

Test information									
Test ID	SP1			SP3			SP4		
Flare design	Utility			Utility			Utility		
Pilot Status	ON			ON			ON		
Process Flows									
L1 TNG Flow Rate (SCFH)	0	0	0	39098	39409	39293	25311	25316	25317
L4 TNG Flow Rate (SCFH)	1584	1592	1597	0	0	0	0	0	0
L3 N <sub>2</sub> Flow Rate (SCFH)	0	0	0	0	0	0	0	0	0
L2 N <sub>2</sub> Flow Rate (SCFH)	0	0	0	0	0	0	13521	13476	13388
Propylene (SCFH)	0	0	0	0	0	0	0	0	0
Total Flow Rate (SCFH)	1584	1592	1597	39098	39409	39293	38831	38792	38705
Meteorological Data									
Ambient Temperature (°F)	39.9	39.8	39.8	37.6	37.9	37.8	37.9	37.8	37.9
Barometric Pressure (psia)	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
Relative Humidity (%)	88.2	87.9	88.1	89.4	89.8	90.1	90.8	90.8	91.1
Wind Speed (mph)	4.2	4.8	4.6	5.1	4.4	4.6	4.6	5.8	5.2
Other Process Data									
Vent Gas Discharge Velocity (ft/s)	0.66	0.66	0.66	16.21	16.34	16.29	16.10	16.08	16.05
Vent Gas Temperature (°F)	41.0	40.9	40.9	42.0	42.6	43.0	42.2	41.9	41.9
Vent Gas Pressure at Burner Inlet (inches H <sub>2</sub> O)	-0.04	-0.04	-0.04	5.87	5.86	5.87	7.21	7.18	7.14
Vent Gas Heating Value per Fuel Flows (Btu/scf)	940	940	940	940	940	940	613	614	615
Vent Gas Heating Value from FTIR (Btu/scf)	896	919	920	930	929	928	596	589	591
Average gas heating value FTIR (Btu/scf)		912			929			592	
Vent Gas Molecular Weight from FTIR (g/mol)	17.4	17.1	17.1	17.0	17.1	17.1	21.0	21.1	21.1
Combustion Efficiency CE (%)	99.56	99.79	99.78	99.91	99.91	99.94	99.81	99.88	99.89
Destruction Efficiency (%)	99.71	99.92	99.91	99.94	99.95	99.95	99.90	99.92	99.92
Results Corrected for Pilot flame									
CE% Pilot Adjusted	99.53	99.78	99.77	99.91	99.91	99.94	99.81	99.88	99.89
CE% pilot adjusted (mean average)		99.69			99.92			99.86	
Uncertainty(%) (k=1) 1σ		0.12			0.03			0.05	
DRE% Pilot Adjusted	99.69	99.92	99.91	99.94	99.95	99.95	99.90	99.92	99.92
DRE% Pilot Adjusted (mean average)		99.84			99.95			99.91	
Uncertainty(%) (k=1) 1σ		0.11			0.02			0.03	

SP5			SP6			SP7			SP8		
Utility			Utility			Utility			Utility		
ON			ON			ON			ON		
0	0	0	0	0	0	12658	12671	12655	0	0	0
3081	3079	3080	1014	1013	1013	0	0	0	1559	1560	1559
1648	1648	1647	550	550	549	0	0	0	0	0	0
0	0	0	0	0	0	25630	25634	25619	3106	3103	3099
0	0	0	0	0	0	0	0	0	0	0	0
4729	4727	4727	1564	1563	1563	38288	38305	38274	4664	4663	4658
36.7	37.0	37.2	35.1	35.1	35.2	38.3	38.4	38.6	39.0	39.1	39.2
14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
83.5	82.9	82.6	91.5	91.3	91.6	91.0	90.9	90.7	88.9	89.2	89.5
8.8	8.3	6.8	8.6	9.7	9.2	6.7	7.3	7.7	6.6	6.0	4.1
1.96	1.96	1.96	0.65	0.65	0.65	15.87	15.88	15.87	1.93	1.93	1.93
40.4	40.7	41.1	36.4	36.6	36.6	40.8	40.7	40.7	41.6	41.4	41.3
0.07	0.06	0.07	-0.02	-0.02	-0.02	7.97	7.97	7.97	0.10	0.10	0.10
613	612	613	610	610	610	311	311	311	314	315	315
562	557	558	555	554	554	305	305	305	298	298	298
	559			555			305			298	
21.3	21.3	21.3	21.5	21.5	21.4	24.4	24.4	24.4	24.5	24.5	24.5
99.44	98.89	99.22	99.69	99.74	99.56	98.34	99.59	99.45	95.57	98.15	98.58
99.61	99.52	99.47	99.74	99.82	99.70	99.42	99.80	99.73	97.36	99.05	99.30
99.43	98.86	99.19	99.66	99.71	99.52	98.33	99.58	99.45	95.33	98.05	98.50
	99.16			99.63			99.12			97.29	
	0.27			0.10			0.58			1.46	
99.60	99.51	99.45	99.72	99.80	99.67	99.42	99.80	99.73	97.22	99.00	99.27
	99.52			99.73			99.65			98.50	
	0.17			0.09			0.23			1.05	

SP9			SP10			SP11			SP12		
Utility			Utility			Utility			Utility		
ON			ON			ON			ON		
0	0	0	11377	11368	11370	0	0	0	0	0	0
509	503	352	0	0	0	1376	1377	1375	454	454	455
1049	1049	1195	0	0	0	0	0	0	1114	1114	1114
0	0	0	27720	27707	27716	3369	3363	3368	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
1558	1552	1547	39098	39074	39086	4746	4740	4743	1568	1568	1569
35.4	35.4	35.5	35.9	35.9	35.9	36.9	36.7	36.7	36.9	36.9	37.0
14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
91.3	91.4	90.0	87.1	87.0	86.9	80.7	80.6	81.2	83.0	84.3	84.9
8.6	9.3	12.4	6.8	7.4	9.0	1.8	2.6	2.9	2.4	2.0	1.5
0.65	0.64	0.64	16.21	16.20	16.20	1.97	1.97	1.97	0.65	0.65	0.65
36.7	36.8	36.8	36.0	36.2	36.4	38.0	37.7	37.5	37.6	37.7	37.7
0.00	0.01	0.00	8.42	8.41	8.40	0.12	0.12	0.12	0.03	0.03	0.03
307	305	214	274	274	274	273	273	273	272	272	273
280	280	233	271	270	270	258	258	258	235	236	235
	265			270			258			235	
24.7	24.7	25.2	24.8	24.8	24.8	24.9	24.9	25.0	25.2	25.2	25.2
97.70	97.80	93.84	98.79	99.04	98.15	92.98	84.96	88.19	95.51	92.66	75.77
98.50	98.61	94.63	99.23	99.36	98.90	94.92	89.83	92.51	96.86	95.24	79.25
97.32	97.42	92.43	98.78	99.04	98.13	92.57	84.16	87.54	94.70	91.37	72.42
	95.73			98.65			88.09			86.16	
	1.96			0.49			4.69			9.12	
98.25	98.38	93.32	99.23	99.35	98.90	94.61	89.21	92.05	96.26	94.34	75.32
	96.65			99.16			91.96			88.64	
	2.09			0.42			4.46			8.70	

