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FLAMMABLE GAS INTERLOCK SPOOLPIECE FLOW RESPONSE TEST REPORT

TC Schneider

Numatec Hanford Corporation, Richland, WA 99352

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Abstract: The purpose of this test report is to document the testing of the Whittaker electrochemical cell and the Sierra Monitor Corp. flammable gas monitors in a simulated field flow configuration. The sensors are used on the Rotary Mode Core Sampling (RMCS) Flammable Gas Interlock (FGI), to detect flammable gases, including hydrogen and terminate the core sampling activity at a predetermined concentration level.

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Release Approval

Date

Approved for Public Release

FLAMMABLE GAS INTERLOCK SPOOLPIECE FLOW RESPONSE

TEST REPORT

REV. 0

APPROVAL DESIGNATOR SQ

T.C. Schneider

Characterization Equipment Engineering Projects
Numatec Hanford Corporation, Richland, Wa 99352
U.S. Department of Energy Contract DE-AC06-96RL13200
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1.0 INTRODUCTION

The purpose of this test report is to document the testing performed under the guidance of HNF-SD-WM-TC-073, *Flammable Gas Interlock Spoolpiece Flow Response Test Plan and Procedure*. This testing was performed for Lockheed Martin Hanford Characterization Projects Operations (CPO) in support of Rotary Mode Core Sampling jointly by SGN Eurisys Services Corporation and Numatec Hanford Company. The testing was conducted in the 305 building Engineering Testing Laboratory (ETL). NHC provides the engineering and technical support for the 305 ETL. The key personnel identified for the performance of this task are as follows:

- Test responsible engineering manager: C. E. Hanson
- Flammable Gas Interlock Design Authority: G. P. Janicek
- 305 ETL responsible manager: M. J. Schliebe
- Cognizant RMCS exhaustor engineer: E. J. Waldo/J. D. Robinson
- Cognizant 305 ETL engineer: K. S. Witwer
- Test Director: T. C. Schneider

Other support personnel were supplied, as necessary, from 305/306 ETL.

The testing, on the flammable Gas Interlock (FGI) system spoolpiece required to support Rotary Mode Core Sampling (RMCS) of single shell flammable gas watch list tanks, took place between 2-13-97 and 2-25-97.

2.0 DESCRIPTION OF TEST

The primary purpose of the test was to evaluate the sensor gas delivery characteristics of the mechanical spoolpiece system by determining typical sensor response times as installed in their deployed configuration. The main components of the test setup included metallic and flexible conductive ducting, a blower and flow control valve capable of providing the required duct flow, an accurate flow measuring system, an accurate hydrogen injection gas system, a mechanically equivalent FGI spoolpiece with sensors, a gas chromatograph (GC) system to validate the duct gas concentrations, a data logger and associated process temperature and pressure instruments. The piping and instrumentation diagrams (P&ID) of figures 1 and 2 depict the initial and alternate test hardware configurations. A listing of the measurement and test equipment used and pertinent calibration records are included in Appendix A.

The test required a simulated exhauster flow between 180 and 220 SCFM be provided through the spoolpiece. The initial test set utilized the blower pushing the air through the spoolpiece. This allowed for the hydrogen gas to be mixed very conservatively since there were no spark sources downstream of the injection point. Once confidence was gained in the safe mixing of the hydrogen gas, a blower, qualified to transport flammable gas concentrations, was installed downstream of the sensors. This location provided a more prototypic field configuration by pulling the duct gas through the spoolpiece. The sensor outputs were required to reach 90% of their final output value in less than 120 seconds when subjected to an instantaneous mixed gas concentration. The final output value is defined as the sensor output after 15 minutes. Hydrogen gas was accurately metered and injected into the main duct 14 feet upstream of the sensors to provide a well mixed range of supplied gas concentrations. The equipment was operated in a laboratory environment with the nominal ambient temperatures between 65 and 75°F. The FGI spoolpiece tested used two diverse detection sensors, a Whittaker electrochemical cell (WEC) and a Sierra Monitor Corporation (SMC) catalytic bead combustible gas cell.

