Fugitive Emission Gasket Test Report

Chevron Fugitive Emission Test (CFET), March 2013

Performed for

Teadit

www.teadit.com

6 inch Class 300 High Density
Spiral Wound Gasket

Project Number: 213241
Test Start Date: November 14, 2013

Performed by

YARMOUTH RESEARCH AND TECHNOLOGY, LLC

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Yarmouth Research and Technology, LLC

DATA SUMMARY

Customer:	Teadit	**Start Date:**	14-Nov-13
Project #:	213241		
Gasket Description:	High Density Spiral Wound Gasket		
Test Description:	Chevron Fugitive Emissions Test (CFET) Protocol for Pipe Flange Gaskets, 3/1/2013		
Gasket Size / Class:	6 inch ANSI Class 300		
Flange Condition:	New		
Test Media / Pressure:	600 psig Methane		

Test Results: The average and maximum leakage results shown below were calculated from 60 readings measured during a minute duration.
See data sheets for more detailed information.

Test Procedure:

Score grooves on outer rings - both sides:	Yes	
Measure OD of Sealing Surface:	8.25	inches
Measure ID of Sealing Surface:	7.19	inches
Measure gasket thickness (4):	0.192, 0.191, 0.191, 0.191	
Outer ring thickness:	0.128	inches
Inner ring thickness:	0.124	inches
Lube studs and nuts with Jet-Lube 550 Extreme:	Yes	
Assemble gasket in flanges with 190 ft-lb nut torque:	Yes	
Verify parallelism is within .010 inch:	Yes	
Pressurize with 600 psig methane for 15 minutes:	Yes	

Thermal Cycling

Perform thermal cycle and record leakage readings below:	Yes
Heat 1 flange only. Record other flange temp when heated	Yes
flange reaches 500F.	Yes
Reduce pressure to 0, zero meter, repressurize, dwell 15 min.	Yes

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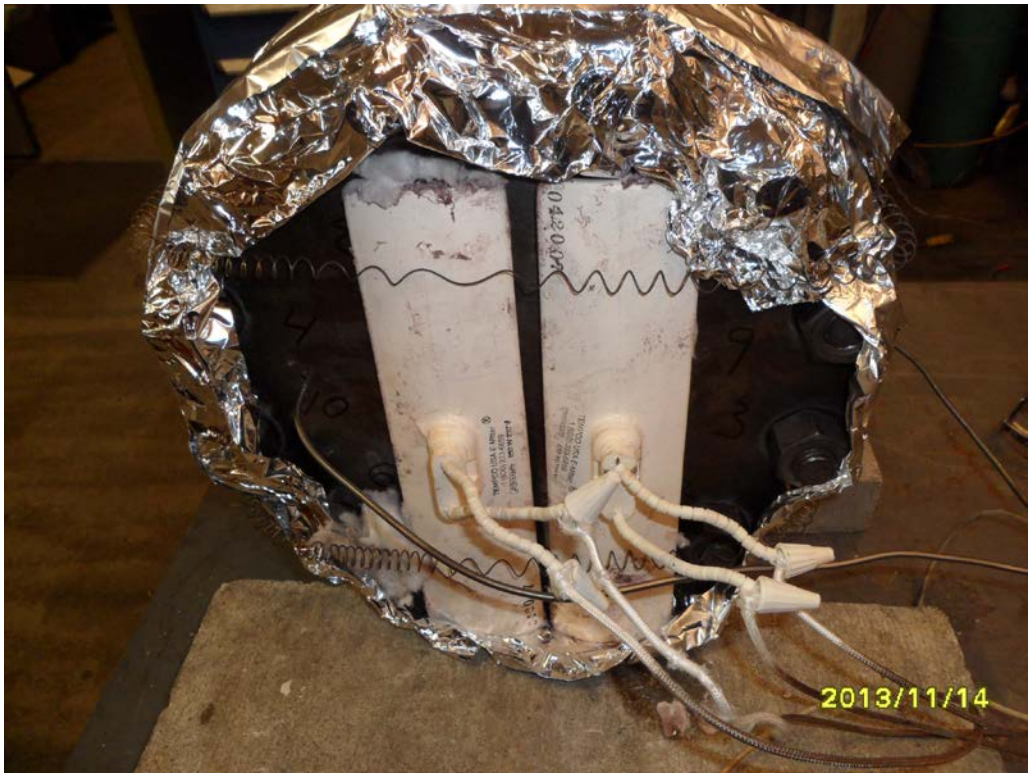
Thermal Cycle Number	*Leakage Readings (PPMv)*				*Flange Temperatures*	
	Ambient Temp.		*500 deg F Temp.*		*Heated*	*Other*
	Avg.	*Max.*	*Avg.*	*Max.*	*(deg F)*	*(deg F)*
Start	2	2	1	2	500	439
1	1	1	1	2	500	440
2	1	1	1	1	500	441
3	1	1	1	1	500	434
4	7	8	2	3	500	442
5	2	3				
Averages ->	**2**	**3**	**1**	**2**	**500**	**439**
Maximums ->	**7**	**8**	**2**	**3**	**500**	**442**

