

VISUAL INSPECTION REPORT – PRESSURE VESSEL

☐ Installation ☒ External		Report #: VEET30Jun2016m							
Date:	June 30, 2016	Description:	☒ Vessel ☐ Exchanger ☐ Furnace ☐ Boiler						
Inspector:	Ed Tymensen	Unit #:	Equip #:						
Agent Co:	Streamline Inspection	Equip. Name:	Glycol Contactor						
Owner:	CNRL	Jurisdiction #:	A2551443	CRN #:	H7358.2				
Region:		Manufacturer:	Wells-Hall Fabricaation	Certified By:					
Area:	Jenner North	Year Built:	1989	S/N:	89-4701-0				
Facility:	Jenner North Comp Stn	Location/LSD:	16-24-023-13w4m	Capacity:					
Service (Shell Side)	☒ Sweet ☐ Sour ☐ Other	RT: 1	HT:	MAWP	1440 psi	Design T	35 F to 130 F	MDMT	
Service (Tube Side)	☐ Sweet ☐ Sour ☐ Other	RT:	HT:	MAWP		Design T		MDMT	

PSV Data	Set P	Capacity	CRN	Tag #	S/N	Manufacturer	T / F	In. Sz	Out. Sz	IV	CSO	PSV Location
Shell Side	899psi	7103scfm	OG8841.5CR1	39459B	C029187	Mercer	☒ T ☐ F	1.5"	2"	No		Shell
Tube Side							☐ T ☐ F					
Other							☐ T ☐ F					
Serv. Co.	Unified Valve				Last Serv. Date	21-Oct-2014			Comments	Seal Wire Intact		

Components		Material	Nominal	CA	Comments
	Shell				
	Head				
	Channel				
	Tube				
	Other				Specify:

Foundation	☐ Concrete ☐ Gravel ☐ Timbers ☒ Steel ☐ Other:			Condition Acceptable
Support	☐ Saddle	☐ Seal-welded	☐ Free to Move	Condition
	☒ Skirt	☒ Free of debris Comment: No UT Access		Condition Acceptable Bolted to floor, secure
	☐ Hangers	☐ Secure Comment:		Condition
	☐ Other	Specify:		Condition
Orientation	☐ Hor. ☒ Ver.	Dimensions:	Diameter:24" Height: 28' Length:	Electrical grounding ☐ Direct ☒ Indirect ☐ None
Ext. Surface	☒ Painted ☐ Insulated ☐ Fire-proofed ☐ Cladded ☐ Other:			Condition Acceptable
Ext. Fixtures	☐ Ladder ☐ Platform(s) ☐ Other:			Condition
Inspection Opening	☐ Manway ☐ Port ☐ Other	Size:	☐ Reinforcement Pads used	☐ Weep Holes Present
Davit Arm	☐ Present	☐ Greased	☐ Double Nuted	Condition
Bolting	☐ Short Bolting Noted	☒ Joined Per Code	Comments:	



Piping	☒ PSV	☒ Supported	☒ Drains Properly	☒ Well Coated	Comment Acceptable
	☒ Inlet	☒ Supported	☒ Free from leaks	☒ Well Coated	Comment Acceptable
	☒ Outlet	☒ Supported	☒ Free from leaks	☒ Well Coated	Comment Acceptable
	☒ Drain	☒ Supported	☒ Free from leaks	☐ Well Coated	Comment Acceptable
	☒ Instrumentation	☒ Supported	☒ Free from leaks/kinks	Comment Acceptable	
	☒ Process Fluid Identified	☒ Flow Direction Marked	Comment Acceptable		
Valves	☒ Manual Valves	☒ Free from leaks	Comment Acceptable		
	☒ Automated Control Valve	☒ Free from leaks	Comment Acceptable		
	☒ Vents and Drain plugged	Comment Acceptable			
Protective Devices	☒ Service Tags Present	☒ Calibration Current	Comments: Seal wire intact		
Gauges	☒ Pressure	Reading: 0 psi	Condition Acceptable	clear and legible	
	☒ Temperature	Reading: 70F	Condition Acceptable	clear and legible	
Sight Glass	☒ Fluid Level	Reading: 0%	Condition Acceptable	clear and legible	