ALTERNATE CONFIGURATION
FIGURE 2

The testing was documented using both manual means and automatic data logging utilizing electronic media. The sequences of the test were recorded in a laboratory notebook, HNF-N-3-1, *Testing and System Development Notes for 305 Engineering Testing Laboratory*, Hanford Nuclear Facility and included in Appendix E. The data for the tests were recorded manually on individual data sheets, included in Appendix C and automatically by the data logger and GC. The data logger and GC data file printouts are also included in Appendix C.

3.0 TEST RESULTS

3.1 SUMMARY

The test plan and procedure, HNF-SD-WM-TC-073, allowed for flexibility in the test configuration and performance. The test report, TABLE 1 CONSOLIDATED TEST RESULTS, is used to present results from a combination of manually and automatically recorded data. The data was processed using Microsoft® Excel Version 5.0. (Microsoft is a registered trademark of the Microsoft Corporation in the United States and other countries.) The consolidated test data supports the test plan FGI FLOW TEST MATRIX and test exception (TE) resolution testing. The GC and process data recorded on the data sheets were single points, nominally six minutes into the sample run, not averaged from the data files. Post testing evaluation of the data files indicates that only a slightly more precise instrument accuracy analysis could be obtained from averaging the measured concentrations. Since the data logger sample rate was selected to be 5 seconds, the instrument response times will be presented as the next 5 second interval following the achievement of 90% of the sensor final value. The mixed gas transport time from the injection point to the sensors was calculated to be between 2 and 3 seconds for all tests. That response time is within the data collection interval, will not be included on TABLE 1 and will be disregarded for system response time evaluation.

The test plan and procedure Table 1, FGI FLOW TEST MATRIX, required that a gas concentration mixture of 200-300ppm hydrogen be used for the first set of tests (ID. 1-1 through 1-3). The SMC sensor is not sensitive enough to accurately detect the low hydrogen concentrations and did not achieve a final value near the measured duct concentration. Although the WEC was able to accurately measure the low hydrogen concentration, the cell output indicated a very poor response time of nominally 460 seconds to 90% of the final value. A single test (ID. 2-4) was performed at a concentration of nominally 4,000ppm to confirm the response times measured with the nominal 200ppm duct gas. The WEC cell 4,000ppm response time of 440 seconds was consistent with the lower concentration response times. TE 1 was prepared to document the poor sensor response times.

**TABLE 1
CONSOLIDATED TEST RESULTS**

TEST / DATA FILE ID	FLOW SCFM	H ₂ PPM CONCENTRATION MEAS. CALC.		90% RESPONSE SEC. SMC WEC		2 MIN. PPM VALUE SMC WEC		14.5 MIN. PPM VALUE SMC WEC		15 MIN. PPM VALUE SMC WEC (ACCURACY TO MEAS. VALUE)	
1-1/FGI21311	197.8	237.8	232.4	25	400	80.2	100.3	79.3	240.4	79.7 (-66%)	240.4 (+1%)
1-2/FGI21312	198.5	236	232	25	460	88.3	90.2	84.1	240.4	84.4 (-64%)	240.4 (+2%)
1-3/FGI21313	199.0	235	229	30	470	86.1	80.2	86.9	230.3	87.8 (-63%)	230.4 (-2%)
2-4/FGI21324	198.7	4054	3707	30	440	3228	1733	3958	4226	3963 (-2%)	4226 (+4%)
EX1-1/EX102137	199.2	4040	3656	N/A	240	N/A	2834	N/A	4425	N/A	4426 (+9%)
EX1-2/EX202137	198.7	4100	3656	25	75	4007	4255	3968	4406	3961 (-3%)	4386 (+7%)
EX1-3/EX102147	197.8	4150	3722	35	65	4026	4095	4078	4306	4082 (-2%)	4306 (+4%)
1-1/FGI22211	200.4	219	207.6	25	85	59.2	211.4	57.9	221	57.3 (-74%)	221.4 (+1%)
1-2/FGI22212	200.9	218	206.4	25	110	54	211.3	53	231.4	52.5 (-76%)	230 (+5%)