SP13			SP14			SP16			SP1R2		
Utility			Utility			Utility			Utility		
ON			ON			ON			ON		
10545	10541	10540	0	0	0	8665	8666	8667	0	0	0
0	0	0	1272	1273	1271	0	0	0	1557	1566	1566
0	0	0	0	0	0	0	0	0	0	0	0
28387	28403	28414	3476	3476	3476	30321	30303	30314	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
38932	38944	38954	4748	4749	4748	38986	38969	38982	1557	1566	1566
36.1	36.0	35.9	39.6	39.7	39.8	35.8	35.7	35.8	31.7	31.7	31.7
14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.5	14.5	14.5
86.5	85.9	86.0	88.5	89.1	88.2	85.5	85.3	84.8	45.7	45.5	45.5
11.4	11.2	9.9	5.6	5.6	5.6	10.7	11.5	10.4	0.2	1.0	1.0
16.14	16.15	16.15	1.97	1.97	1.97	16.16	16.16	16.16	0.65	0.65	0.65
37.3	37.4	37.5	41.3	41.1	41.0	37.4	37.3	37.2	33.9	33.9	33.9
8.40	8.40	8.43	0.12	0.12	0.12	8.42	8.43	8.43	-0.04	-0.04	-0.04
255	255	254	252	252	252	209	209	209	940	940	940
259	260	260	253	253	253	213	213	213	929	929	930
	260			253			213			929	
24.9	24.9	24.9	25.0	25.0	25.0	25.5	25.5	25.5	17.0	17.0	17.0
97.19	96.29	98.72	94.04	92.46	92.24	95.92	94.56	95.23	99.90	99.94	99.92
98.27	98.17	99.23	96.70	95.74	95.67	97.17	96.50	97.16	99.91	99.94	99.92
97.16	96.26	98.71	93.66	91.98	91.76	95.88	94.51	95.19	99.90	99.94	99.92
	97.38			92.47			95.19			99.92	
	1.22			2.10						0.03	
98.26	98.16	99.22	96.48	95.46	95.38	97.15	96.47	97.13	99.90	99.94	99.92
	98.55			95.77			96.92			99.92	
	0.95			2.18			0.40			0.03	

SP8R1			SP8R4			SP11R1			SP13R1		
Utility			Utility			Utility			Utility		
ON			ON			ON			ON		
0	0	0	0	0	0	0	0	0	10548	10638	10534
1549	1549	1549	1561	1564	1562	1357	1354	1354	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
3205	3213	3206	3141	3147	3147	3307	3314	3312	28322	28259	28262
0	0	0	0	0	0	0	0	0	0	0	0
4754	4762	4754	4702	4711	4709	4664	4668	4666	38870	38897	38797
26.6	26.6	26.9	31.4	31.5	31.4	27.1	27.2	27.5	31.0	31.1	31.1
14.6	14.6	14.6	14.5	14.5	14.5	14.6	14.6	14.6	14.5	14.5	14.5
47.1	46.0	46.5	45.8	46.3	46.1	47.8	48.4	48.2	45.8	45.9	45.4
4.1	4.3	3.7	3.0	2.3	1.8	3.4	1.8	2.3	2.0	2.1	1.7
1.97	1.97	1.97	1.95	1.95	1.95	1.93	1.94	1.93	16.12	16.13	16.08
32.5	32.6	32.6	34.9	34.8	34.6	32.6	32.8	33.3	34.7	34.3	34.2
0.13	0.13	0.12	0.11	0.12	0.12	0.12	0.12	0.12	8.26	8.22	8.22
306	306	306	312	312	312	274	273	273	255	257	255
248	312	289	295	295	295	288	262	259	298	254	254
	283			295			270			269	
25.1	24.3	24.6	24.5	24.5	24.5	24.6	24.9	24.9	24.5	25.0	25.0
98.78	98.39	99.30	99.01	98.36	98.82	98.09	98.15	97.83	99.69	99.62	98.85
99.30	99.09	99.61	99.39	99.14	99.36	98.96	98.95	98.86	99.83	99.78	99.58
98.71	98.30	99.26	98.95	98.27	98.76	97.97	98.03	97.70	99.69	99.62	98.84
	98.76			98.66			97.90			99.38	
	0.47			0.53			0.62			0.41	
99.26	99.04	99.59	99.35	99.09	99.33	98.90	98.88	98.79	99.83	99.77	99.57
	99.30			99.26			98.86			99.73	
	0.36			0.44			0.62			0.19	

SP14R1			SP14R4			SP16R1			SP18AR1		
Utility			Utility			Utility			Utility		
ON			ON			ON			ON		
0	0	0	0	0	0	8565	8559	8554	0	0	0
1257	1256	1255	1267	1266	1268	0	0	0	341	341	341
0	0	0	0	0	0	0	0	0	1216	1215	1216
3427	3428	3425	3440	3440	3444	30541	30563	30557	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
4684	4684	4681	4706	4706	4712	39107	39121	39111	1556	1557	1557
27.6	27.5	27.7	31.4	31.3	31.3	31.2	31.3	31.2	30.7	30.6	30.8
14.6	14.6	14.6	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
47.2	46.5	46.4	45.7	45.9	45.3	44.9	45.5	45.2	58.5	57.9	57.7
3.4	3.6	2.2	1.9	2.0	0.6	2.3	2.8	2.5	1.0	0.9	0.5
1.94	1.94	1.94	1.95	1.95	1.95	16.21	16.22	16.22	0.65	0.65	0.65
33.6	33.7	34.1	34.3	34.0	33.8	34.2	34.1	34.0	32.0	31.9	32.0
0.12	0.12	0.13	0.13	0.13	0.13	8.36	8.36	8.36	0.04	0.04	0.04
252	252	252	253	253	253	206	206	206	206	206	206
259	250	247	248	247	248	238	211	210	215	214	214
	252			248			220			214	
24.9	25.0	25.1	25.1	25.1	25.1	25.2	25.5	25.5	25.5	25.5	25.5
93.58	95.05	93.73	97.32	96.27	96.47	98.57	96.30	97.31	97.07	95.94	99.31
96.34	97.03	96.49	98.66	97.86	98.02	99.32	98.49	99.16	98.61	97.64	99.64
93.16	94.73	93.32	97.14	96.02	96.24	98.55	96.26	97.28	96.34	94.96	99.14
	93.74			96.47			97.37			96.81	
	2.75			1.36			1.28			1.49	
96.09	96.83	96.25	98.57	97.72	97.89	99.32	98.47	99.15	98.26	97.05	99.55
	96.39			98.06			98.98			98.29	
	2.84			1.31			0.98			1.03	

