



**Client:**  
**CNRL**

UT SURVEY	Concern
PSV INSP	Accept
VTE INSP	Concern
VTI INSP	N/A

**EQUIPMENT DEFICIENCY SUMMARY**

District:	Medicine Hat	Facility	Grand Forks East	Location/LSD	04-01-013-13W4
Equipment Name	FREE WATER KNOCK OUT			Prov Reg No.:	0161444
Serial No.:	LM-1671	Equip No.:	N/S	National Board No.:	N/S

**UT SURVEY**      LATEST UT DATE USED IN SUMMARY      February 19, 2019

LOCATION	Nom - CA	Low RDG	Avg RD	TMin	UT Flag	RECOMMENDATION	QUALITY ACTION	RESULT
60 90L 3 80	0.26	0.23	0.26	0.01	LOW RDG IS > 10% BELOW NOM-CA BUT > Tmin	CONSIDER REDUCING THE INSPECTION INTERVAL.	OWNER TO DETERMINE	Concern
65 90L 3 80	0.26	0.23	0.26	0.01	LOW RDG IS > 10% BELOW NOM-CA BUT > Tmin	CONSIDER REDUCING THE INSPECTION INTERVAL.	OWNER TO DETERMINE	Concern

**PSV INSPECTION**      LATEST PSV INSP DATE USED IN SUMMARY      February 19, 2019

DEFICIENCY	RECOMMENDATION	QUALITY ACTION	RESULT
No Deficiencies Found	N/A	N/A	Accept

**VISUAL EXTERNAL INSPECTION**      LATEST VTE DATE USED IN SUMMARY      February 19, 2019

DEFICIENCY	RECOMMENDATION	QUALITY ACTION	RESULT
NO ACCESS TO P.S.V AT TIME OF INSPECTION. MAN LIFT REQUIRED	NCR	CAR	Concern

**VISUAL INTERNAL INSPECTION**      LATEST VTI DATE USED IN SUMMARY

DEFICIENCY	RECOMMENDATION	QUALITY ACTION	RESULT
N/A	N/A	N/A	N/A



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## PRESSURE EQUIPMENT DATA REPORT

### EQUIPMENT GENERAL INFORMATION

<b>District:</b>	Medicine Hat		
<b>Facility:</b>	Grand Forks East		
<b>Location /LSD:</b>	04-01-013-13W4	<b>Operating Province:</b>	Alberta
<b>Equipment Name:</b>	FREE WATER KNOCK OUT		
<b>Equipment Status:</b>	Operating	<b>Orientation:</b>	Horizontal
<b>Skid No.:</b>	F.W.K.O #2	<b>Unit:</b>	

### EQUIPMENT STATIC DATA

<b>AB Registration No.:</b>	0161444		<b>Serial No.:</b>	LM-1671	
<b>Registration No./Other:</b>			<b>Equipment No.:</b>	N/S	
<b>CRN NO.:</b>	C-8805.2.		<b>Unique ID No.:</b>		
<b>National Board No.:</b>	N/S		<b>Oncor ID No.:</b>	158937	
<b>Manufacturer:</b>	C.E Natco		<b>Year Built:</b>	1980	
<b>MAWP:</b>	75.00 (psi)	517.11 (Kpa)	<b>Temperature:</b>	200.00 (F)	93.33 (C)
<b>Diameter.:</b>	92.000 (In)	2336.80( mm)	<b>Length:</b>	240.00 (In)	6096.00 (mm)
<b>Radiography:</b>	RT2		<b>Heat Treatment:</b>	No	
<b>Corrosion allowance:</b>	0.000 (In)	0.000 (mm)	<b>MDMT:</b>		
<b>Lining Or Coated:</b>			<b>Painted:</b>	Yes	
<b>Insulated:</b>	Yes		<b>Internally Clad:</b>		
<b>Hand Hole:</b>	No		<b>Support Type:</b>	Saddle	
<b>Manway:</b>	Yes		<b>Manway Size(In):</b>	16.00	
<b>Capacity/Volume(m3):</b>			<b>Nozzle Rating:</b>	150.00	