Inspection Summary	Vessel not in operation at time of inspection, but is to be put back into service.				
	Data plate secure and legible.				
	PSV seal wire intact, set below MAWP, vents to flare header.				
	UT inspection completed by Streamline Inspection June 2016 - see UT corrosion survey report for details.				
No inspection port in skirt.					
Vessel through roof seal failure - no corrosion noted as a result.					
Recommended Actions:					NCR
Consider re-sealing vessel through roof.					
Cut inspection port in skirt to allow for a full UT of bottom head / drain					
VESSEL STATUS					
Integrity Status	Suitable for Continued Service ☒ Yes ☐ No ☐ Immediate Repairs Required ☐ Future Repairs Required ☐ Replace				
Inventory Status	☒ In Service ☐ Out of Service ☐ Surplus ☐ Scrap				

Recommended Inspection Interval: 5 yrs.Recommended PSV Interval: 3 yrs.

IPV/IBPV Certificate #: 000711 API 510 Certificate #: 27479 PEI Certificate #:

Signature of In-Service Inspector:

Recommended inspection intervals are based off of the current inspection

INSPECTION PHOTOGRAPHS



LSD SIGN



DATAPLATE



VESSEL THROUGH ROOF SEAL FAILURE



VESSEL OVERVIEW



VESSEL OVERVIEW



PSI GAUGE



NO INSPECTION PORT IN SKIRT



PSV SERVICE TAG



PSV SERVICE TAG



PSV DATAPLATE



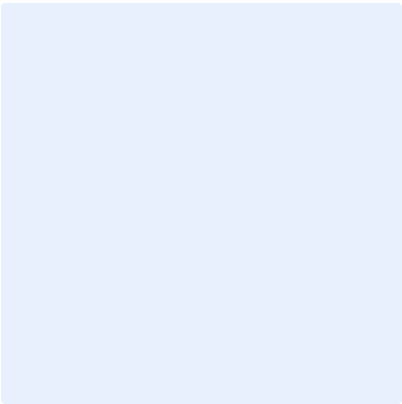
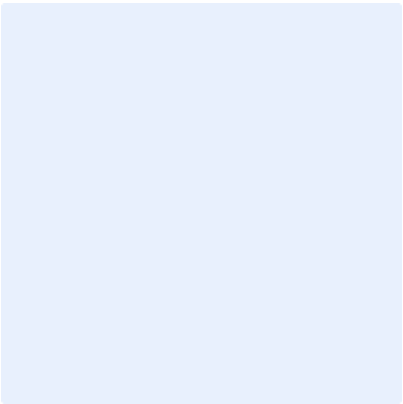
PSV REPAIR DATAPLATE