Gasket thickness at end of test:	**0.158**	**inches**

Test Notes:

Tested by:



Test Gasket During Thermal Cycle

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Valve Description: Teadit High Density Spiral Wound Gasket

Thermal Cycle Number: 0 **Date** 11/14/2013

Time	Pressure (psig)	Temp. (deg. F)	Temp. (deg. F)	Leakage (PPMv)
10:40:15 AM	600	66	65	2.1
10:40:16 AM	600	66	65	2.1
10:40:17 AM	600	66	64	2.1
10:40:18 AM	600	67	65	2.1
10:40:19 AM	600	66	64	2.1
10:40:20 AM	600	65	64	2.1
10:40:21 AM	600	66	66	2.1
10:40:22 AM	600	66	66	2.1
10:40:23 AM	600	66	66	2.0
10:40:24 AM	600	67	67	2.0
10:40:25 AM	600	65	66	2.0
10:40:26 AM	600	65	66	2.0
10:40:27 AM	600	66	65	2.0
10:40:28 AM	600	66	67	2.0
10:40:29 AM	600	67	65	2.0
10:40:30 AM	600	66	66	2.0
10:40:31 AM	600	66	66	2.0
10:40:32 AM	600	67	65	2.0
10:40:33 AM	600	66	66	2.0
10:40:34 AM	600	65	65	1.9
10:40:35 AM	600	66	66	1.9
10:40:36 AM	600	66	66	1.9
10:40:37 AM	600	66	65	2.0
10:40:38 AM	600	66	65	1.9
10:40:39 AM	600	66	66	2.0
10:40:40 AM	600	66	66	2.0
10:40:41 AM	600	66	66	2.0
10:40:42 AM	600	65	66	2.0
10:40:43 AM	600	65	65	1.9
10:40:44 AM	600	65	66	1.9
10:40:45 AM	600	66	66	1.9
10:40:46 AM	600	67	66	1.9
10:40:47 AM	600	66	66	1.9
10:40:48 AM	600	65	66	1.9
10:40:49 AM	600	65	66	1.9
10:40:50 AM	600	66	67	1.9
10:40:50 AM	600	66	66	1.9
10:40:51 AM	600	66	66	1.9
10:40:52 AM	600	67	65	1.9
10:40:53 AM	600	66	66	1.9
10:40:54 AM	600	67	66	1.9
10:40:55 AM	600	66	66	1.9
10:40:56 AM	600	66	66	1.8
10:40:57 AM	600	65	65	1.8
10:40:58 AM	600	66	66	1.8
10:40:59 AM	600	66	66	1.8
10:41:00 AM	600	66	66	1.8
10:41:01 AM	600	66	66	1.8
10:41:02 AM	600	66	65	1.8
10:41:03 AM	600	66	65	1.8
10:41:04 AM	600	66	64	1.8
10:41:05 AM	600	66	66	1.8
10:41:06 AM	600	67	65	1.8
10:41:07 AM	600	66	65	1.8
10:41:08 AM	600	66	66	1.8
10:41:09 AM	600	67	65	1.8
10:41:10 AM	600	66	65	1.8
10:41:11 AM	600	66	65	1.8
10:41:12 AM	600	66	66	1.8
10:41:13 AM	600	66	65	1.8
Averages ->	**600**	**66**	**66**	**1.9**
			Maximum ->	**2.1**

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Valve Description: Teadit High Density Spiral Wound Gasket

Thermal Cycle Number: 0 **Date** 11/14/2013

Time	Pressure (psig)	Temp. (deg. F)	Temp. (deg. F)	Leakage (PPMv)
2:09:00 PM	600	501	440	0.7
2:09:01 PM	600	500	437	0.5
2:09:02 PM	600	500	439	0.7
2:09:03 PM	600	500	440	0.7
2:09:04 PM	600	500	440	0.6
2:09:05 PM	600	500	439	0.6
2:09:06 PM	600	500	439	0.8
2:09:07 PM	600	500	440	0.7
2:09:08 PM	600	501	439	0.7
2:09:09 PM	600	501	439	0.7
2:09:10 PM	600	500	440	0.8
2:09:11 PM	600	500	440	0.8
2:09:12 PM	600	500	438	0.8
2:09:13 PM	600	500	442	0.8
2:09:14 PM	600	501	437	0.9
2:09:15 PM	600	500	439	1.1
2:09:16 PM	600	501	440	1.0
2:09:17 PM	600	501	440	1.0
2:09:17 PM	600	501	441	1.1
2:09:18 PM	600	499	440	1.2
2:09:19 PM	600	500	439	1.2
2:09:20 PM	600	500	439	1.1
2:09:21 PM	600	501	438	1.2
2:09:22 PM	600	501	439	1.3
2:09:23 PM	600	500	440	1.3
2:09:24 PM	600	499	440	1.2
2:09:25 PM	600	498	441	1.2
2:09:26 PM	600	501	439	1.3
2:09:27 PM	600	499	440	1.3
2:09:28 PM	600	500	440	1.3
2:09:29 PM	600	500	438	1.3
2:09:30 PM	600	500	438	1.3
2:09:31 PM	600	500	439	1.5
2:09:32 PM	600	501	438	1.5
2:09:33 PM	600	500	438	1.4
2:09:34 PM	600	500	439	1.5
2:09:35 PM	600	499	440	1.4
2:09:36 PM	600	500	441	1.6
2:09:37 PM	600	500	440	1.6
2:09:38 PM	600	500	441	1.6
2:09:39 PM	600	500	440	1.6
2:09:40 PM	600	501	441	1.6
2:09:41 PM	600	498	442	1.7
2:09:42 PM	600	500	440	1.7
2:09:43 PM	600	500	440	1.7
2:09:44 PM	600	500	439	1.7
2:09:45 PM	600	501	438	1.7
2:09:46 PM	600	500	441	1.7
2:09:47 PM	600	499	441	1.8
2:09:48 PM	600	500	439	1.8
2:09:49 PM	600	499	438	1.9
2:09:50 PM	600	499	438	1.9
2:09:51 PM	600	500	439	1.8
2:09:52 PM	600	501	440	1.9
2:09:53 PM	600	500	440	1.9
2:09:54 PM	600	501	440	1.8
2:09:55 PM	600	501	438	1.9
2:09:56 PM	600	500	439	1.9
2:09:57 PM	600	500	439	2.0
2:09:58 PM	600	500	439	2.0
Averages ->	**600**	**500**	**439**	**1.3**
			Maximum ->	**2.0**