### MATERIALS/COMPONENTS

Name	Joint Efficiency	Outside Diameter(in.)	Head Type	Material Type	Stress Value (PSI)	Nominal Thickness(In.)
SHELL	1.00	92.000		SA-285 C	13800	0.31
HEAD	1.00	92.000	Ellipsoidal	SA-285 C	13800	0.50
HEAD (FT)	1.00	92.000	Ellipsoidal	SA-285 C	13800	0.63

### PIPING STATIC DATA

<b>Primary Flange Rating:</b>	150	<b>ASME B16.5 - Table 2-1.1 @ 150F:</b>	285 (psi)
<b>Pressure Use For TMin:</b>	Vess Design Press	<b>Piping Operating Press:</b>	75 (psi)
<b>Stress Value:</b>	20000 (psi)	<b>E Value:</b>	1.00 Joint: SMLS

### SERVICE CONDITIONS

<b>Sweet</b>	<b>Sour</b> ✓	<b>Oil</b> ✓	<b>Gas</b> ✓	<b>Water</b> ✓
<b>Amine</b>	LPG	Condensate	Air	Glycol

### COMMENTS

NO SAFE ACCESS TO OBTAIN P.S.V DATA/ PICTURES

### EXAMINATION ILLUSTRATION

<b>DISTRICT:</b>	Medicine Hat	<b>FACILITY:</b>	Grand Forks East	<b>LOCATION/LSD:</b>	04-01-013-13W4
<b>EQUIP NAME:</b>	FREE WATER KNOCK OUT			<b>PROV REG No.:</b>	0161444
<b>SERIAL No.:</b>	LM-1671	<b>Equip No.:</b>	N/S	<b>National Board No.:</b>	N/S



NOTES:



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**CNRL**

## ULTRASONIC CORROSION SURVEY REPORT

DISTRICT:	Medicine Hat	FACILITY:	Grand Forks East	LOCATION/LSD:	04-01-013-13W4
EQUIP NAME:	FREE WATER KNOCK OUT			PROV REG No.:	0161444
SERIAL No.:	LM-1671	Equip No.:	N/S	National Board No.:	N/S

### SUMMARY

TYPE	LAST INSPECTIONS	INSPECTION INTERVAL (YEARS)	CORROSION RATE (IN/YR)		REMAINING LIFE (YEARS)	NEXT INSPECTION DATE
			SHORT TERM	LONG TERM		
VESSEL	Feb 19, 2019	5.0	0.0014	0.0014	61.1	Feb 19, 2024
PIPING	Feb 19, 2019	5.0	0.0069	0.0069	32.5	

### VESSEL SURVEY READINGS

POINT NUMBER	TYPE	POINT DATA (INCH)			DATE	SURVEY READINGS			CALCULATIONS				Flag
		NOM.	C.A.	NOM-CA		LOW	AVG	T Req (inch)	short term corr	long term	remaining life		
05	HEAD	0.5000	0.0000	0.5000	Feb 19/19	0.556	0.585	0.249	0.0014	0.0014	222.2	NO COMMENTS	
					Mar 30/16	0.560	0.570	0.249					
10	SHELL	0.3125	0.0000	0.3125	Feb 19/19	0.337	0.340	0.249	0.0003	0.0003	253.3	NO COMMENTS	
					Mar 30/16	0.338	0.340	0.249					
15	SHELL	0.3125	0.0000	0.3125	Feb 19/19	0.331	0.333	0.249	0.0000	0.0000	198.0	NO COMMENTS	
					Mar 30/16	0.331	0.335	0.249					
20	SHELL	0.3125	0.0000	0.3125	Feb 19/19	0.334	0.338	0.249	0.0014	0.0014	61.1	NO COMMENTS	
					Mar 30/16	0.338	0.340	0.249					
25	SHELL	0.3125	0.0000	0.3125	Feb 19/19	0.340	0.342	0.249	0.0003	0.0003	262.0	NO COMMENTS	
					Mar 30/16	0.341	0.345	0.249					
30	SHELL	0.3125	0.0000	0.3125	Feb 19/19	0.340	0.343	0.249	0.0003	0.0003	262.0	NO COMMENTS	
					Mar 30/16	0.341	0.345	0.249					
35	SHELL	0.3125	0.0000	0.3125	Feb 19/19	0.346	0.350	0.249	0.0003	0.0003	279.3	NO COMMENTS	
					Mar 30/16	0.347	0.350	0.249					
40	HEAD	0.5000	0.0000	0.5000	Feb 19/19	0.686	0.702	0.249	0.0000	0.0000	198.0	NO COMMENTS	
					Mar 30/16	0.684	0.700	0.249					