PSV SEAL WIRE INTACT



PSV OVERVIEW

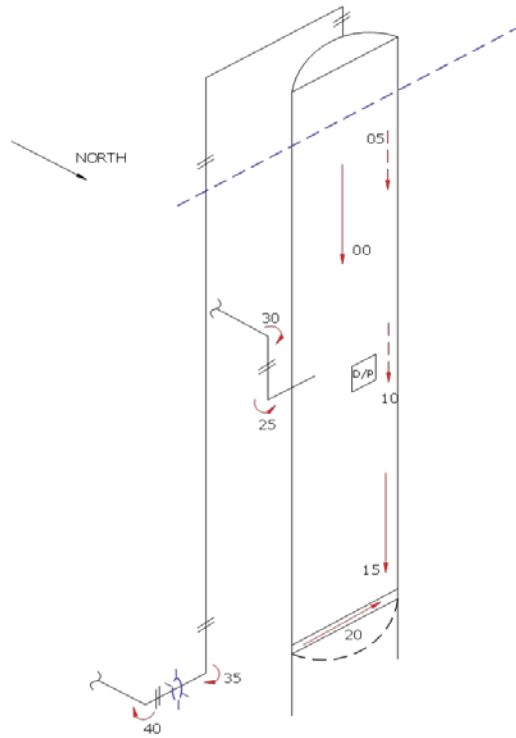




Location Name:	JENNER NORTH	LSD:	16-24-023-13W4
Jur #:	A2551443	Equipment/Tag No.	
Equipment Description:	GLYCOL CONTACTOR		
Manufacturer:	WELLS-HALL FABRICATION		
Serial Number:	89-4701-0	CRN:	H-7358.2
Shell MAWP:	1440	PSI	Shell Design Temp: 130 °F
Tube MAWP:		PSI	Tube Design Temp: °F
Shell Material:	SA-516-70	Head Material:	SA-516-70
Shell Thickness:	1.125	in	Head Thickness: 1.035 in
Corrosion Allowance:	0.0625	in	Date Built: 1989
Size:	24	in	Pipe / Rolled Plate: PLATE
RT:	1	Client DWG #:	

NOTES: NO ACCESS UNDER SKIRT. RECOMMEND CUTTING INSPECTION PORT IN SKIRT TO ALLOW FOR A MORE EXTENSIVE UT OF BOTTOM HEAD.







Ultrasonic Corrosion Survey

*All values are in inches unless otherwise stated.

Survey Name: Canadian Natural

Date: JUNE 30 2016

Inspector: E. Tymensen

LSD: 16-24-023-13W4	Area: JENNER NORTH	Location: 16-24 SATTELITE
Jur #: A2551443	Tag Number:	Vessel Name: GLYCOL CONTACTOR
CRN: H-7358.2	Year Built: 1989	Serial Number: 89-4701-0
RT: 1	Vessel CA: 0.063 in	Manufacturer: WELLS-HALL FABRICATION
	Shell MAWP: 1440 PSI	Tube MAWP: PSI
	MAWTF: 130 °F	MAWTF: °F
		Pipe/Plate PLATE
TML Description	Baseline	Flange ANSI:
00 SHELL	2016	Material: SA-516-70
Shape: Cylindrical	Min 1.171	Flag 1.063
OD: 24	Avg 1.173	CA 0.063
Spec: ASME VIII Div.1	Comments:	Nominal 1.125
		T Min
		STCR in/yr 0.0000
		LTCR in/yr 0.0000
		Remaining Life:
		Retirement Date:
TML Description	Baseline	Flange ANSI:
05 SHELL	2016	Material: SA-516-70
Shape: Cylindrical	Min 1.156	Flag 1.063
OD: 24	Avg 1.164	CA 0.063
Spec: ASME VIII Div.1	Comments:	Nominal 1.125
		T Min
		STCR in/yr 0.0000
		LTCR in/yr 0.0000
		Remaining Life:
		Retirement Date:
TML Description	Baseline	Flange ANSI:
10 SHELL	2016	Material: SA-516-70
Shape: Cylindrical	Min 1.162	Flag 1.063
OD: 24	Avg 1.165	CA 0.063
Spec: ASME VIII Div.1	Comments:	Nominal 1.125
		T Min
		STCR in/yr 0.0000
		LTCR in/yr 0.0000
		Remaining Life:
		Retirement Date:
TML Description	Baseline	Flange ANSI:
15 SHELL	2016	Material: SA-516-70
Shape: Cylindrical	Min 1.151	Flag 1.063
OD: 24	Avg 1.160	CA 0.063
Spec: ASME VIII Div.1	Comments:	Nominal 1.125
		T Min
		STCR in/yr 0.0000
		LTCR in/yr 0.0000
		Remaining Life:
		Retirement Date:



Ultrasonic Corrosion Survey

*All values are in inches unless otherwise stated.