B1			B2			B3			B4		
Utility			Utility			Utility			Utility		
ON			ON			ON			ON		
0	0	0	0	0	0	0	0	0	0	0	0
466	466	465	389	388	387	2838	2842	2844	1170	1169	1166
1097	1096	1095	1168	1166	1162	1885	1883	1881	0	0	0
0	0	0	0	0	0	0	0	0	3496	3494	3491
1564	1562	1561	1557	1554	1549	4723	4725	4725	4666	4663	4657
54.1	54.3	54.8	55.2	56.3	56.2	57.0	56.7	57.1	57.3	57.4	58.0
14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
30.6	30.4	29.6	29.1	28.7	28.3	26.1	26.2	26.4	25.6	25.0	24.5
13.13	11.75	11.56	11.40	10.09	10.80	11.77	12.44	9.54	10.96	12.33	11.54
0.65	0.65	0.65	0.65	0.64	0.64	1.96	1.96	1.96	1.93	1.93	1.93
64.6	65.3	66.0	67.1	68.0	68.4	68.5	68.0	68.1	68.3	68.4	69.0
-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.07	0.07	0.07	0.09	0.09	0.10
280	280	280	235	235	235	565	566	566	236	236	235
246	246	246	208	208	208	494	495	495	239	239	238
	246			208			495			239	
25.0	25.1	25.0	25.5	25.5	25.5	22.1	22.1	22.1	25.1	25.1	25.1
91.72	92.58	94.02	85.73	79.02	80.62	99.13	96.66	96.45	89.18	84.28	88.41
91.63	93.26	94.21	85.88	77.70	79.66	99.27	97.09	97.14	90.54	88.42	92.74
90.32	91.32	92.98	83.08	75.47	77.26	99.10	96.56	96.35	88.47	83.31	87.65
	91.54			78.60			97.34			86.48	
	1.54			4.58			1.26			4.27	
90.09	92.01	93.14	82.76	72.74	75.14	99.25	97.01	97.06	89.86	87.58	92.22
	91.75			76.88			97.77			89.89	
	1.42			4.67			1.78			2.77	

	B11		B12		
	Utility		Utility		
	ON		ON		
	0	0	0	0	0
	1519	1519	748	748	748
	1006	1006	1005	0	0
	0	0	0	1786	1784
					1769
	2525	2524	2524	2534	2532
					2517
	23.7	24.2	24.4	23.9	23.7
	14.6	14.6	14.6	14.6	23.8
	66.1	66.0	62.3	52.2	14.6
	1.91	1.88	0.58	4.27	50.2
					50.7
	4.68	4.67	4.67	4.69	5.57
	26.6	26.9	27.2	27.9	7.20
	0.05	0.05	0.05	0.07	4.69
	566	566	566	278	4.66
	514	514	514	263	28.0
		514		263	0.08
	21.9	21.9	21.9	24.9	0.08
	99.85	99.89	99.85	92.25	0.08
	99.84	99.93	99.90	94.63	0.08
					0.08
	99.84	99.88	99.84	91.43	0.08
		99.85		94.01	0.08
		0.05		90.45	0.08
	99.83	99.92	99.89	94.02	0.08
		99.88		96.10	0.08
		0.07		92.97	0.08
				3.71	0.08
				96.10	0.08
				92.97	0.08
				3.81	0.08



Test information									
Test ID	GB1A			GB3A			GB4A		
Flare design	Sonic			Sonic			Sonic		
Pilot Status	ON			ON			ON		
Process Flows									
L1 TNG Flow Rate (SCFH)	8586	8564	8567	0	0	0	5746	5752	5746
L4 TNG Flow Rate (SCFH)	0	0	0	347	347	347	0	0	0
L3 N <sub>2</sub> Flow Rate (SCFH)	0	0	0	0	0	0	0	0	0
L2 N <sub>2</sub> Flow Rate (SCFH)	0	0	0	0	0	0	3091	3086	3087
Propylene (SCFH)	0	0	0	0	0	0	0	0	0
Total Flow Rate (SCFH)	8586	8564	8567	347	347	347	8836	8838	8834
Meteorological Data									
Ambient Temperature (°F)	40.7	40.6	40.7	39.9	40.2	40.6	40.8	41.3	41.4
Barometric Pressure (psia)	14.4	14.4	14.4	14.5	14.5	14.5	14.4	14.4	14.4
Relative Humidity (%)	69.6	70.7	70.8	59.5	59.2	59.3	70.3	69.5	68.8
Wind Speed (mph)	9.6	10.8	10.3	8.8	8.8	7.5	10.1	10.8	13.0
Other Process Data									
Vent Gas Discharge Velocity (ft/s)	15.80	15.75	15.76	0.64	0.64	0.64	16.26	16.26	16.25
Vent Gas Temperature (°F)	47.4	47.6	48.2	52.0	51.9	51.8	47.8	48.6	48.3
Vent Gas Pressure at Burner Inlet (inches H <sub>2</sub> O)	0.24	0.23	0.22	-0.04	-0.05	-0.04	0.34	0.34	0.33
Vent Gas Heating Value per Fuel Flows (Btu/scf)	940	940	940	940	940	940	611	612	612
Vent Gas Heating Value from FTIR (Btu/scf)	929	928	928	516	739	744	575	576	576
Average gas heating value FTIR (Btu/scf)		928			666			576	
Vent Gas Molecular Weight from FTIR (g/mol)	16.8	16.9	16.9	22.0	19.3	19.2	21.1	21.1	21.1
Combustion Efficiency CE (%)	98.12	99.45	98.92	96.67	99.54	99.57	99.05	95.49	98.66
Destruction Efficiency (%)	99.48	99.73	99.52	98.77	99.60	99.71	99.61	98.10	99.46
Results Corrected for Pilot flame									
CE% Pilot Adjusted	98.10	99.44	98.91	95.87	99.43	99.47	99.04	95.43	98.64
CE% pilot adjusted (mean average)		98.82			98.25			97.70	
Uncertainty(%) (k=1) 1σ		0.56			1.39			1.61	
DRE% Pilot Adjusted	99.47	99.73	99.52	98.46	99.50	99.64	99.61	98.08	99.45
DRE% Pilot Adjusted (mean average)		99.57			99.20			99.04	
Uncertainty(%) (k=1) 1σ		0.18			0.46			0.76	