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Valve Description: Teadit High Density Spiral Wound Gasket

Thermal Cycle Number: 1 **Date** 11/15/2013

Time	Pressure (psig)	Temp. (deg. F)	Temp. (deg. F)	Leakage (PPMv)
10:20:46 AM	600	73	73	1.2
10:20:47 AM	600	72	72	1.3
10:20:48 AM	600	72	73	1.3
10:20:49 AM	600	72	73	1.3
10:20:50 AM	600	72	72	1.3
10:20:51 AM	600	73	70	1.3
10:20:52 AM	600	73	71	1.3
10:20:53 AM	600	72	72	1.3
10:20:54 AM	600	72	73	1.3
10:20:55 AM	600	72	71	1.3
10:20:56 AM	600	73	72	1.3
10:20:57 AM	600	72	73	1.3
10:20:58 AM	600	73	71	1.3
10:20:59 AM	600	72	72	1.3
10:21:00 AM	600	72	72	1.3
10:21:01 AM	600	72	72	1.3
10:21:02 AM	600	74	73	1.3
10:21:03 AM	600	73	72	1.3
10:21:04 AM	600	74	71	1.3
10:21:04 AM	600	73	72	1.2
10:21:05 AM	600	73	72	1.2
10:21:06 AM	600	72	72	1.2
10:21:07 AM	600	72	72	1.2
10:21:08 AM	600	73	71	1.2
10:21:09 AM	600	73	72	1.2
10:21:10 AM	600	73	73	1.2
10:21:11 AM	600	72	72	1.2
10:21:12 AM	600	72	72	1.2
10:21:13 AM	600	72	73	1.2
10:21:14 AM	600	73	73	1.3
10:21:15 AM	601	72	70	1.3
10:21:16 AM	600	74	72	1.3
10:21:17 AM	600	72	73	1.3
10:21:18 AM	600	73	71	1.3
10:21:19 AM	600	73	71	1.2
10:21:20 AM	600	72	73	1.2
10:21:21 AM	600	73	71	1.2
10:21:22 AM	600	72	72	1.2
10:21:23 AM	600	73	71	1.2
10:21:24 AM	600	72	71	1.2
10:21:25 AM	600	72	70	1.2
10:21:26 AM	600	74	70	1.2
10:21:27 AM	600	72	72	1.2
10:21:28 AM	600	73	74	1.2
10:21:29 AM	600	73	72	1.2
10:21:30 AM	600	72	73	1.2
10:21:31 AM	600	73	73	1.2
10:21:32 AM	600	72	71	1.2
10:21:33 AM	600	72	73	1.2
10:21:34 AM	600	72	73	1.2
10:21:35 AM	600	71	73	1.2
10:21:36 AM	600	74	71	1.2
10:21:37 AM	600	74	71	1.2
10:21:38 AM	600	73	70	1.2
10:21:39 AM	600	73	71	1.2
10:21:40 AM	600	72	71	1.2
10:21:41 AM	600	73	71	1.2
10:21:42 AM	600	73	72	1.2
10:21:43 AM	600	73	72	1.2
10:21:44 AM	600	72	71	1.2
Averages ->	**600**	**72**	**72**	**1.2**
			Maximum ->	**1.3**

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Valve Description: Teadit High Density Spiral Wound Gasket