Survey Name: Canadian Natural

Date: JUNE 30 2016

Inspector: E. Tymensen

LSD: 16-24-023-13W4	Area: JENNER NORTH	Location: 16-24 SATTELITE
Jur #: A2551443	Tag Number:	Vessel Name: GLYCOL CONTACTOR
CRN: H-7358.2	Year Built: 1989	Serial Number: 89-4701-0
RT: 1	Vessel CA: 0.063 in	Manufacturer: WELLS-HALL FABRICATION
	Shell MAWP: 1440 PSI	Tube MAWP: PSI
	MAWTF: 130 °F	MAWTF: °F
		Pipe/Plate PLATE
TML Description	Baseline	Flange ANSI:
20 HEAD	2016	Material: SA-516-70
Shape: Ellipsoidal	Min 1.108	CA 0.063
OD: 24	Avg 1.118	Nominal 1.035
Spec: ASME VIII Div.1	Comments: NO ACCESS UNDER SKIRT	T Min
		STCR in/yr 0.0000
		LTCR in/yr 0.0000
		Remaining Life:
		Retirement Date:
TML Description	Baseline	Flange ANSI: 600
25 NOZZLE	2016	Material: SA-234-WPB
Shape: 90° Elbow	Min 0.716	CA 0.084
OD: 4.5	Avg 0.757	Nominal 0.674
Spec: ASME VIII Div.1	Comments: ASSUME NOMINAL	T Min
		STCR in/yr 0.0000
		LTCR in/yr 0.0000
		Remaining Life:
		Retirement Date:
TML Description	Baseline	Flange ANSI: 600
30 PIPING	2016	Material: SA-234-WPB
Shape: 90° Elbow	Min 0.234	CA 0.027
OD: 3.5	Avg 0.247	Nominal 0.216
Spec: ASME B31.3	Comments: ASSUME NOMINAL	T Min
		STCR in/yr 0.0000
		LTCR in/yr 0.0000
		Remaining Life:
		Retirement Date:
TML Description	Baseline	Flange ANSI: 600
35 PIPING	2016	Material: SA-234-WPB
Shape: 90° Elbow	Min 0.239	CA 0.030
OD: 4.5	Avg 0.246	Nominal 0.237
Spec: ASME B31.3	Comments: ASSUME NOMINAL	T Min
		STCR in/yr 0.0000
		LTCR in/yr 0.0000
		Remaining Life:
		Retirement Date:



Ultrasonic Corrosion Survey

*All values are in inches unless otherwise stated.

Survey Name: Canadian Natural

Date: JUNE 30 2016

Inspector: E. Tymensen

LSD: 16-24-023-13W4	Area: JENNER NORTH	Location: 16-24 SATTELITE						
Jur #: A2551443	Tag Number:	Vessel Name: GLYCOL CONTACTOR						
CRN: H-7358.2	Year Built: 1989	Serial Number: 89-4701-0						
RT: 1	Vessel CA: 0.063 in	Manufacturer: WELLS-HALL FABRICATION						
	Shell MAWP: 1440 PSI	MAWTF: 130 °F	Tube MAWP: PSI	MAWTF: °F				Pipe/Plate PLATE
TML Description		Baseline	Flange ANSI: 600	Material: SA-234-WPB				
40 PIPING	2016	Flag	CA	Nominal	T Min	STCR in/yr	LTCR in/yr	
Shape: 90° Elbow	Min 0.243	0.207	0.030	0.237		0.0000	0.0000	
OD: 4.5	Avg 0.275					Remaining Life:		
Spec: ASME B31.3	Comments: ASSUME NOMINAL					Retirement Date:		

FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS
(Alternative For: For Single Chamber, Completely Shop-Fabricated Vessels Only)
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by WELLS-HALL FABRICATION & CONSTRUCTION LTD. 6115-30ST. EDMONTON T6P 1J8
(Name and address of manufacturer)
2. Manufactured for NUGAS LTD. c/o GEMINI ENGINEERING LTD. (A)2551443
(Name and address of purchaser)
3. Location of Installation LSD: 8-18-18-14 W4M
(Name and address)
4. Type VERTICAL CONTACTOR 89-4701-0 H.7358.2 33-A-4701-1 1989
(Mark, or part, tank) (Mfg's serial No.) (CAN) (Drawing No.) (Mfg's M. No.) (Year built)