GB5A			GB6A			GB7A			GB8A		
Sonic			Sonic			Sonic			Sonic		
ON			ON			ON			ON		
0	0	0	0	0	0	0	0	0	0	0	0
682	682	681	232	233	233	2881	2882	2893	340	339	338
371	371	370	126	126	125	0	0	0	708	706	706
0	0	0	0	0	0	5821	5822	5822	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
1052	1053	1051	358	358	358	8702	8704	8714	1048	1045	1044
45.7	45.6	46.3	43.2	43.0	43.1	46.7	46.4	46.4	38.9	39.4	39.3
14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
50.5	50.3	49.5	54.8	54.5	55.0	45.2	45.3	45.0	61.0	61.4	61.1
10.1	8.5	7.5	7.6	6.5	7.2	8.7	8.4	8.5	5.7	4.0	8.3
1.94	1.94	1.93	0.66	0.66	0.66	16.01	16.01	16.03	1.93	1.92	1.92
61.5	62.0	62.8	57.1	57.5	57.0	60.8	60.0	58.3	53.1	53.3	53.2
-0.04	-0.03	-0.04	-0.03	-0.03	-0.03	0.41	0.42	0.40	0.00	0.00	-0.01
609	609	609	610	611	611	311	311	312	305	305	305
514	513	512	494	460	460	299	299	299	270	271	272
	513			471			299			271	
22.1	22.1	22.1	22.3	22.7	22.7	24.6	24.6	24.6	24.8	24.8	24.8
99.80	99.63	99.60	99.11	98.71	98.69	99.06	98.68	99.08	96.63	96.01	96.98
99.82	99.79	99.71	99.31	99.09	98.97	99.35	99.15	99.54	97.69	97.46	97.93
99.78	99.59	99.55	98.79	98.23	98.21	99.04	98.64	99.05	95.81	95.04	96.24
	99.64			98.41			98.91			95.70	
	0.11			0.31			0.32				
99.79	99.77	99.67	99.06	98.76	98.59	99.33	99.13	99.52	97.10	96.82	97.40
	99.74			98.80			99.33			97.11	
	0.09			0.30			0.31			0.3	

GB9			GB10A			GB11A			GB11B		
Sonic			Sonic			Sonic			Sonic		
ON			ON			ON			ON		
0	0	0	0	0	0	0	0	0	0	0	0
115	115	115	2527	2528	2530	306	306	306	1223	1220	1218
245	243	242	0	0	0	743	744	743	0	0	0
0	0	0	6151	6152	6153	0	0	0	3000	3006	3005
0	0	0	0	0	0	0	0	0	0	0	0
360	358	356	8678	8680	8683	1049	1050	1050	4223	4226	4223
43.7	44.3	44.3	47.2	46.8	47.0	37.9	38.7	38.7	42.9	43.0	43.0
14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.4	14.4	14.4
53.9	52.8	53.1	43.8	44.0	44.7	61.9	61.1	60.8	66.8	67.5	67.6
9.5	10.1	8.6	6.1	8.1	7.1	3.6	3.1	5.6	9.0	8.1	9.3
0.66	0.66	0.66	15.96	15.97	15.97	1.93	1.93	1.93	7.77	7.77	7.77
56.4	57.7	58.5	57.8	57.5	57.0	52.9	53.9	53.9	47.4	46.8	46.4
-0.03	-0.02	-0.02	0.42	0.42	0.43	-0.01	0.00	0.00	0.09	0.09	0.09
301	301	302	274	274	274	274	274	274	272	271	271
252	248	247	263	263	264	250	252	251	259	258	258
	249			264			251			258	
25.1	25.1	25.1	25.0	25.0	25.0	25.1	25.0	25.1	24.9	24.9	24.9
96.61	94.33	94.54	99.02	98.58	97.98	96.71	98.62	97.77	98.45	97.31	97.76
96.76	94.28	94.78	99.38	98.96	98.82	97.60	98.96	98.38	99.25	98.31	98.59
94.20	90.44	90.78	98.99	98.53	97.91	95.81	98.24	97.16	98.34	97.13	97.60
	91.81			98.48			97.07			97.69	
	1.30			0.67			0.90			0.59	
94.33	89.97	90.83	99.36	98.93	98.78	96.92	98.66	97.93	99.20	98.20	98.49
	91.71			99.02			97.84			98.63	
	2.41			0.58			0.88			0.62	

GB14A			GB15A			GB15B			GB16A		
Sonic			Sonic			Sonic			Sonic		
ON			ON			ON			ON		
0	0	0	0	0	0	0	0	0	0	0	0
1127	1130	1129	570	570	570	286	287	286	1920	1921	1923
0	0	0	1521	1519	1517	771	770	770	0	0	0
3061	3065	3070	0	0	0	0	0	0	6806	6824	6834
0	0	0	0	0	0	0	0	0	0	0	0
4188	4195	4199	2091	2089	2087	1057	1057	1055	8726	8745	8757
43.4	43.1	42.6	30.8	31.2	31.8	37.1	37.2	38.0	46.3	46.1	46.0
14.4	14.4	14.4	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
62.1	62.4	64.2	78.3	77.8	76.5	63.3	63.3	61.6	45.9	46.4	46.6
11.8	9.7	10.2	4.0	3.2	2.5	3.0	2.1	4.9	7.5	6.9	6.7
7.70	7.72	7.72	3.85	3.84	3.84	1.94	1.94	1.94	16.05	16.09	16.11
45.5	45.1	44.7	35.5	36.5	37.6	50.4	51.3	52.1	54.4	53.3	52.3
0.09	0.10	0.11	0.05	0.05	0.05	0.00	0.00	0.00	0.44	0.43	0.44
253	253	253	256	257	257	255	255	255	207	207	206
247	247	246	242	239	240	237	241	241	212	212	211
	247			240			240			212	
25.1	25.1	25.1	25.2	25.2	25.2	25.2	25.2	25.2	25.5	25.5	25.6
97.11	96.82	96.77	98.67	97.13	97.63	94.29	98.40	98.55	96.52	96.42	97.00
96.41	96.75	97.84	99.08	98.12	98.33	95.48	98.83	98.87	98.03	98.12	98.57
96.90	96.58	96.53	98.47	96.71	97.27	92.69	97.93	98.12	96.37	96.26	96.87
	96.67			97.48			96.24			96.50	
	0.56						2.09			0.39	
96.14	96.51	97.68	98.94	97.83	98.08	94.12	98.48	98.53	97.95	98.04	98.50
	96.78			98.28			97.04			98.16	
	1.21			1.01			1.92			1.32	