Thermal Cycle Number: 1 **Date** 11/15/2013

Time	Pressure (psig)	Temp. (deg. F)	Temp. (deg. F)	Leakage (PPMv)
2:24:28 PM	600	500	440	0.8
2:24:29 PM	600	500	440	0.7
2:24:30 PM	600	500	440	0.8
2:24:31 PM	600	500	441	1.0
2:24:32 PM	600	500	440	0.8
2:24:33 PM	600	500	440	0.8
2:24:33 PM	600	500	440	0.9
2:24:34 PM	600	500	440	1.0
2:24:35 PM	600	500	440	1.1
2:24:36 PM	600	500	440	0.9
2:24:37 PM	600	500	440	1.0
2:24:38 PM	600	500	440	1.2
2:24:39 PM	600	500	440	1.1
2:24:40 PM	600	500	440	1.0
2:24:41 PM	600	500	440	1.2
2:24:42 PM	600	500	440	1.2
2:24:43 PM	600	500	440	1.2
2:24:44 PM	600	500	440	1.3
2:24:45 PM	600	500	440	1.2
2:24:46 PM	600	499	440	1.1
2:24:47 PM	600	500	440	1.2
2:24:48 PM	600	500	440	1.3
2:24:49 PM	600	500	440	1.2
2:24:50 PM	600	500	440	1.2
2:24:51 PM	600	500	440	1.4
2:24:52 PM	600	500	439	1.4
2:24:53 PM	600	500	440	1.4
2:24:54 PM	600	500	440	1.5
2:24:55 PM	600	500	440	1.3
2:24:56 PM	600	500	440	1.5
2:24:57 PM	600	499	440	1.7
2:24:58 PM	600	499	440	1.5
2:24:59 PM	600	499	440	1.4
2:25:00 PM	600	500	440	1.6
2:25:01 PM	600	500	440	1.5
2:25:02 PM	600	500	440	1.5
2:25:03 PM	600	500	441	1.6
2:25:04 PM	600	500	440	1.5
2:25:05 PM	600	500	440	1.6
2:25:06 PM	600	499	440	1.8
2:25:07 PM	600	499	440	1.5
2:25:08 PM	600	500	440	1.7
2:25:09 PM	600	499	440	1.8
2:25:10 PM	600	500	440	1.6
2:25:11 PM	600	499	440	1.8
2:25:12 PM	600	500	441	1.7
2:25:13 PM	600	500	440	1.7
2:25:14 PM	600	500	440	1.9
2:25:15 PM	600	499	440	1.7
2:25:16 PM	600	499	440	1.9
2:25:17 PM	600	500	441	2.0
2:25:18 PM	600	500	440	2.0
2:25:19 PM	600	500	441	2.0
2:25:20 PM	600	500	440	1.9
2:25:21 PM	600	500	440	2.1
2:25:22 PM	600	500	441	2.0
2:25:23 PM	600	500	441	2.2
2:25:24 PM	600	500	440	2.1
2:25:25 PM	600	500	441	2.2
2:25:26 PM	600	500	434	0.8
Averages ->	**600**	**500**	**440**	**1.4**
			Maximum ->	**2.2**

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Valve Description: Teadit High Density Spiral Wound Gasket

Thermal Cycle Number: 2 **Date** 11/18/2013

Time	Pressure (psig)	Temp. (deg. F)	Temp. (deg. F)	Leakage (PPMv)
1:11:50 PM	600	67	67	0.8
1:11:51 PM	600	67	66	0.8
1:11:52 PM	600	67	66	0.7
1:11:53 PM	600	67	66	0.7
1:11:54 PM	600	67	66	0.7
1:11:55 PM	600	67	66	0.7
1:11:56 PM	600	67	66	0.7
1:11:57 PM	600	67	66	0.7
1:11:58 PM	600	67	66	0.8
1:11:59 PM	600	67	66	0.8
1:12:00 PM	600	67	66	0.7
1:12:01 PM	600	67	66	0.8
1:12:02 PM	600	67	66	0.8
1:12:03 PM	600	67	66	0.8
1:12:04 PM	600	67	66	0.8
1:12:05 PM	600	67	66	0.8
1:12:06 PM	600	67	66	0.8
1:12:07 PM	600	67	66	0.8
1:12:08 PM	600	67	66	0.8
1:12:09 PM	600	67	66	0.8
1:12:10 PM	600	67	66	0.8
1:12:11 PM	600	67	66	0.8
1:12:12 PM	600	67	66	0.8
1:12:13 PM	600	67	66	0.8
1:12:14 PM	600	67	66	0.7
1:12:15 PM	600	67	66	0.7
1:12:16 PM	600	67	66	0.7
1:12:17 PM	600	67	66	0.7
1:12:18 PM	600	67	66	0.8
1:12:19 PM	600	67	66	0.8
1:12:20 PM	600	67	66	0.8
1:12:21 PM	600	67	66	0.8
1:12:22 PM	600	67	66	0.8
1:12:23 PM	600	67	66	0.8
1:12:24 PM	600	67	66	0.8
1:12:24 PM	600	67	66	0.8
1:12:25 PM	600	67	66	0.8
1:12:26 PM	600	67	66	0.8
1:12:27 PM	600	67	66	0.8
1:12:28 PM	600	67	66	0.8
1:12:29 PM	600	67	66	0.8
1:12:30 PM	600	67	66	0.8
1:12:31 PM	600	67	66	0.7
1:12:32 PM	600	67	66	0.7
1:12:33 PM	600	67	66	0.8
1:12:34 PM	600	67	66	0.7
1:12:35 PM	600	67	66	0.8
1:12:36 PM	600	66	67	0.8
1:12:37 PM	600	67	66	0.8
1:12:38 PM	600	67	66	0.8
1:12:39 PM	600	67	66	0.7
1:12:40 PM	600	67	66	0.7
1:12:41 PM	600	67	66	0.7
1:12:42 PM	600	67	66	0.7
1:12:43 PM	600	67	66	0.7
1:12:44 PM	600	67	66	0.7
1:12:45 PM	600	67	66	0.7
1:12:46 PM	600	67	66	0.7
1:12:47 PM	600	67	66	0.8
1:12:48 PM	600	67	66	0.7
Averages ->	**600**	**67**	**66**	**0.8**
			Maximum ->	**0.8**

