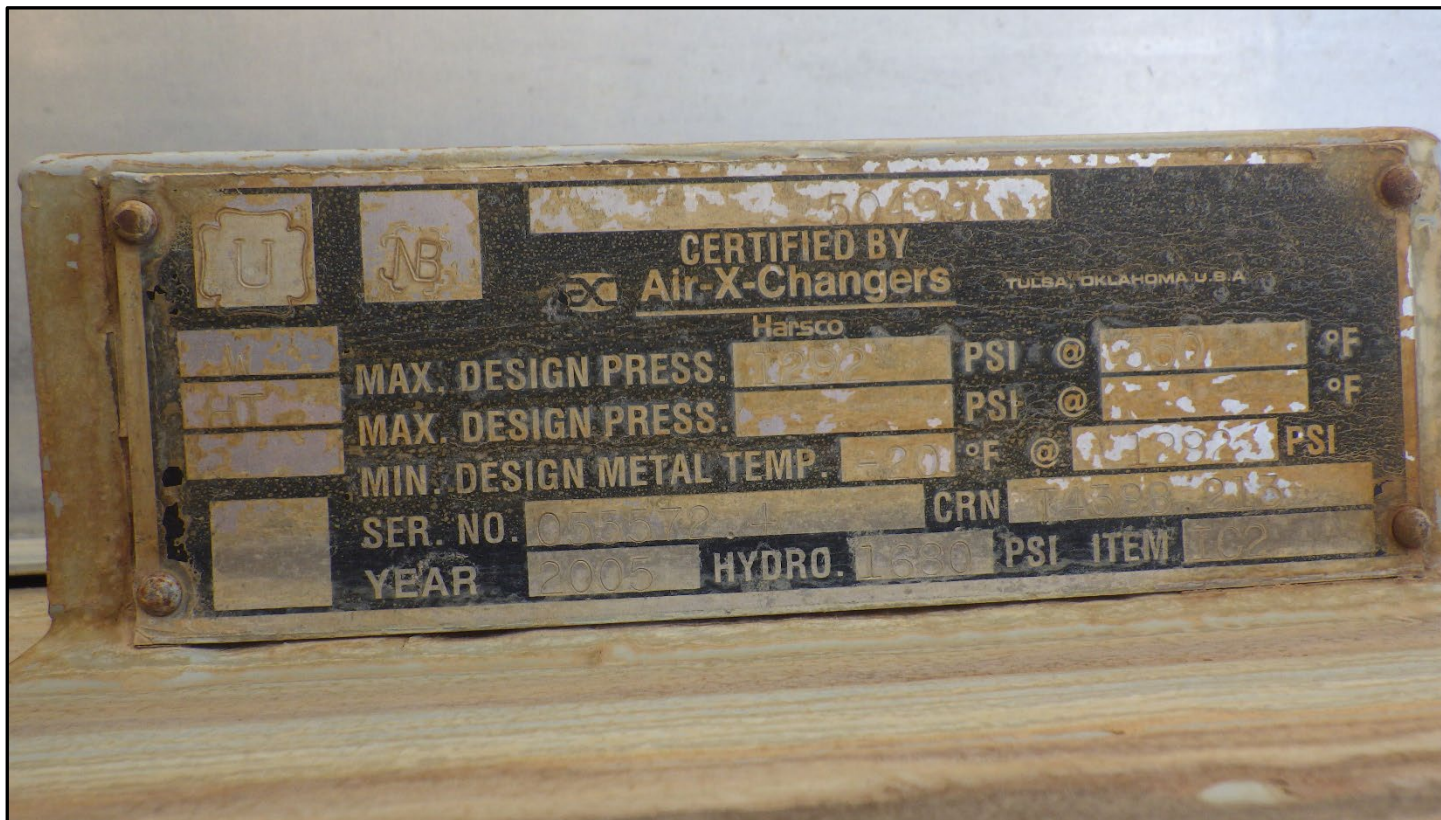
Band ID	Location	Direction	Material	Nominal (in)	CA (in)		Baseline (in)	Previous (in)	Current (in)	% Wall Loss	Tmin (in)	STCR (mpy)	LTCR (mpy)	Years Remaining	
000*	EHB - North Face	T - B	SA516 - 70N	0.875	0.063	Year:	2005		2023						Acceptable
						Min:	0.875		0.874	0.11%	0.812	0.00	0.06	20	
							Avg:			0.876					
Comments: 0.063" used for C.A.															
005*	EHB - South Face	T - B	SA516 - 70N	0.875	0.063	Year:	2005		2023						Acceptable
						Min:	0.875		0.871	0.46%	0.812	0.00	0.22	20	
							Avg:			0.873					
Comments: 0.063" used for C.A.															
010*	WHB - South Face	T - B	SA516 - 70N	0.875	0.063	Year:	2005		2023						Acceptable
						Min:	0.875		0.871	0.46%	0.812	0.00	0.22	20	
							Avg:			0.874					
Comments: 0.063" used for C.A.															
015*	WHB - North Face	T - B	SA516 - 70N	0.875	0.063	Year:	2005		2023						Acceptable
						Min:	0.875		0.871	0.46%	0.812	0.00	0.22	20	
							Avg:			0.873					
Comments: 0.063" used for C.A.															
						Year:									#DIV/0!
						Min:				#DIV/0!	0.000	#DIV/0!	#DIV/0!	#DIV/0!	
							Avg:								
Comments:															
						Year:									#DIV/0!
						Min:				#DIV/0!	0.000	#DIV/0!	#DIV/0!	#DIV/0!	
							Avg:								
Comments:															