GB17A			GB17B			GB18A			GB18B		
Sonic			Sonic			Sonic			Sonic		
ON			ON			ON			ON		
0	0	0	0	0	0	0	0	0	0	0	0
234	234	233	904	901	900	1485	1482	1482	366	366	366
810	810	808	0	0	0	0	0	0	0	0	0
0	0	0	3162	3161	3160	7222	7233	7238	1758	1752	1751
0	0	0	0	0	0	0	0	0	0	0	0
1044	1043	1042	4065	4062	4061	8707	8715	8720	2124	2118	2117
35.0	35.3	36.0	29.1	29.6	30.1	45.9	46.0	45.9	48.8	48.9	49.0
14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.4	14.4	14.4
68.3	67.3	66.1	80.4	80.0	80.0	47.3	47.4	47.8	37.5	37.1	37.2
3.4	3.8	3.3	4.1	3.6	3.4	5.2	3.5	3.3	11.7	13.3	11.9
1.92	1.92	1.92	7.48	7.47	7.47	16.02	16.03	16.04	3.91	3.90	3.89
45.8	46.7	47.6	31.7	32.4	33.1	50.7	50.2	49.7	57.2	57.3	57.5
0.01	0.01	0.00	0.13	0.12	0.12	0.45	0.45	0.45	0.01	0.01	0.01
211	211	210	209	209	208	160	160	160	162	163	163
202	201	201	213	212	211	160	156	156	170	170	170
	201			212			157			170	
25.6	25.6	25.6	25.5	25.5	25.5	26.2	26.2	26.2	26.0	26.0	26.0
90.04	88.19	85.83	96.60	97.06	96.37	85.43	89.62	94.43	83.57	86.68	83.25
91.42	89.04	87.16	97.89	98.23	97.44	90.78	93.79	97.06	84.81	87.59	84.63
86.82	84.47	81.52	96.28	96.79	96.03	84.71	89.07	94.12	80.43	84.02	80.06
	84.27			96.37			89.30			81.50	
	2.64			1.04			5.31			2.74	
88.26	84.98	82.40	97.70	98.06	97.19	90.25	93.44	96.89	81.23	84.67	81.01
	85.21			97.65			93.53			82.30	
	5.14			1.19			5.06			8.31	

GB2R1			GB4R1			GB8R1			GB8R2		
Sonic			Sonic			Sonic			Sonic		
ON			ON			ON			ON		
0	0	0	5548	5549	5556	0	0	0	0	0	0
1052	1051	1049	0	0	0	1393	1395	1396	1389	1389	1387
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	3067	3065	3063	2853	2865	2860	2805	2821	2813
0	0	0	0	0	0	0	0	0	0	0	0
1052	1051	1049	8615	8614	8619	4245	4260	4256	4194	4210	4200
40.5	41.5	41.0	32.0	32.1	32.4	33.2	33.2	33.8	34.7	34.6	34.5
14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
36.8	35.9	36.1	50.5	49.6	51.6	50.3	49.4	48.6	46.2	44.6	42.3
0.5	0.7	1.4	3.7	3.5	2.3	2.8	1.1	0.0	1.0	2.3	0.7
1.93	1.93	1.93	15.85	15.85	15.86	7.81	7.84	7.83	7.72	7.74	7.73
53.3	54.5	55.4	34.5	34.7	34.9	37.8	37.9	37.8	39.9	41.0	41.5
-0.05	-0.05	-0.05	0.34	0.34	0.34	0.11	0.11	0.12	0.11	0.11	0.11
940	940	940	606	606	606	308	308	309	311	310	311
931	933	933	572	573	572	291	291	291	293	293	293
	932			572			291			293	
17.0	17.0	17.0	21.3	21.3	21.3	24.6	24.6	24.6	24.6	24.6	24.6
99.89	99.93	99.91	99.81	99.90	99.81	99.61	99.77	99.76	99.68	99.75	99.80
99.91	99.93	99.92	99.88	99.92	99.84	99.84	99.86	99.90	99.88	99.92	99.90
99.89	99.92	99.90	99.81	99.89	99.80	99.58	99.75	99.75	99.66	99.73	99.78
	99.90			99.84			99.69			99.73	
	0.03			0.06			0.09			0.07	
99.90	99.92	99.92	99.87	99.92	99.84	99.83	99.85	99.89	99.87	99.92	99.89
	99.91			99.88			99.86			99.89	
	0.03			0.05			0.06			0.05	

GB8R3			GB9R1			GB15AR1			GB15AR2		
Sonic			Sonic			Sonic			Sonic		
ON			ON			ON			ON		
0	0	0	0	0	0	0	0	0	0	0	0
1382	1382	1382	114	114	114	572	572	570	563	562	562
0	0	0	239	238	239	1534	1536	1536	1532	1530	1530
2829	2828	2829	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
4211	4210	4210	353	353	352	2106	2108	2106	2095	2091	2092
38.4	38.5	38.6	32.7	32.8	32.7	33.4	33.5	33.8	37.4	38.1	37.6
14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
40.1	40.3	40.4	49.2	49.7	50.0	47.9	47.8	47.2	40.6	40.1	41.1
0.3	1.1	1.2	4.3	4.0	4.3	2.6	2.2	0.9	1.9	2.6	4.4
7.75	7.74	7.75	0.65	0.65	0.65	3.87	3.88	3.87	3.85	3.85	3.85
47.7	47.4	47.1	36.8	36.8	36.9	37.7	37.7	38.0	47.1	48.6	48.2
0.10	0.10	0.10	0.01	0.01	0.01	0.04	0.04	0.04	0.02	0.02	0.02
309	309	309	304	305	304	255	255	254	253	253	252
296	296	296	302	307	308	248	249	249	247	247	247
	296			306			249			247	
24.5	24.5	24.5	24.5	24.4	24.4	25.1	25.1	25.1	25.1	25.1	25.1
99.87	99.87	99.79	99.51	99.57	99.65	97.04	97.09	97.30	98.55	90.86	96.98
99.90	99.91	99.84	99.54	99.65	99.71	98.57	98.64	98.54	99.31	94.21	98.31
99.86	99.86	99.78	99.15	99.24	99.38	96.60	96.66	96.90	98.33	89.60	96.53
	99.83			99.26			96.72			94.82	
	0.06			0.09			0.69			3.68	
99.90	99.90	99.84	99.20	99.39	99.49	98.36	98.44	98.32	99.21	93.32	98.05
	99.88			99.36			98.37			96.86	
	0.05			0.21			0.69			2.78	