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Valve Description: Teadit High Density Spiral Wound Gasket

Thermal Cycle Number: 2 **Date** 11/18/2013

Time	Pressure (psig)	Temp. (deg. F)	Temp. (deg. F)	Leakage (PPMv)
4:32:04 PM	600	500	441	1.4
4:32:05 PM	600	500	441	1.4
4:32:06 PM	600	500	440	1.4
4:32:07 PM	600	499	440	1.4
4:32:08 PM	600	499	441	1.5
4:32:09 PM	600	499	441	1.4
4:32:10 PM	600	500	440	1.4
4:32:11 PM	600	499	441	1.4
4:32:12 PM	600	500	440	1.4
4:32:13 PM	600	500	441	1.3
4:32:14 PM	600	499	441	1.4
4:32:15 PM	600	499	440	1.3
4:32:16 PM	600	499	440	1.3
4:32:17 PM	600	499	441	1.4
4:32:18 PM	600	499	440	1.4
4:32:19 PM	600	499	440	1.5
4:32:20 PM	600	500	441	1.4
4:32:21 PM	600	499	441	1.4
4:32:22 PM	600	499	441	1.3
4:32:23 PM	600	499	441	1.3
4:32:24 PM	600	499	441	1.3
4:32:25 PM	600	500	440	1.4
4:32:26 PM	600	499	440	1.3
4:32:27 PM	600	499	440	1.4
4:32:28 PM	600	499	440	1.4
4:32:29 PM	600	500	440	1.3
4:32:30 PM	600	500	440	1.3
4:32:31 PM	600	500	441	1.4
4:32:32 PM	600	499	441	1.3
4:32:32 PM	600	499	441	1.3
4:32:33 PM	600	499	440	1.4
4:32:34 PM	600	499	440	1.4
4:32:35 PM	600	499	440	1.4
4:32:36 PM	600	500	441	1.4
4:32:37 PM	600	499	440	1.4
4:32:38 PM	601	499	441	1.4
4:32:39 PM	600	500	441	1.4
4:32:40 PM	600	500	441	1.5
4:32:41 PM	600	500	441	1.4
4:32:42 PM	600	500	441	1.4
4:32:43 PM	599	500	441	1.4
4:32:44 PM	600	500	441	1.4
4:32:45 PM	600	500	441	1.4
4:32:46 PM	600	500	441	1.4
4:32:47 PM	600	500	441	1.4
4:32:48 PM	601	500	441	1.4
4:32:49 PM	600	500	440	1.4
4:32:50 PM	600	500	441	1.4
4:32:51 PM	600	500	441	1.4
4:32:52 PM	600	500	440	1.5
4:32:53 PM	600	500	441	1.4
4:32:54 PM	600	500	441	1.5
4:32:55 PM	601	500	441	1.4
4:32:56 PM	600	499	441	1.4
4:32:57 PM	600	500	440	1.4
4:32:58 PM	600	500	441	1.4
4:32:59 PM	600	500	441	1.3
4:33:00 PM	600	500	441	1.3
4:33:01 PM	600	500	441	1.4
4:33:02 PM	600	500	441	1.4
Averages ->	**600**	**500**	**441**	**1.4**
			Maximum ->	**1.5**

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Valve Description: Teadit High Density Spiral Wound Gasket