Band ID	Location	Direction	Material	Nominal (in)	CA (in)		Baseline (in)	Previous (in)	Current (in)	% Wall Loss	Tmin (in)	STCR (mpy)	LTCR (mpy)		
020	3" XS Inlet Pipe	360° Circ	Carbon Steel	0.300	0.038	Year:	2005		2023						Acceptable
						Min:	0.300		0.295	1.67%	0.263	0.00	0.28		
	Avg: 0.303														
Comments: 12.5% used for C.A															
025	3" XS Inlet Pipe	360° Circ	Carbon Steel	0.300	0.038	Year:	2005		2023						Acceptable
						Min:	0.300		0.286	4.67%	0.263	0.00	0.78		
	Avg: 0.292														
Comments: 12.5% used for C.A.															
						Year:									#DIV/0!
						Min:				#DIV/0!	0.000	#DIV/0!	#DIV/0!		
	Avg:														
Comments:															
						Year:									#DIV/0!
						Min:				#DIV/0!	0.000	#DIV/0!	#DIV/0!		
	Avg:														
Comments:															
						Year:									#DIV/0!
						Min:				#DIV/0!	0.000	#DIV/0!	#DIV/0!		
	Avg:														
Comments:															
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	Avg:														
Comments:															

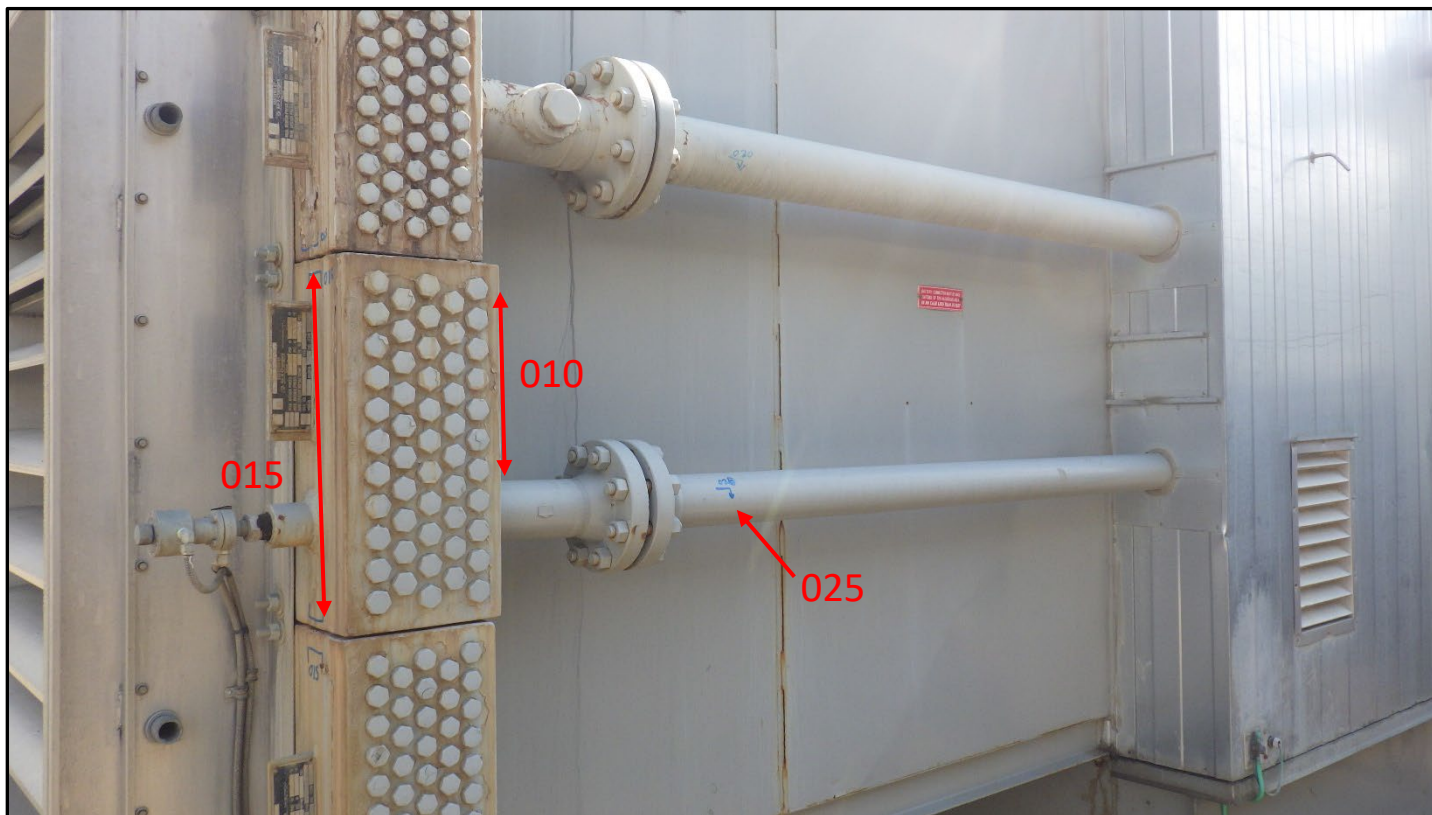
Vessel Overview



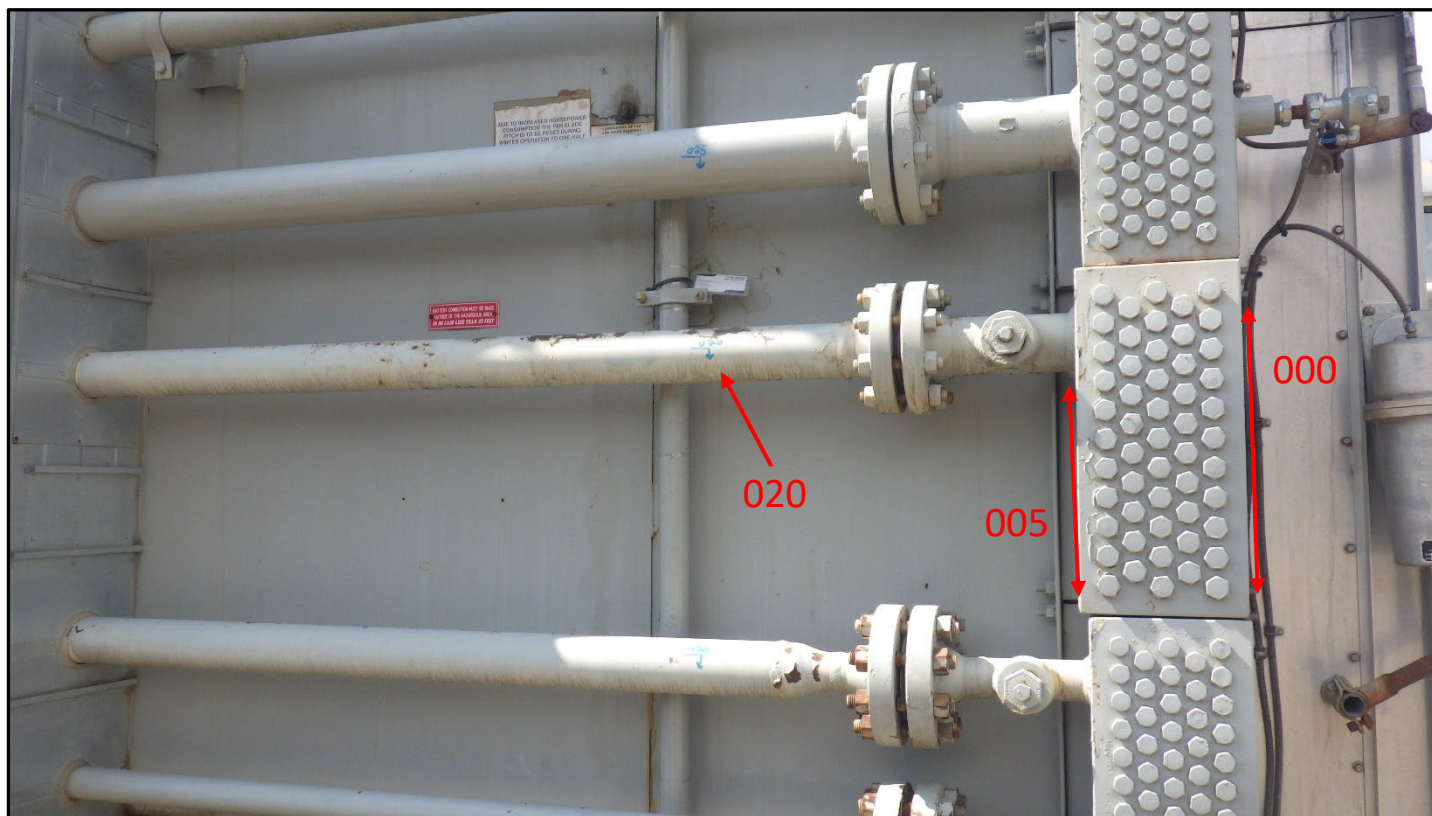
Nameplate



TML Locations



TML Locations



PSV Service report reviewed using PSV assessment calculator. PSV serviced by Unified Valve Fort St John. No issues or concerns at time of servicing, suggested interval of 5 years / 60 months. AJB