GB15AR3			GB17AR1			GB18AR1			GB18BR1		
Sonic			Sonic			Sonic			Sonic		
ON			ON			ON			ON		
0	0	0	0	0	0	0	0	0	0	0	0
578	577	575	238	238	239	1499	1494	1496	362	363	364
1544	1537	1526	814	815	816	0	0	0	0	0	0
0	0	0	0	0	0	7173	7170	7167	1709	1717	1715
0	0	0	0	0	0	0	0	0	0	0	0
2122	2114	2102	1052	1053	1054	8672	8664	8663	2071	2080	2079
38.7	39.3	40.1	32.4	32.6	32.4	41.1	41.1	41.5	42.9	43.6	43.4
14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
38.8	38.0	37.0	51.1	52.2	50.5	36.3	36.5	36.1	33.8	33.1	32.9
1.9	0.5	0.3	3.9	3.1	3.2	1.8	3.8	4.0	2.9	4.9	7.3
3.90	3.89	3.87	1.94	1.94	1.94	15.95	15.94	15.94	3.81	3.83	3.83
47.1	48.0	49.0	36.6	36.9	37.0	54.4	54.8	54.6	55.4	56.1	55.4
0.02	0.02	0.02	0.02	0.02	0.02	0.46	0.46	0.46	0.01	0.01	0.01
256	257	257	213	213	213	163	162	162	164	164	165
247	246	247	223	224	224	158	158	158	169	169	170
	247			223			158			169	
25.1	25.1	25.1	25.4	25.4	25.4	26.2	26.2	26.2	26.0	26.0	26.0
98.22	97.89	98.03	89.38	84.82	95.73	88.15	82.13	91.80	77.04	42.41	43.81
99.14	98.77	98.89	92.19	87.86	97.04	93.98	91.00	96.19	83.67	42.20	43.10
97.96	97.58	97.74	86.04	80.36	94.26	87.55	81.28	91.37	73.01	37.27	38.62
	97.76			86.89			86.73			49.63	
	0.47			4.89			7.06			17.38	
99.02	98.58	98.73	89.36	83.46	95.97	93.65	90.49	95.97	79.78	28.50	29.63
	98.77			89.60			93.37			45.97	
	0.48			5.27			7.03			27.62	



B5	B5	B5	B6	B6	B6	B7	B7	B7	B8	B8	B8
Sonic			Sonic			Sonic			Sonic		
ON			ON			ON			ON		
0	0	0	0	0	0	0	0	0	0	0	0
1251	1250	1247	523	522	520	107	91	67	2188	2187	2188
0	0	0	531	531	531	198	166	118	0	0	0
2932	2930	2929	0	0	0	0	0	0	6522	6521	6516
4183	4179	4176	1054	1054	1051	305	257	185	8710	8708	8704
43.1	43.4	43.7	46.9	46.8	47.0	47.6	47.8	48.1	44.2	44.5	44.7
14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
45.1	44.8	44.4	40.5	40.2	40.0	39.0	38.7	38.5	43.6	43.5	43.2
10.05	10.47	10.69	10.41	12.37	11.80	14.38	12.27	11.32	10.95	10.35	9.68
7.70	7.69	7.68	1.94	1.94	1.93	0.56	0.47	0.34	16.02	16.02	16.01
45.5	46.2	46.9	53.8	54.2	54.3	54.8	55.0	54.9	47.7	48.1	48.6
0.10	0.10	0.10	-0.01	-0.02	-0.02	-0.04	-0.03	-0.03	0.45	0.44	0.44
281	281	281	466	466	465	330	331	339	236	236	236
266	265	265	350	350	349	187	186	182	238	238	238
	265			350			185			238	
24.8	24.8	24.9	23.8	23.9	23.9	25.8	25.8	25.8	25.2	25.2	25.2
97.97	97.07	97.68	98.81	98.77	98.13	88.65	94.25	88.76	97.11	97.51	98.11
98.93	98.42	98.74	99.09	99.13	98.68	85.31	92.00	80.31	98.57	98.83	99.26
97.84	96.87	97.52	98.62	98.57	97.82	81.16	89.32	77.40	97.00	97.42	98.03
	1.15			0.33			4.96			1.33	
98.86	98.31	98.65	98.94	98.99	98.46	73.40	84.34	54.72	98.52	98.79	99.23
	98.61			98.80			70.82			98.85	
	0.48			0.4			5.57			0.5	

<b>Test information</b>									
Test ID	HD0			HD1			HD2		
Flare design	Hydra			Hydra			Hydra		
Pilot Status	ON			ON			ON		
<b>Process Flows</b>									
L1 TNG Flow Rate (SCFH)	43667	43516	43445	8713	8727	8738	0	0	0
L4 TNG Flow Rate (SCFH)	0	0	0	0	0	0	1050	1051	1050
L3 N <sub>2</sub> Flow Rate (SCFH)	0	0	0	0	0	0	0	0	0
L2 N <sub>2</sub> Flow Rate (SCFH)	0	0	0	0	0	0	0	0	0
Propylene (SCFH)	0	0	0	0	0	0	0	0	0
Total Flow Rate (SCFH)	43667	43516	43445	8713	8727	8738	1050	1051	1050
<b>Meteorological Data</b>									
Ambient Temperature (°F)	20.6	20.8	20.8	21.1	21.1	21.3	21.4	21.4	21.6
Barometric Pressure (psia)	14.5	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.5
Relative Humidity (%)	61.1	61.3	60.6	60.8	60.3	60.3	59.3	58.5	58.1
Wind Speed (mph)	12.1	10.4	11.7	8.8	10.2	9.9	9.6	10.2	11.2
<b>Other Process Data</b>									
Vent Gas Discharge Velocity (ft/s)	80.87	80.58	80.45	16.14	16.16	16.18	1.94	1.95	1.94
Vent Gas Temperature (°F)	25.5	27.5	29.1	28.7	27.8	27.2	26.3	25.9	25.7
Vent Gas Pressure at Burner Inlet (inches H <sub>2</sub> O)	8.01	7.98	7.98	0.33	0.33	0.33	0.01	0.02	0.01
Vent Gas Heating Value per Fuel Flows (Btu/scf)	940	940	940	940	940	940	940	940	940
Vent Gas Heating Value from FTIR (Btu/scf)	923	922	924	904	904	905	774	770	770
Average gas heating value FTIR (Btu/scf)		923			904			771	
Vent Gas Molecular Weight from FTIR (g/mol)	16.9	17.0	16.9	17.2	17.2	17.3	18.8	18.9	18.9
Combustion Efficiency CE (%)	99.77	99.79	99.82	99.78	99.79	99.82	99.60	99.54	99.13
Destruction Efficiency (%)	99.86	99.88	99.90	99.87	99.86	99.90	99.80	99.80	99.50
<b>Results Corrected for Pilot flame</b>									
CE% Pilot Adjusted	99.77	99.79	99.82	99.78	99.78	99.82	99.56	99.50	99.06
CE% pilot adjusted (mean average)		99.79			99.79			99.38	
Uncertainty(%) (k=1) 1σ		0.14			0.06			0.32	
DRE% Pilot Adjusted	99.86	99.88	99.90	99.87	99.86	99.90	99.79	99.78	99.46
DRE% Pilot Adjusted (mean average)		99.88			99.88			99.68	
Uncertainty(%) (k=1) 1σ		0.13			0.06			0.25	