Thermal Cycle Number: 3 **Date** 11/19/2013

Time	Pressure (psig)	Temp. (deg. F)	Temp. (deg. F)	Leakage (PPMv)
11:51:26 AM	600	73	72	0.7
11:51:27 AM	600	73	72	0.7
11:51:28 AM	600	73	72	0.7
11:51:29 AM	600	73	72	0.7
11:51:30 AM	600	73	72	0.7
11:51:31 AM	600	73	72	0.7
11:51:32 AM	600	73	72	0.6
11:51:33 AM	600	73	72	0.6
11:51:34 AM	600	73	72	0.6
11:51:35 AM	600	73	72	0.6
11:51:36 AM	600	73	72	0.6
11:51:37 AM	600	73	72	0.6
11:51:38 AM	600	73	72	0.6
11:51:39 AM	600	73	72	0.6
11:51:40 AM	600	73	72	0.6
11:51:41 AM	600	73	72	0.6
11:51:42 AM	600	73	72	0.6
11:51:43 AM	600	73	72	0.6
11:51:44 AM	600	73	72	0.6
11:51:45 AM	600	73	72	0.6
11:51:46 AM	600	73	72	0.6
11:51:47 AM	600	73	72	0.6
11:51:48 AM	600	73	72	0.6
11:51:49 AM	600	73	72	0.6
11:51:50 AM	600	73	72	0.6
11:51:51 AM	600	73	72	0.6
11:51:52 AM	600	73	72	0.6
11:51:53 AM	600	73	72	0.6
11:51:54 AM	600	73	72	0.6
11:51:55 AM	600	73	72	0.6
11:51:56 AM	600	73	72	0.7
11:51:57 AM	600	73	72	0.7
11:51:58 AM	600	73	72	0.6
11:51:59 AM	600	73	72	0.6
11:52:00 AM	600	73	72	0.6
11:52:00 AM	600	73	72	0.6
11:52:01 AM	600	73	72	0.6
11:52:02 AM	600	73	72	0.6
11:52:03 AM	600	73	72	0.6
11:52:04 AM	600	73	72	0.6
11:52:05 AM	600	73	72	0.6
11:52:06 AM	600	73	72	0.6
11:52:07 AM	600	73	72	0.6
11:52:08 AM	600	73	72	0.6
11:52:09 AM	600	73	72	0.6
11:52:10 AM	600	73	72	0.6
11:52:11 AM	600	73	72	0.6
11:52:12 AM	600	73	72	0.6
11:52:13 AM	600	73	72	0.6
11:52:14 AM	600	73	72	0.6
11:52:15 AM	600	73	72	0.6
11:52:16 AM	600	73	72	0.6
11:52:17 AM	600	73	72	0.6
11:52:18 AM	600	73	72	0.6
11:52:19 AM	600	73	72	0.6
11:52:20 AM	600	73	72	0.6
11:52:21 AM	600	73	72	0.6
11:52:22 AM	600	73	72	0.6
11:52:23 AM	600	73	72	0.6
11:52:24 AM	600	73	72	0.6
Averages ->	**600**	**73**	**72**	**0.6**
			Maximum ->	**0.7**

Yarmouth Research and Technology, LLC

Valve Description: Teadit High Density Spiral Wound Gasket

Thermal Cycle Number: 3 **Date** 11/19/2013

Time	Pressure (psig)	Temp. (deg. F)	Temp. (deg. F)	Leakage (PPMv)
4:45:47 PM	600	501	433	0.6
4:45:48 PM	600	500	434	0.6
4:45:49 PM	600	501	434	0.6
4:45:50 PM	600	501	435	0.6
4:45:51 PM	600	501	433	0.6
4:45:52 PM	600	501	434	0.6
4:45:53 PM	600	501	434	0.6
4:45:54 PM	600	501	434	0.5
4:45:55 PM	600	501	434	0.6
4:45:56 PM	600	501	434	0.6
4:45:57 PM	600	501	434	0.5
4:45:58 PM	600	501	434	0.6
4:45:59 PM	600	501	434	0.6
4:46:00 PM	600	501	433	0.5
4:46:01 PM	600	501	434	0.6
4:46:02 PM	600	500	434	0.6
4:46:03 PM	600	501	434	0.5
4:46:04 PM	600	501	434	0.6
4:46:05 PM	600	500	434	0.6
4:46:06 PM	600	501	434	0.6
4:46:07 PM	600	500	434	0.6
4:46:08 PM	600	501	435	0.6
4:46:09 PM	600	501	434	0.6
4:46:10 PM	600	500	434	0.6
4:46:11 PM	600	500	435	0.6
4:46:12 PM	600	501	434	0.6
4:46:13 PM	600	500	434	0.6
4:46:14 PM	600	500	434	0.6
4:46:15 PM	600	500	434	0.6
4:46:16 PM	600	500	434	0.6
4:46:17 PM	600	500	434	0.6
4:46:18 PM	600	500	435	0.6
4:46:19 PM	600	500	434	0.6
4:46:20 PM	600	500	434	0.5
4:46:21 PM	600	500	435	0.6
4:46:22 PM	600	500	434	0.6
4:46:23 PM	600	500	434	0.6
4:46:24 PM	600	501	434	0.6
4:46:24 PM	600	500	434	0.6
4:46:25 PM	600	500	434	0.6
4:46:26 PM	600	500	434	0.6
4:46:27 PM	600	500	434	0.6
4:46:28 PM	600	500	433	0.7
4:46:29 PM	600	500	434	0.7
4:46:30 PM	600	500	434	0.6
4:46:31 PM	600	500	434	0.7
4:46:32 PM	600	500	434	0.7
4:46:33 PM	600	500	434	0.7
4:46:34 PM	600	500	434	0.7
4:46:35 PM	600	500	434	0.7
4:46:36 PM	600	500	434	0.7
4:46:37 PM	600	500	434	0.7
4:46:38 PM	600	500	434	0.7
4:46:39 PM	600	500	434	0.7
4:46:40 PM	600	500	434	0.7
4:46:41 PM	600	500	434	0.7
4:46:42 PM	600	500	434	0.7
4:46:43 PM	600	500	434	0.7
4:46:44 PM	600	500	434	0.8
4:46:45 PM	600	500	434	0.8
Averages ->	**600**	**500**	**434**	**0.6**
			Maximum ->	**0.8**