PRV INSPECTION AND TEST REPORT

BRANCH: Fort St John UVL ID#: 40778F
Work Order: W16001404 Customer PO#:

Customer	YOHO RESOURCES INC	Date:	09/03/2020
Facility:	INGA	LSD:	
A#:		PSV Location:	
Cust. Ref.:		Vessel SN:	Cust Id: 15 YOHO
Cust. WO#:		Valve PO:	PO LINE#:
		Cust AFE#:	Cost Centre#:

VALVE DATA

Man.:	FARRIS	Model:	26FA13-120	Serial:	889107-6-A10/G	Seat:	HARD
Conn.	Flanged	Inlet:	1.5" 600	Orifice:	F	Outlet:	2" 150
Set Press.	800 PSI	Back Press.:	N/A PSI	CDTP:	N/A PSI	Temp:	N/A F
Lift Lever	<input type="checkbox"/>	Cap Assembly:	Closed	RFID:		Code Symbol:	UV
						Cap:	5,220 SCFM
						CRN#:	0G8442.5R2CI

CUSTOMER INSTRUCTIONS

Instructions: Full Service Pretest Required? ☒ Reset Required? ☐

CONDITION AS RECEIVED

Visual Condition:	Fair	Data Plate Condition:	OK	Date of last service:	/
Seal Condition:	Top: Intact	Bottom:	N/A	Insignia:	
Inlet:		Inlet Plugged:	<input type="checkbox"/>	Outlet:	
		Outlet Plugged:	<input type="checkbox"/>	Initial Insp. Signoff:	K-anna Jobson

PRETEST 1

Simmer: 830 PSI Set Press: 831 PSI Reseat: 710 PSI Leakage: 20 BPM Test Gauge: FSJ9/10
Tested By: Sean Moore Pretest Comments:

PRETEST 2

Simmer: Set Press: Reseat: Leakage: Test Gauge: FSJ9/10
Tested By: Pretest Comments:

COMPONENTS INSPECTION

(0 Like New / 1 Minor / 2 Medium / 3 Major)

ITEM	CLEAN	OLY	RUSTY	CARBON	PITTED	CORRODED	SCALE	VIBRATION	GROOVED	DENTED	GALLING	GOUNDED	OTHER	Machined	Lapped	Polished	Replaced	Replace Next Service	COMMENTS
DISC		1												<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NOZZLE		1												<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
CAP-LEVER ASSY		1												<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
COMP SCREW and LC		1												<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
AS FOUND:		AS LEFT:																	
SPRING and BUTTONS		1												<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SPINDLE / STEM		1												<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
STEM RETAINER		1												<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DISC HOLDER		1												<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
GUIDE / UPPER RING		1												<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LOWER RING		1												<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
RING PIN(S)		1												<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
BELLOWS														<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
GASKET / SEALS		1												<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4KG26A2S
CONNECTION ENDS		1												<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
OTHER														<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

DISC: Min:	.265	ACT -	.318	NOZZLE: MIN / MAX	4.375	ACT -	4.384	SPRING NUMBER:	
Disassembly:	Randy Rowsell	Inspection:		Reassembly:	Randy Rowsell				

FINAL TEST

Test Medium	Air	Simmer:	798 PSI	Set Pressure:	800 PSI
Reseat:	710 PSI	Leakage Acceptable:	<input checked="" type="checkbox"/>	B.P. Test:	60 PSI
ADJ. RING SETTING (NOTCHES):		Upper:	N/A	Lower:	-9
Tested by:	Dale Welsh	Test Gauge:	FSJ9/10	Vacuum:	N/A
		Date Final Tested:	09/16/2020	Set Press Def	POP

FINAL INSPECTION:

SEAL: Top:	<input checked="" type="checkbox"/>	Bottom:	<input checked="" type="checkbox"/>	End Protectors Installed:	<input type="checkbox"/>	Painted:	<input checked="" type="checkbox"/>	Palletized:	<input checked="" type="checkbox"/>	Ship Container:	<input type="checkbox"/>	Flex Gaskets Supplied:	<input checked="" type="checkbox"/>
Final Inspection:	K-anna Jobson	Customer Inspection:											
Comments:													