HD3A			HD4			HD6A			HD7		
Hydra			Hydra			Hydra			Hydra		
ON			ON			ON			ON		
0	0	0	5692	5697	5698	0	0	0	0	0	0
2096	2098	2098	0	0	0	1372	1373	1372	2906	2919	2928
0	0	0	0	0	0	739	738	738	0	0	0
0	0	0	3143	3150	3150	0	0	0	5853	5857	5855
0	0	0	0	0	0	0	0	0	0	0	0
2096	2098	2098	8835	8847	8847	2111	2111	2110	8759	8776	8783
21.9	21.7	21.7	22.0	22.0	22.1	25.0	25.1	25.3	22.5	22.6	22.7
14.6	14.6	14.6	14.5	14.5	14.5	14.6	14.6	14.6	14.5	14.5	14.5
57.6	56.8	56.2	57.5	57.0	56.8	57.1	54.7	55.9	57.7	57.2	56.1
7.0	8.7	7.8	9.3	9.0	10.5	2.6	1.9	3.2	10.0	9.5	10.5
3.88	3.89	3.89	16.36	16.38	16.38	3.91	3.91	3.91	16.22	16.25	16.26
25.3	25.5	25.6	25.2	25.0	25.0	28.5	28.8	29.2	25.0	24.8	24.8
0.03	0.03	0.03	0.41	0.41	0.42	0.03	0.03	0.03	0.48	0.49	0.49
940	940	940	606	605	606	611	612	611	312	313	313
828	828	828	567	567	567	520	568	571	294	294	295
	828			567			553			294	
18.1	18.0	18.0	21.3	21.3	21.3	21.8	21.2	21.2	24.5	24.5	24.5
99.86	99.84	99.79	99.69	99.64	99.79	99.87	99.84	99.89	98.27	97.64	98.20
99.91	99.92	99.90	99.86	99.84	99.91	99.87	99.86	99.90	99.07	98.72	99.05
99.86	99.84	99.79	99.68	99.63	99.79	99.86	99.83	99.88	98.22	97.58	98.14
	99.83			99.70			99.86			97.98	
	0.27			0.1			0.23			0.41	
99.90	99.92	99.90	99.86	99.83	99.90	99.87	99.85	99.89	99.04	98.68	99.02
	99.91			99.87			99.87			98.92	
	0.22			0.07			0.23			0.30	

HD9A			HD10			HD12B			HD13		
Hydra			Hydra			Hydra			Hydra		
ON			ON			ON			ON		
0	0	0	0	0	0	0	0	0	0	0	0
717	717	717	2529	2525	2529	1220	1222	1222	2345	2339	2339
1418	1419	1420	0	0	0	0	0	0	0	0	0
0	0	0	6186	6184	6187	2971	2968	2970	6362	6361	6366
0	0	0	0	0	0	0	0	0	0	0	0
2134	2136	2138	8715	8709	8716	4192	4190	4192	8707	8700	8705
21.6	21.4	21.2	22.8	23.0	23.1	21.3	21.1	20.9	23.2	23.2	23.3
14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6
55.7	55.7	55.6	55.5	56.1	56.3	61.3	62.6	65.5	55.2	54.8	55.3
8.0	6.9	8.5	10.6	7.4	9.2	8.1	7.0	6.7	10.6	11.2	8.9
3.95	3.96	3.96	16.14	16.13	16.14	7.76	7.76	7.76	16.12	16.11	16.12
25.7	25.3	25.0	24.7	24.8	24.8	25.2	25.0	25.0	24.9	25.0	25.1
0.08	0.08	0.08	0.49	0.49	0.49	0.14	0.14	0.14	0.50	0.50	0.50
316	316	316	273	273	273	274	274	274	253	253	253
263	263	263	259	258	258	259	259	259	247	247	247
	263			258			259			247	
24.9	24.9	24.9	24.9	24.9	24.9	24.9	24.9	24.9	25.1	25.1	25.1
95.63	92.07	97.19	96.50	97.10	95.32	95.42	94.81	97.09	96.02	91.83	94.74
96.92	94.16	98.25	98.01	98.41	97.39	97.08	96.56	98.25	97.98	94.91	96.85
95.12	91.19	96.86	96.38	97.01	95.17	95.11	94.46	96.89	95.87	91.55	94.56
	94.39			96.19			95.48			93.99	
	2.38			1.29			1.19			1.85	
96.56	93.46	98.04	97.94	98.36	97.31	96.88	96.33	98.13	97.90	94.73	96.74
	96.02			97.87			97.11			96.46	
	2.05			1.04			0.98			1.38	

HD15A			HD16			HD18A			HD18B		
Hydra			Hydra			Hydra			Hydra		
ON			ON			ON			ON		
0	0	0	0	0	0	0	0	0	0	0	0
1135	1134	1134	1934	1938	1939	1743	1744	1743	936	936	935
0	0	0	0	0	0	0	0	0	0	0	0
3028	3028	3030	6780	6786	6781	6970	6968	6969	3268	3269	3270
0	0	0	0	0	0	0	0	0	0	0	0
4162	4162	4164	8714	8724	8719	8713	8713	8712	4203	4205	4205
23.1	22.9	23.0	20.8	20.9	20.9	20.9	20.8	20.9	23.2	23.3	23.6
14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6
53.2	52.3	52.8	57.6	57.6	57.5	57.5	57.1	57.5	51.8	52.1	52.1
5.3	5.5	2.0	9.6	10.2	11.7	9.1	9.0	8.5	6.0	4.9	5.5
7.71	7.71	7.71	16.14	16.16	16.15	16.14	16.13	16.13	7.78	7.79	7.79
27.0	27.0	27.0	23.1	23.2	23.2	23.1	23.1	23.1	27.4	27.3	27.6
0.14	0.14	0.14	0.51	0.51	0.51	0.51	0.50	0.51	0.15	0.15	0.15
256	256	256	209	209	209	188	188	188	209	209	209
250	250	249	210	210	210	191	191	191	210	210	210
	250			210			191			210	
25.0	25.0	25.0	25.5	25.5	25.5	25.7	25.7	25.7	25.5	25.5	25.5
93.51	93.44	92.31	58.56	65.92	51.22	83.32	81.91	59.63	75.53	90.14	82.89
96.05	96.16	94.64	65.43	73.87	53.02	93.86	85.48	65.75	81.01	93.87	87.90
93.04	92.97	91.76	57.49	64.92	50.12	82.64	81.18	58.45	73.85	89.32	81.59
	92.59			57.51			74.09			81.59	
	0.76			6.03			11.0			6.0	
95.75	95.87	94.24	63.94	72.75	51.00	93.56	84.79	64.11	79.28	93.31	86.80
	95.29			62.56			80.82			86.47	
	0.85			8.58			11.95			5.29	