5. The chemical and physical properties of all parts meet the requirements of material specifications of the ASME BOILER AND PRESSURE VESSEL CODE. The design, construction, and workmanship conform to ASME Rules, Section VIII, Division 1. 1986
Year

to ADD. 2 WINTER 1987 2051
Addenda (Date)

6. Shell: SA-516-70 1/125"(28.58) 0.0625"(1.59) 24" (610) O.D. 30'-11" (9423)
(Matl. Spec. No., Grade) (Nom. Thk. (mm)) (Corr. Allow. (mm)) (Diam. I.D. (mm)) (Length (feet)) (mm)
7. Seams: EQUIV. DBL. BUTT FULL 100% — — EQUIV. DBL. BUTT FULL THREE (3)
(Long. welded, DBL., Single, Lap, Butt) (R.T. (Spot or Full)) (EN. (%)) (H.T. Temp. (°C)) (Time (hr)) (Circ. welded, DBL., Single, Lap, Butt) (R.T. (Spot, Partial, or Full)) (No. of Controls)
8. Heads: (a) Matl. SA-516-70 (b) Matl. SA-516-70
(Spec. No., Grade) (Spec. No., Grade)

	Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)	TOP	1.035"(26.29)	0.0625"(1.59)			2:1				CONCAVE
(b)	BOTTOM	1.035"(26.29)	0.0625"(1.59)			2:1				CONCAVE

If removable, bolts used (describe other fastenings)

9. MAWP 1440 PSIG 9929 kPa at max. temp. 130°F 54°C
Min. temp. (when less than -30°C) 35°F 2°C Hydro., pneu., or comb. test pressure 2160 PSIG 14893 kPa

10. Nozzles, inspection and safety valve openings:

Purpose (Inlet, Outlet, Drain)	No.	Diam. or Size	Type	Matl.	Nom. Thk.	Reinforcement Matl.	How Attached	Location
PI	1	1/2"	TOL	SA-105	6000#	—	WELDED	
LG/TL/TRAY DRAIN	14	3/4"	TOL	SA-105	6000#	—	WELDED	
LIQ. OUT	3	1"	TOL	SA-105	6000#	—	WELDED	
GUXOLIN/COIL	3	1"	CPLG	SA-105	6000#	—	WELDED	

11. Supports: Skirt YES Lugs — Legs — Other — Attached WELDED TO HEAD
(Yes or no) (Matl.) (Dia.) (Describe) (Where and how)

12. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report:

VERTICAL CONTACTOR w/ 3 PHASE SCRUBBER 24" O.D. X 28'-0" S/S X 1/16" C.A.
VOLUME = 67 FT³ = 1.90 m³
1440 PSIG @ 35°F TO 130°F

CERTIFICATE OF SHOP COMPLIANCE

We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME Code for Pressure Vessels, Section VIII, Division 1, "U" Certificate of Authorization No. 19595, expires JULY 31, 1990.
Date May 17/89 Co. name WELLS-HALL FAB. & CONST. LTD. Signed George Wells
(Manufacturer) (Representative)

CERTIFICATE OF SHOP INSPECTION

Vessel constructed by WELLS-HALL FAB. & CONST. LTD. at EDMONTON, ALBERTA

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of ALBERTA and employed by ALBERTA LABOR, BOILERS BRANCH

have inspected the component described in this Manufacturer's Data Report on 7 May 89, 1989, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME Code, Section VIII, Division 1. By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 7 May 89 Signed D. W. [Signature] Commissions ARTN
(Authorized Inspector) (Matl. Board (matl., endorsement, State, Prov., and No.))

(A) 255,443