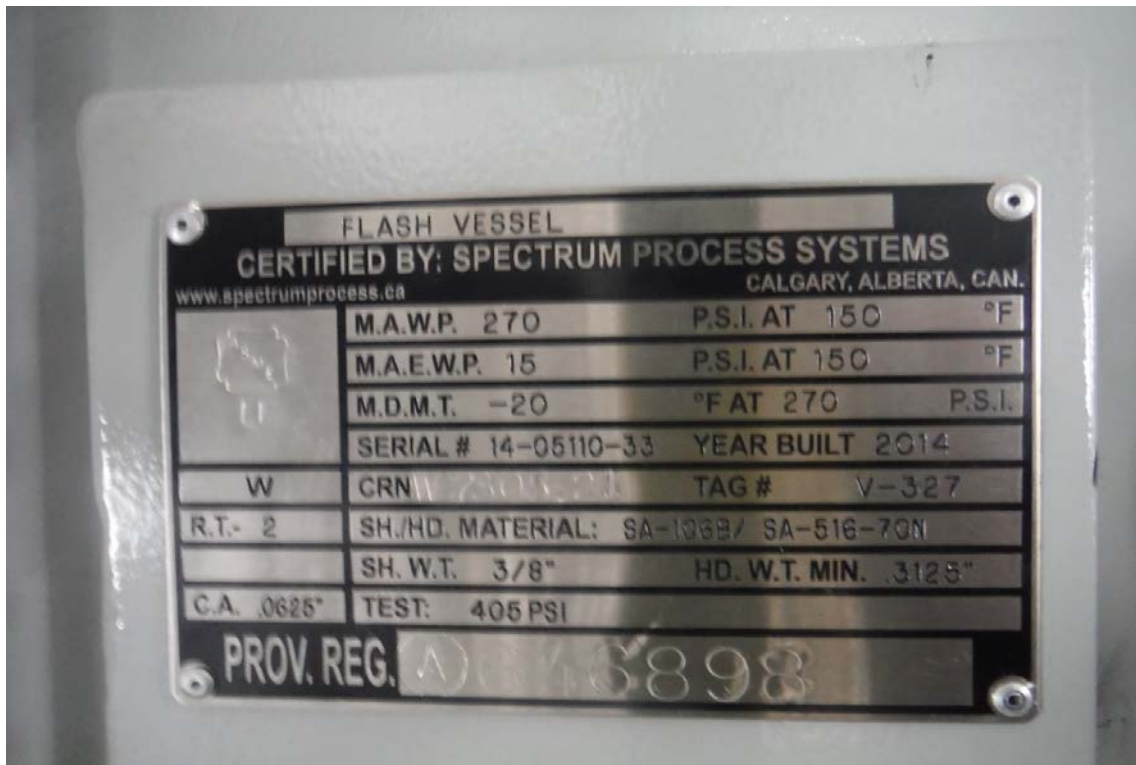
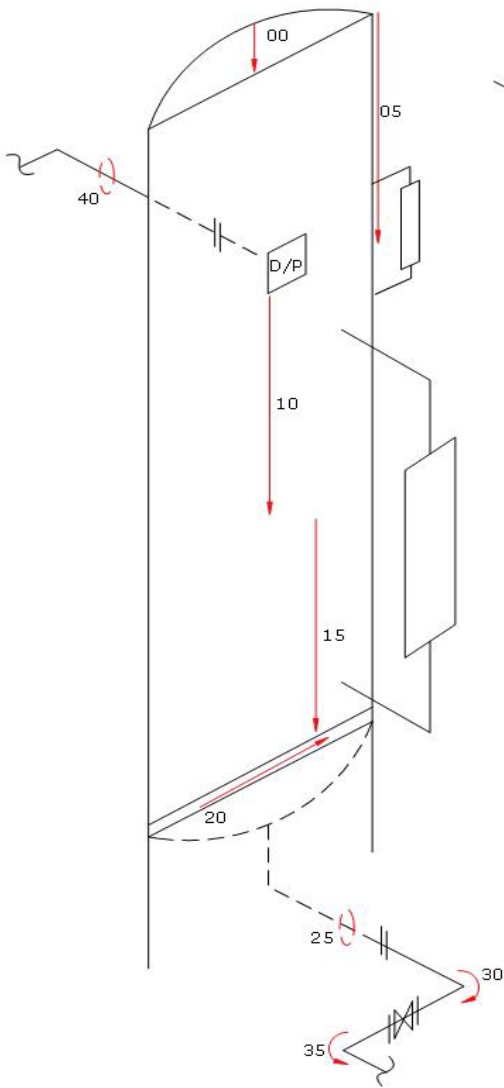