### PIPING SURVEY READINGS

POINT NUMBER	TYPE	SIZE	SCH	POINT DATA (INCH)			DATE	SURVEY READINGS			CALCULATIONS				Flag
				NOM.	Mill Tol./CA	NOM-CA		LOW	AVG	T Req (inch)	short term corr	long term corr rate	remaining life		
45	90L 6 XS	6.00	XS	0.4320	0.0540	0.3780	Feb 19/19	0.429	0.438	0.012	0.0038	0.0038	109.6	NO COMMENTS	
							Mar 30/16	0.440	0.455	0.012					
50	90L 4 STD	4.00	STD	0.2370	0.0296	0.2074	Feb 19/19	0.188	0.216	0.008	0.0035	0.0035	52.0	NO COMMENTS	
							Mar 30/16	0.198	0.210	0.008					
55	90L 3 80	3.00	80	0.3000	0.0375	0.2625	Feb 19/19	0.264	0.271	0.007	0.0000	0.0000	198.0	NO COMMENTS	
							Mar 30/16	0.258	0.265	0.007					
60	90L 3 80	3.00	80	0.3000	0.0375	0.2625	Feb 19/19	0.231	0.259	0.007	0.0069	0.0069	32.5	LOW RDG IS > 10% BELOW NOM-CA BUT > Tmin	
							Mar 30/16	0.251	0.260	0.007					



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POINT NUMBER	TYPE	SIZE	SCH	POINT DATA (INCH)			DATE	SURVEY READINGS			CALCULATIONS			Flag
				NOM.	Mill Tol./CA	NOM-CA		LOW	AVG	T Req (inch)	short term corr	long term corr rate	remaining life	
65	90L 3 80	3.00	80	0.3000	0.0375	0.2625	Feb 19/19	0.231	0.261	0.007	0.0000	0.0000	198.0	LOW RDG IS > 10% BELOW NOM-CA BUT > Tmin
		3.00	80				Mar 30/16	0.226	0.240	0.007				
Comments: DOUBLE CHECKED CALIBRATION & CONFIRMED READINGS. MINOR INTERNAL CORROSION OBSERVED WITH UT SCAN.														
70	90L 3 STD	3.00	STD	0.2160	0.0270	0.1890	Feb 19/19			0.007	0.0000	0.0000	198.0	
		3.00	STD				Mar 30/16	0.128	0.200	0.007				
Comments: DOUBLE CHECKED CALIBRATION & CONFIRMED READINGS. INTERNAL CORROSION OBSERVED WITH UT SCAN.														
75	90L 4 STD	4.00	STD	0.2370	0.0296	0.2074	Feb 19/19	0.228	0.247	0.008	0.0052	0.0052	42.3	NO COMMENTS
		4.00	STD				Mar 30/16	0.243	0.265	0.008				
Comments: DOUBLE CHECKED CALIBRATION & CONFIRMED READINGS. MINOR INTERNAL CORROSION OBSERVED WITH UT SCAN.														
80	90L 4 STD	4.00	STD	0.2370	0.0296	0.2074	Feb 19/19	0.241	0.252	0.008	0.0010	0.0010	224.3	NO COMMENTS
		4.00	STD				Mar 30/16	0.244	0.265	0.008				
Comments: DOUBLE CHECKED CALIBRATION & CONFIRMED READINGS. MINOR INTERNAL CORROSION OBSERVED WITH UT SCAN.														
85	90L 4 STD	4.00	STD	0.2370	0.0296	0.2074	Feb 19/19	0.189	0.201	0.008	0.0000	0.0000	198.0	NO COMMENTS
		4.00	STD				Mar 30/16	0.186	0.200	0.008				
Comments: DOUBLE CHECKED CALIBRATION & CONFIRMED READINGS. MINOR INTERNAL CORROSION OBSERVED WITH UT SCAN.														
90	BAND 3 XS	3.00	XS	0.3000	0.0375	0.2625	Feb 19/19	0.255	0.271	0.007	0.0011	0.0011	216.7	NO COMMENTS
Comments: LOW READING FOUND @ 9:00 POSITION.														