B9			B10		
Hydra			Hydra		
ON			ON		
4260	4244	4260	0	0	0
0	0	0	2048	2047	2047
0	0	0	0	0	0
3994	3988	3992	5902	5902	5904
8254	8232	8252	7950	7949	7951
22.4	22.4	22.5	21.9	21.9	22.1
14.6	14.6	14.6	14.6	14.6	14.6
54.8	53.3	52.7	58.1	56.5	56.0
6.46	5.87	6.13	7.51	7.95	6.15
15.29	15.24	15.28	14.72	14.72	14.72
26.0	26.1	26.3	26.0	25.8	25.8
0.39	0.39	0.39	0.41	0.42	0.41
485	485	485	242	242	242
449	449	449	243	243	243
	449			243	
22.7	22.7	22.7	25.1	25.1	25.1
99.90	99.85	99.88	96.22	94.82	97.02
99.94	99.93	99.92	98.11	97.20	98.58
99.90	99.84	99.88	96.07	94.61	96.89
	0.04			1.79	
99.94	99.92	99.92	98.03	97.09	98.52
	99.93			97.88	
	0.04			0.89	

Test information									
Test ID	PP1			PP2			PP4		
Flare design	Utility with propylene			Utility with propylene			Utility with propylene		
Pilot Status	ON			ON			ON		
Process Flows									
L1 TNG Flow Rate (SCFH)	0	0	0	0	0	0	0	0	0
L4 TNG Flow Rate (SCFH)	1308	1307	1321	161	160	160	1725	1725	1724
L3 N <sub>2</sub> Flow Rate (SCFH)	6956	6959	6958	881	880	878	6535	6538	6527
L2 N <sub>2</sub> Flow Rate (SCFH)	0	0	0	0	0	0	0	0	0
Propylene (SCFH)	436	431	426	51	47	55	429	426	424
Total Flow Rate (SCFH)	8700	8697	8704	1093	1087	1093	8689	8689	8676
Meteorological Data									
Ambient Temperature (°F)	24.0	24.3	24.4	30.0	30.1	30.6	24.6	24.9	25.3
Barometric Pressure (psia)	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
Relative Humidity (%)	58.1	57.3	56.7	45.6	45.7	45.1	56.4	55.8	54.2
Wind Speed (mph)	3.77	4.15	4.70	3.10	2.00	1.79	4.75	4.09	4.64
Other Process Data									
Vent Gas Discharge Velocity (ft/s)	16.00	16.00	16.01	2.01	2.00	2.01	15.98	15.98	15.96
Vent Gas Temperature (°F)	29.4	29.7	30.2	45.4	45.9	46.5	31.4	32.1	32.7
Vent Gas Pressure at Burner Inlet (inches H <sub>2</sub> O)	0.49	0.49	0.49	0.02	0.01	0.02	0.47	0.47	0.47
Vent Gas Heating Value per Fuel Flows (Btu/scf)	251	250	249	241	233	247	294	294	294
Vent Gas Heating Value from FTIR (Btu/scf)	610	647	623	629	611	137	186	185	186
Average gas heating value FTIR (Btu/scf)		626			459			186	
Vent Gas Molecular Weight from FTIR (g/mol)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Combustion Efficiency CE (%)	98.11	99.16	98.65	83.90	91.67	92.81	99.15	99.41	99.55
Destruction Efficiency (%)	98.54	99.57	99.33	83.57	92.79	93.42	99.28	99.68	99.70
Results Corrected for Pilot flame									
CE% Pilot Adjusted	98.01	99.11	98.58	78.71	88.57	90.18	99.12	99.39	99.53
CE% pilot adjusted (mean average)		98.57			85.82			99.35	
Uncertainty (%) (k=1) 1σ		0.5			4.2			0.2	
DRE% Pilot Adjusted	98.47	99.55	99.29	76.87	89.77	90.77	99.26	99.67	99.69
DRE% Pilot Adjusted (mean average)		99.10			85.80			99.54	
Uncertainty (%) (k=1) 1σ		0.58			7.39			0.3	

PP5			PP7			PP8		
Utility with propylene			Utility with propylene			Utility with propylene		
ON			ON			ON		
0	0	0	0	0	0	0	0	0
210	211	211	866	864	864	102	101	101
788	790	792	7332	7345	7337	853	854	852
0	0	0	0	0	0	0	0	0
52	52	51	426	422	418	51	51	50
1049	1053	1054	8624	8631	8619	1006	1006	1004
32.3	32.0	32.1	25.8	26.1	26.7	32.5	33.5	34.2
14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
43.2	44.0	43.4	53.6	52.8	52.2	42.7	42.3	42.1
3.13	1.97	3.56	4.09	3.13	3.98	0.74	0.92	2.34
1.93	1.94	1.94	15.86	15.88	15.86	1.85	1.85	1.85
46.6	46.5	46.2	34.0	34.6	35.1	47.1	48.1	48.5
0.01	0.01	0.01	0.48	0.49	0.48	0.03	0.03	0.03
296	295	294	202	201	200	205	205	204
194	194	195	120	119	116	128	127	127
	194			118			128	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
98.98	98.61	98.40	97.55	97.21	96.53	92.36	83.71	89.11
99.47	99.20	99.02	98.64	98.16	97.65	93.43	83.96	90.50
98.65	98.16	97.88	97.38	97.03	96.31	88.50	76.57	83.86
	98.23			96.91			82.98	
	0.33			0.74			3.9	
99.30	98.94	98.69	98.56	98.03	97.49	89.70	74.82	85.08
	98.98			98.03			83.20	
	0.45			1.42			7.76	