Location Name:	RAVEN CREEK	LSD:	2-20-50-18 W5M	
A#:	646898	Equipment/Tag No.		
Equipment Description:	FLASH VESSEL			
Manufacturer:	SPECTRUM PROCESS SYSTEMS			
Serial Number:	14-05110	CRN:	W7305.21	
Shell MAWP:	270	PSI	Shell Design Temp:	150 °F
Tube MAWP:		PSI	Tube Design Temp:	°F
Shell Material:	SA-106-B		Head Material:	SA-516-70N
Shell Thickness:	9.53	mm	Head Thickness:	7.94 mm
Corrosion Allowance:	1.5875	mm	Date Built:	2014
Size:	508	mm	Pipe / Rolled Plate:	PIPE
RT:	2			

NOTES:







Ultrasonic Corrosion Survey

*All values are in millimeters unless otherwise stated.

Survey Name: Husky Energy

Date: Feb 10, 2015

Inspector: D. Skeard

LSD: 2-20-50-18 W5M	Area: RAVEN CREEK	Location: COMPRESSOR STATION
A #: 646898	Tag Number:	Vessel Name: FLASH VESSEL
CRN: W7305.21	Year Built: 2014	Serial Number: 14-05110
RT: 2	Vessel CA: 1.588 mm	Manufacturer: SPECTRUM PROCESS SYSTEMS
	Shell MAWP: 270 PSI	Tube MAWP: PSI
	MAWTF: 150 °F	MAWTF: °F
		Pipe/Plate PIPE

TML Description	Baseline				Material: SA-516-70N			
00 HEAD	2015	Flag	CA	Nominal	T Min	STCR mm/yr	LTCR mm/yr	
Shape: Ellipsoidal	Min 9.50	6.350	1.588	7.938		0.000	0.000	
OD: 508	Avg 9.86					Remaining Life:		
Spec: ASME VIII Div.1	Comments:					Retirement Date:		

TML Description	Baseline				Material: SA-106-B			
05 SHELL	2015	Flag	CA	Nominal	T Min	STCR mm/yr	LTCR mm/yr	
Shape: Cylindrical	Min 10.95	7.938	1.588	9.525		0.000	0.000	
OD: 508	Avg 11.18					Remaining Life:		
Spec: ASME VIII Div.1	Comments:					Retirement Date:		

TML Description	Baseline				Material: SA-106-B			
10 SHELL	2015	Flag	CA	Nominal	T Min	STCR mm/yr	LTCR mm/yr	
Shape: Cylindrical	Min 11.05	7.938	1.588	9.525		0.000	0.000	
OD: 508	Avg 11.46					Remaining Life:		
Spec: ASME VIII Div.1	Comments:					Retirement Date:		

TML Description	Baseline				Material: SA-106-B			
15 SHELL	2015	Flag	CA	Nominal	T Min	STCR mm/yr	LTCR mm/yr	
Shape: Cylindrical	Min 11.02	7.938	1.588	9.525		0.000	0.000	
OD: 508	Avg 11.25					Remaining Life:		
Spec: ASME VIII Div.1	Comments:					Retirement Date:		



Ultrasonic Corrosion Survey

*All values are in millimeters unless otherwise stated.