**TABLE 1
CONSOLIDATED TEST RESULTS**

TEST / DATA FILE ID	FLOW SCFM	H ₂ PPM CONCENTRATION MEAS. CALC.		90% RESPONSE SEC. SMC WEC		2 MIN. PPM VALUE SMC WEC		14.5 MIN. PPM VALUE SMC WEC		15 MIN. PPM VALUE SMC WEC (ACCURACY TO MEAS. VALUE)	
1-3/FGI22213	201.1	217	204.3	25	70	48	211.3	47.4	218	48 (-78%)	210.6 (-3%)
2-1/FGI22221	204.0	2029	1918	25	80	1893	2012	1878	2093	1885 (-7%)	2093 (+3%)
2-2/FGI22222	199.6	2170	2055	30	80	2006	2173	2023	2274	2030 (-6%)	2274 (+5%)
2-3/FGI22223	200.1	2159	2031	30	90	1973	2142	1988	2263	1999 (-7%)	2264 (+5%)
2-4/FGI22224	199.6	4355	4182	30	90	4240	4335	4324	4606	4335 (-.5%)	4605 (+6%)
2-5/FGI22225	200.1	4373	4169	30	90	4252	4345	4324	4636	4348 (-.6%)	4636 (+6%)
2-6/FGI22226	199.6	4377	4138	25	90	4267	4365	4287	4655	4304 (-2%)	4656 (+6%)
2-7/FGI22227	199.6	6432	6235	30	95	6373	6466	6477	6918	6485 (-.8%)	6928 (+8%)
2-8/FGI22228	199.2	6665	6269	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**TABLE 1
CONSOLIDATED TEST RESULTS**

TEST / DATA FILE ID	FLOW SCFH	H ₂ PPM CONCENTRATION MEAS. CALC.		90% RESPONSE SEC. SMC MEC		2 MIN. PPM VALUE SMC MEC		14.5 MIN. PPM VALUE SMC MEC		15 MIN. PPM VALUE SMC MEC (ACCURACY TO MEAS. VALUE)	
2-8A/FG22228A	200.2	6523	6279	30	95	6437	6566	6534	7068	6547 (+4%)	7069 (+8%)
2-9/FGI22229	199.3	6480	6289	30	90	6388	6586	6438	7008	6475 (0%)	7008 (+8%)
EX3-1/EX102227	180.8	4348	4149	35	95	4012	4475	4041	4776	4072 (-6%)	4776 (+10%)
EX3-2/EX202227	180.9	4340	4135	30	90	4013	4485	4026	4766	4030 (-7%)	4766 (+10%)
EX3-3/EX302227	180.7	4330	4122	30	90	3973	4465	4049	4756	4026 (-7%)	4766 (+10%)
EX4-1/EX102257	198.97	3800	3696	25	85	3667	3745	3706	3976	3707 (-2%)	3976 (+5%)
EX4-2/EX202257	199.98	4217	4094	25	85	4067	4195	4120	4436	4137 (-2%)	4436 (+5%)
EX4-3/EX302257	199.0	4210	4120	25	85	4054	4236	4135	4466	4128 (-2%)	4466 (+6%)
EX4-4/EX402257	200.3	4210	4105	25	85	4046	4225	4127	4486	4136 (-2%)	4486 (+6%)

Following the spoolpiece modification, required by the resolution to TE 1, the original test system configuration of Figure 1 was changed to the alternate system configuration of Figure 2. This allowed a more prototypic field condition to be met by drawing the duct gases through the spoolpiece and having the system under negative pressures. The test duct pressures (-3.5 to -4.5 "H₂O) are slightly more negative than the field operating pressures (-1 to -2 "H₂O), but will not affect the test outcome.

While performing the initial calibration of the instruments with the alternate configuration, it was noted that the SMC flowmeter was at full scale with 200 SCFM of duct flow. The flow was reduced to 190 SCFM to allow the sensor flow to be duplicated during the SMC calibration procedure. The actual duct flow was then set to 200 SCFM for the next series of tests (ID. 1-1 through 2-9). As can be seen from the consolidated test data Table 1, the flow difference between 190 and 200 SCFM did not make a significant difference in the SMC sensor final output signal. However, when the flow was reduced to 180 SCFM to support TE-3 testing, the SMC read between 3 and 5% lower than the readings obtained at 200 SCFM. This error is still within the acceptable range for the instrument.