**INSPECTOR-EQUIPMENT DATA**

Inspected By	Signature	CGSB Level	CGSB No.	Survey Dat	UT Equipment	Due Date OF Calibration	NDE Procedure #
Randal Longhe		1/SNT LV 2	19518	02/19/2019	DanaTr 1_05063860_Echo 9	08/02/2019	WQS UT-001



**Client:**  
**CNRL**

District	Medicine Hat	Facility	Grand Forks East	Location/LSD	04-01-013-13W4
Equipment Name:	FREE WATER KNOCK OUT			Prov Reg No.:	0161444
Serial No.:	LM-1671	Equip No.:	N/S	National Board No.:	N/S

**External Inspection**

Inspector:	Randal Longhe	ABSA PESL #93325	Signature:		Date:	02/19/2019
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**External Corrosion**

There was no significant external corrosion found on the vessel/piping

Accept

**External Damage**

There was no external corrosion found on the vessel/piping

Accept

**Leakage**

No Leaks were found on the vessel or piping connections

Accept

**Vessel and Piping Supports**

Vessel support is Saddle and is acceptable

Accept

Vessel was not designed with anchor bolts

Accept

Vessel Foundation is Metal and is acceptable

Accept

Piping does not have additional supports but is supported by connected piping and is acceptable

Accept

**Insulation/Paint**

	Type	Findings	
Vessel	Insulated	Moderate Tearing, Minor Denting, N/A Banding, Some Broken Seals/Joints	Accept
Inlet Piping	Insulated	None Tearing, None Denting, N/A Banding, Accept Seals/Joints	Accept
Outlet Piping	Insulated	None Tearing, None Denting, N/A Banding, Accept Seals/Joints	Accept

**Pressure Envelope Flanging**

	Bolting	Thread engagement	Gaskets	Flange Rating	
Manway	Accept	Accept	Accept	Accept	Accept
Vessel	Accept	Accept	Accept	Accept	Accept
Inlet Piping	Accept	Accept	Accept	Accept	Accept
Outlet Piping	Accept	Accept	Accept	Accept	Accept
Other Piping	Accept	Accept	Accept	Accept	Accept

**General**

Temp Gauge is acceptable, Level Gauge is acceptable, Grounding is acceptable,

Accept

NO ACCESS TO P.S.V AT TIME OF INSPECTION.

Concern

MAN LIFT REQUIRED

**Comment**



**Client:**  
**CNRL**

**PRESSURE RELIEF VALVE SUMMARY**

<b>District:</b> Medicine Hat	<b>Facility:</b> Grand Forks East	<b>Location/LSD:</b> 04-01-013-13W4
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**PSV STATIC DATA**