Survey Name: Husky Energy

Date: Feb 10, 2015

Inspector: D. Skeard

LSD: 2-20-50-18 W5M	Area: RAVEN CREEK	Location: COMPRESSOR STATION
A #: 646898	Tag Number:	Vessel Name: FLASH VESSEL
CRN: W7305.21	Year Built: 2014	Serial Number: 14-05110
RT: 2	Vessel CA: 1.588 mm	Manufacturer: SPECTRUM PROCESS SYSTEMS
	Shell MAWP: 270 PSI	Tube MAWP: PSI
	MAWTF: 150 °F	MAWTF: °F
		Pipe/Plate PIPE

TML Description	Baseline	Material: SA-516-70N
20 HEAD	2015	Flag CA Nominal T Min
Shape: Ellipsoidal	Min 9.86	6.350 1.588 7.938
OD: 508	Avg 9.96	STCR mm/yr 0.000
Spec: ASME VIII Div.1	Comments:	LTCR mm/yr 0.000
		Remaining Life:
		Retirement Date:

TML Description	Baseline	Material: SA-106-B
25 NOZZLE	2015	Flag CA Nominal T Min
Shape: 360° Circ	Min 8.61	7.623 1.089 8.712
OD: 60.325	Avg 9.25	STCR mm/yr 0.000
Spec: ASME VIII Div.1	Comments: ASSUMED	LTCR mm/yr 0.102
		Remaining Life:
		Retirement Date:

TML Description	Baseline	Material: A-234-WPB
30 PIPING	2015	Flag CA Nominal T Min
Shape: 90° Elbow	Min 5.64	4.845 0.692 5.537
OD: 60.325	Avg 5.92	STCR mm/yr 0.000
Spec: ASME B31.3	Comments: ASSUMED	LTCR mm/yr 0.000
		Remaining Life:
		Retirement Date:

TML Description	Baseline	Material: A-234-WPB
35 PIPING	2015	Flag CA Nominal T Min
Shape: 90° Elbow	Min 5.11	4.845 0.692 5.537
OD: 60.325	Avg 5.38	STCR mm/yr 0.000
Spec: ASME B31.3	Comments: ASSUMED	LTCR mm/yr 0.432
		Remaining Life:
		Retirement Date:



Ultrasonic Corrosion Survey

*All values are in millimeters unless otherwise stated.

Survey Name: Husky Energy

Date: Feb 10, 2015

Inspector: D. Skeard

LSD: 2-20-50-18 W5M	Area: RAVEN CREEK	Location: COMPRESSOR STATION
A #: 646898	Tag Number:	Vessel Name: FLASH VESSEL
CRN: W7305.21	Year Built: 2014	Serial Number: 14-05110
RT: 2	Vessel CA: 1.588 mm	Manufacturer: SPECTRUM PROCESS SYSTEMS
	Shell MAWP: 270 PSI	Tube MAWP: PSI
	MAWTF: 150 °F	MAWTF: °F
		Pipe/Plate PIPE

TML Description	Baseline	Material: SA-106-B
40 PIPING	2015	Flag CA Nominal T Min
Shape: 360° Circ	Min 5.05	STCR mm/yr 0.000
OD: 48.26	Avg 5.61	LTCR mm/yr 0.025
Spec: ASME B31.3	Comments: ASSUMED	Remaining Life:
		Retirement Date:

A 646898

FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS
 (Alternative Form for Single Chamber, Completely Shop or Field Fabricated Vessels Only)
 As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by Spectrum Process Systems Inc. 285175 Kleysen Way, Rocky View, Alberta. T1X 0K1 Canada
(Name and address of manufacturer)
2. Manufactured for Husky Energy. 707-8th Avenue SW. Box 6525, Station "D" Calgary, Alberta T2P 3G7
(Name and address of manufacturer)
3. Location of installation LSD: 02-20-050-18 W5M
(Name and address)
4. Type Vertical Flash Vessel 14-05110-33 W7305.21 V-14-05110-33-001 R.0 - 2014
(Horizontal or vertical, tank) (Manufacturer's serial number) (CRN) (Drawing numbers) (National Board number) (Year built)
5. ASME Code, Section VIII, Division 1 2013 Ed. N/A N/A
(Edition and Addenda, if applicable (date)) (Code Case numbers) (Special service per UG 120(d))
6. Shell SA-106B 3/8" .0625" 1'-7 1/4" 5'-0"
(Material spec. number, grade) (Nominal thickness) (Corr. allow) (Inner diameter) (Length overall))