Yarmouth Research and Technology, LLC

Valve Description: Teadit High Density Spiral Wound Gasket

Thermal Cycle Number: 4 **Date** 11/20/2013

Time	Pressure (psig)	Temp. (deg. F)	Temp. (deg. F)	Leakage (PPMv)
1:44:56 PM	600	71	70	5.1
1:44:57 PM	600	71	70	5.1
1:44:58 PM	600	71	70	5.2
1:44:59 PM	600	71	70	5.2
1:45:00 PM	600	71	70	5.2
1:45:01 PM	600	71	70	5.2
1:45:02 PM	600	71	70	5.2
1:45:03 PM	600	71	70	5.2
1:45:04 PM	600	71	70	5.2
1:45:05 PM	600	71	70	5.2
1:45:06 PM	600	71	70	5.1
1:45:07 PM	600	71	70	5.1
1:45:08 PM	600	71	70	5.1
1:45:09 PM	600	71	70	5.1
1:45:10 PM	600	71	70	5.0
1:45:11 PM	600	71	70	5.0
1:45:12 PM	600	71	70	5.1
1:45:13 PM	600	71	70	5.2
1:45:14 PM	600	71	70	5.2
1:45:15 PM	600	71	70	5.3
1:45:16 PM	600	71	70	5.3
1:45:17 PM	600	71	70	5.4
1:45:18 PM	600	71	70	5.5
1:45:19 PM	600	71	70	5.7
1:45:20 PM	600	71	70	5.9
1:45:21 PM	600	71	70	6.0
1:45:22 PM	600	71	70	6.3
1:45:23 PM	600	71	70	6.5
1:45:24 PM	600	71	70	6.8
1:45:25 PM	600	71	70	6.8
1:45:26 PM	600	71	70	7.0
1:45:27 PM	600	71	70	7.2
1:45:27 PM	600	71	70	7.4
1:45:28 PM	600	71	70	7.6
1:45:29 PM	600	71	70	7.7
1:45:30 PM	600	71	70	7.8
1:45:31 PM	600	71	70	7.8
1:45:32 PM	600	71	70	7.9
1:45:33 PM	600	71	70	7.9
1:45:34 PM	600	71	70	8.0
1:45:35 PM	600	71	70	8.0
1:45:36 PM	600	71	70	8.1
1:45:37 PM	600	71	70	8.2
1:45:38 PM	600	71	70	8.2
1:45:39 PM	600	71	70	8.2
1:45:40 PM	600	71	70	8.2
1:45:41 PM	600	71	70	8.3
1:45:42 PM	600	71	70	8.3
1:45:43 PM	600	71	70	8.3
1:45:44 PM	600	71	70	8.2
1:45:45 PM	600	71	70	8.2
1:45:46 PM	600	71	70	8.1
1:45:47 PM	600	71	70	8.0
1:45:48 PM	600	71	70	7.9
1:45:49 PM	600	71	70	7.9
1:45:50 PM	600	71	70	7.9
1:45:51 PM	600	71	70	7.9
1:45:52 PM	600	71	70	7.9
1:45:53 PM	600	70	70	8.0
1:45:54 PM	600	71	70	8.0
Averages ->	**600**	**71**	**70**	**6.7**
			Maximum ->	**8.3**