<b>Tag/Equip No.:</b>	0401-1A	<b>Serial No.:</b>	52256
<b>Manufacturer:</b>	WELLMARK	<b>CRN No.:</b>	
<b>Model No.:</b>	9503-125N	<b>Code Stamp:</b>	
<b>Side (Shell or Tube):</b>	Shell	<b>Outlet Size:</b>	3
<b>Inlet Size:</b>	3	<b>Outlet Type / ANSI Rating:</b>	Flanged / 150
<b>Inlet Type / ANSI Rating</b>	Flanged / 150		

**PSV SERVICE DATA**

<b>Set Date:</b>	1 May, 2016	<b>Service Interval:</b>	60
<b>Set Pressure (psig)</b>	75	<b>Capacity (scfm):</b>	3528
<b>Service Company:</b>	TARPON ENERGY SERVICES LTD	<b>Next Service Date:</b>	1 May, 2021

**PSV FIELD INSPECTION**

**Inspector** Randal Longhe    **Company** Western Quality Services    **Signature:**     **Inspection Date:** 19-Feb-2019

**Inspection Type:**

<b>RESTRICTIONS</b>	<b>BLINDS</b>	<b>INLET:</b> No Blinds found btwn vessels and psv inlet	Accept
		<b>OUTLET:</b> No blinds found btwn PSV and discharge point	Accept
	<b>REDUCERS</b>	<b>INLET:</b> No reducers found btwn Vessel(s) and PSV Inlet	Accept
		<b>OUTLET:</b> No reducers found btwn PSV and Discharge Point	Accept
	<b>BLOCK VALVES</b>	<b>INLET:</b> No block valve	Accept
		<b>OUTLET:</b> No block valve	Accept
<b>SERVICING</b>	<b>SET PRESSURE</b>	PSV set pressure is at or less than MAWP of all linked vessels in the system.	Accept
	<b>SERVICE DATE</b>	PSV set date is current at time of inspection	Accept
	<b>SERVICE SEAL</b>	Service seal is intact	Accept
<b>OPERATION</b>	<b>TAGGING</b>	Service tag is properly attached to the psv	Accept
	<b>VIBRATION</b>	None	Accept
	<b>DISCHARGE</b>	PSV Discharge point is in a safe location and is acceptable	Accept
	<b>LEAKS</b>	<b>INLET:</b> No visible leaks found at psv inlet connection	Accept
<b>OUTLET:</b> No visible leaks found at psv outlet connection		Accept	
<b>INSTALLATION</b>	<b>PSV SUPPORTS</b>	PSV supported	Accept
	<b>ANGLE</b>	PSV is installed in the proper upright positon	Accept

**EQUIPMENT PROTECTED**

Prov Reg No.	Equipment No.	Serial No.	Equipment Name	Status	MAWP
0161444	N/S	LM-1671	FREE WATER KNOCK OUT	Operating	75.00

**PHOTOGRAPHS**



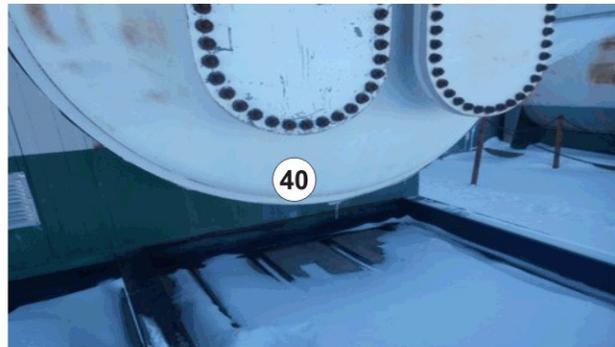
FADED NAMEPLATE



OVERALL

### EXAMINATION ILLUSTRATION

DISTRICT:	MEDICINE HAT	FACILITY:	GRAND FORKS EAST	LOCATION/LSD:	04-01-013-13W4
EQUIP NAME:	FREE WATER KNOCK OUT #2			PROV REG No.:	0161444
SERIAL No.:	LM-1671	Equip No.:		National Board No.:	



NOTES:

0161444 PG 2 OF 2

**PHOTOGRAPHS**



NO ACCESS TO PSV



BOTTOM INSULATION