Body Flange on Shell													
No.	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Location	Bolting				
									Num & Size	Bolting Material	Washer (OD, ID, thik)	Washer Material	
-	-	-	-	-	-	-	-	-	-	-	-	-	-

7. Seams Seamless N/A 100% N/A N/A Type1 Spot 70% 1
(Long, (welded, dbl, sngl, lap, butt)) (R.T. (spot or full)) (Eff., %) (H.T. temp.) (Time, hr) (Girth (welded, dbl, sngl, lap, butt)) R.T. (spot or full)) (Eff., %) (No. of courses)
8. Heads: (a) Material SA-516-70N (Spec. no., grade) (b) Material SA-516-70N (Spec. no., grade)

	Location (Top, Bottom, End)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side Pressure (Convex or Concave)
(a)	Top Head	.3125"	.0625"	-	-	2:1	-	-	-	Concave
(b)	Bot Head	.3125"	.0625"	-	-	2:1	-	-	-	Concave

Body Flange on Head												
No.	Location	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Bolting			
									Num & Size	Bolting Material	Washer (OD, ID, thik)	Washer Material
(a)	-	-	-	-	-	-	-	-	-	-	-	-
(b)												

9. MAWP 270 PSIG (Internal) 15 PSIG External at max. temp. 150 F (Internal) 150 F External
- Min. design metal temp. -20 F at 270 PSIG Hydro., pneu., or comb. test pressure 405 PSIG
- Proof test N/A

10. Nozzles, inspection, and safety valve opening:

Purpose (Inlet, Outlet, Drain etc.)	No.	Diameter or Size	Type	Material		Nozzle thickness		Reinforcement Material	Attachment Details		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
LSSH/LC/LSLL/Insp.	3	4"	RFWN/CL150	SA-106B	SA-105N	.337"	.0625"	Integral	UW16.1(c)	Type1	Shell
Gas outlet/Insp.	1	3"	RFWN/CL150	SA-106B	SA-105N	.300"	.0625"	Integral	UW16.1(c)	Type1	Head
Gly In/Skim out/Skim LG/TL	5	2"	RFWN/CL150	SA-106B	SA-105N	.344"	.0625"	Integral	UW16.1(c)	Type1	Shell
Gly LG/Gly out/PSV/Gas in	5	2"	RFWN/CL150	SA-106B	SA-105N	.344"	.0625"	Integral	UW16.1(c)	Type1	Shell
Drain	1	2"	RFWN/CL150	SA-106B	SA-105N	.344"	.0625"	Integral	UW16.1(c)	Type1	Head

11. Supports: Skirt Yes (Yes or No) Lugs N/A (Number) Legs N/A (Number) Other N/A (Describe) Attached Welded to Bot. Head (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: N/A
(Name of part, item number Manufacturer's name and identifying stamp)
- 20 F All Materials Exempt from impact test per UG-20(f)(1-5). Tag # V-327
- Volume: 11.9 Cu.ft (.34 Cu.M) PSV Installed by other as per UG-125 Construction DWG. NO: V-14-05110-33-001 R.0

FORM U-1A (Back)

CERTIFICATE OF SHOP/FIELD COMPLIANCE

We certify that the statements made in this report are correct and that all details of design, construction, and workmanship of this vessel conform to the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. "U" Certificate of Authorization Number 21,356 expires July 21, 2016

Date December 15, 2014 Co. name Spectrum Process Systems Inc. Signed Hassan
(Manufacturer) (Representative)

CERTIFICATE OF SHOP/FIELD INSPECTION

Vessel constructed by Spectrum Process Systems Inc. 285175 Kleysen Way, Rocky View, Alberta. T1X 0K1 Canada
I, the undersigned holding valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by ABSA, Calgary, Alberta, Canada

have inspected the component described in this Manufacturer's Data Report on Dec 17/14, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her employer shall be liable in any manner for any personal injury, property damage or a loss of any kind arising from or connected with this inspection.

Date Dec 17/14 Signed [Signature] Commissions NB 11039 AB-G1
(Authorized Inspector) (National Board (incl. endorsements))