Yarmouth Research and Technology, LLC

Valve Description: Teadit High Density Spiral Wound Gasket

Thermal Cycle Number: 4 **Date** 11/20/2013

Time	Pressure (psig)	Temp. (deg. F)	Temp. (deg. F)	Leakage (PPMv)
5:33:40 PM	600	500	441	1.5
5:33:41 PM	600	500	442	1.5
5:33:42 PM	600	500	441	1.4
5:33:43 PM	600	500	441	1.5
5:33:44 PM	600	500	441	1.7
5:33:45 PM	600	500	441	1.8
5:33:46 PM	600	500	442	1.8
5:33:47 PM	600	500	442	1.7
5:33:48 PM	600	500	441	1.7
5:33:49 PM	600	500	441	1.7
5:33:50 PM	600	500	441	1.7
5:33:51 PM	600	500	441	1.7
5:33:52 PM	600	500	442	1.7
5:33:53 PM	600	500	441	1.8
5:33:53 PM	600	500	442	1.8
5:33:54 PM	600	500	441	1.8
5:33:55 PM	600	500	442	1.9
5:33:56 PM	600	500	441	1.9
5:33:57 PM	600	500	441	2.0
5:33:58 PM	600	500	442	2.1
5:33:59 PM	600	500	442	2.2
5:34:00 PM	600	500	441	2.1
5:34:01 PM	600	500	441	2.1
5:34:02 PM	600	500	442	2.2
5:34:03 PM	600	500	442	2.3
5:34:04 PM	600	500	442	2.2
5:34:05 PM	600	500	442	2.3
5:34:06 PM	600	500	442	2.4
5:34:07 PM	600	500	442	2.3
5:34:08 PM	600	500	442	2.4
5:34:09 PM	600	500	442	2.3
5:34:10 PM	600	500	442	2.4
5:34:11 PM	600	500	442	2.4
5:34:12 PM	600	500	442	2.4
5:34:13 PM	600	500	442	2.5
5:34:14 PM	600	500	442	2.5
5:34:15 PM	600	500	442	2.6
5:34:16 PM	600	500	442	2.5
5:34:17 PM	600	500	442	2.4
5:34:18 PM	600	500	442	2.4
5:34:19 PM	600	500	442	2.4
5:34:20 PM	600	500	442	2.4
5:34:21 PM	600	500	442	2.5
5:34:22 PM	600	500	442	2.4
5:34:23 PM	600	500	442	2.4
5:34:24 PM	600	500	442	2.4
5:34:25 PM	600	500	442	2.4
5:34:26 PM	600	500	442	2.5
5:34:27 PM	600	500	442	2.5
5:34:28 PM	600	500	442	2.5
5:34:29 PM	600	500	442	2.4
5:34:30 PM	600	500	442	2.3
5:34:31 PM	600	500	442	2.4
5:34:32 PM	600	500	442	2.3
5:34:33 PM	600	500	442	2.3
5:34:34 PM	600	500	442	2.3
5:34:35 PM	600	500	441	2.2
5:34:36 PM	600	500	442	2.2
5:34:37 PM	600	500	442	2.3
5:34:38 PM	600	500	442	2.3
Averages ->	**600**	**500**	**442**	**2.1**
			Maximum ->	**2.6**

Yarmouth Research and Technology, LLC

Valve Description: Teadit High Density Spiral Wound Gasket

Thermal Cycle Number: 5 **Date** 11/21/2013

Time	Pressure (psig)	Temp. (deg. F)	Temp. (deg. F)	Leakage (PPMv)
10:27:16 AM	600	74	72	2.2
10:27:17 AM	600	74	72	2.3
10:27:18 AM	600	74	73	2.2
10:27:19 AM	600	74	72	2.1
10:27:20 AM	600	74	73	2.5
10:27:21 AM	600	74	73	2.4
10:27:22 AM	600	74	73	1.8
10:27:23 AM	600	74	72	1.4
10:27:24 AM	600	74	72	1.4
10:27:25 AM	600	74	73	1.6
10:27:26 AM	600	74	72	1.9
10:27:27 AM	600	74	72	2.1
10:27:28 AM	600	74	73	2.0
10:27:29 AM	600	74	73	2.2
10:27:30 AM	600	74	72	2.4
10:27:31 AM	600	74	73	2.3
10:27:32 AM	600	74	73	1.9
10:27:33 AM	600	74	73	1.9
10:27:34 AM	600	74	73	1.7
10:27:35 AM	600	74	73	1.5
10:27:36 AM	600	74	73	1.6
10:27:37 AM	600	74	72	1.6
10:27:38 AM	600	74	72	1.7
10:27:39 AM	600	74	73	1.9
10:27:40 AM	600	74	72	2.0
10:27:41 AM	600	74	72	1.9
10:27:42 AM	600	74	73	1.8
10:27:43 AM	600	74	73	1.6
10:27:43 AM	600	74	72	1.8
10:27:44 AM	600	74	72	2.0
10:27:45 AM	600	74	73	1.9
10:27:46 AM	600	74	73	1.8
10:27:47 AM	600	74	73	1.9
10:27:48 AM	600	74	73	2.1
10:27:49 AM	600	74	73	2.3
10:27:50 AM	600	74	72	2.4
10:27:51 AM	600	74	72	2.4
10:27:52 AM	600	74	73	2.4
10:27:53 AM	600	74	73	2.3
10:27:54 AM	600	74	73	2.5
10:27:55 AM	600	74	73	2.5
10:27:56 AM	600	74	73	2.5
10:27:57 AM	600	74	72	2.3
10:27:58 AM	600	74	73	2.3
10:27:59 AM	600	74	72	2.4
10:28:00 AM	600	74	73	2.3
10:28:01 AM	600	74	72	2.2
10:28:02 AM	600	74	72	2.3
10:28:03 AM	600	74	72	2.5
10:28:04 AM	600	74	72	2.5
10:28:05 AM	600	74	73	2.4
10:28:06 AM	600	74	73	2.3
10:28:07 AM	600	74	73	2.4
10:28:08 AM	600	74	72	2.8
10:28:09 AM	600	74	73	2.5
10:28:10 AM	600	74	73	2.4
10:28:11 AM	600	74	73	2.6
10:28:12 AM	600	74	73	2.7
10:28:13 AM	600	74	73	2.6
10:28:14 AM	600	74	73	2.5
Averages ->	**600**	**74**	**73**	**2.2**
			Maximum ->	**2.8**