It should be noted that the WEC and signal conditioning calibration span was established only at the beginning of the testing, due to the limited amount of selected calibration gas. Subsequent adjustments to the WEC signal conditioning only involved zero offset, which proved to be adequate.

The testing was successfully completed with the resolutions of TE 2 through TE 4, which are discussed in the following Section 3.2.

3.2 TEST EXCEPTIONS

- 3.2.1 TE 1 was prepared to document the poor WEC response times. The proposed TE resolution involved providing continual duct gas flow through the WEC measurement chamber to enhance the response time.

The initial test misinterpreted the location of the WEC cell relative to the spoolpiece baffle. The SMC high pressure port was routed to the WEC calibration port as a high pressure point to drive the gas through the chamber. Since there was only a slightly higher static pressure at that point, relative to the WEC cell measurement chamber, only a 50% improvement in the response time was achieved.

Acceptable WEC cell measurement chamber flow was accomplished using the pressure drop of the spoolpiece baffle to draw duct gas through the 0.10" diameter diffusion port in the WEC cell housing and out the housing calibration port. Since the WEC housing was located upstream of the baffle, a downstream static pressure pitot tube was installed to provide the low pressure drive source for the chamber flow. The chamber flow improved the WEC response time to well below the required value, as noted by the TABLE 1 consolidated test results data. Engineering change notice (ECN) 640420, salient portions of which are included in the test log APPENDIX E, was prepared to provide a metered flow through the WEC cell and a three way isolation valve to select calibration or duct gas flow through the WEC. The test spoolpiece was modified in the 306E weld shop to incorporate the changes of ECN 640420.

- 3.2.2 TE 2 was prepared to document a hydrogen injection gas problem. The repeat of the complete FGI FLOW TEST MATRIX was performed successfully until Test ID No. 2-8. The hydrogen injection gas pressure regulator could not maintain a stable flow due to very low bottle pressure. The test was terminated at approximately 14 minutes into the test run. A new test gas bottle of hydrogen was installed and the test was repeated as ID No. 2-8A. The last test, ID 2-9, was performed at 200 SCFM with the WEC and the SMC successfully meeting the required signal response times for all the tests.
- 3.2.3 TE 3 was prepared to allow a series of response tests to be performed at 180 SCFM, since the current field spoolpiece flow is nominally 180 SCFM due to the flow lost to the record sampler. The flow was adjusted without adjusting the WEC and SMC instrument calibrations, and three tests were run at nominally 4,000ppm hydrogen concentration. The sensor response times were consistent with the previous testing and well below the requirement. The SMC output indication was also consistent with the values displayed at 200 SCFM.
- 3.2.4 TE 4 was prepared to document that the SMC flowmeter was full scale high at 200 SCFM. The TE resolution installed 0-1,000 ccm rotameters to monitor the WEC and SMC duct gas flow. The WEC and SMC sensor signal conditioners were adjusted in preparation for a series of three tests to resolve TE 4.

The initial hydrogen injection gas parameters were repeated from the last, 180 SCFM test. Due to the higher duct flow, the duct concentration values were below 4,000ppm. The hydrogen injection gas flow was adjusted upward between the first and second test runs to provide the hydrogen concentration closer to 4,000ppm. At approximately 660 seconds into the third test to resolve TE 4, a negative going spike was observed in the WEC signal. Even though there was valve isolation between the purge gas and the WEC cell, it appeared that the monitored duct gas had been momentarily interrupted to the WEC. A fourth test was run to verify proper cell operation.

In a subsequent conversation with Whittaker Safety Systems Jerry Fuller, it was indicated that the probable cause of the spike was due to a gas bubble in the cell electrolyte solution. Resident gas in the electrolyte solution may move and come in contact with one of the electrodes causing an interference with the cell ion transport process. This interruption is identified by a positive or negative output signal spike. These signal spikes are short lived as the gas bubble passes or comes in contact with one of the electrodes. The vendor recommended that the cell operational orientation be vertical with the internal electrodes pointing down, which allows the gas bubbles to accumulate near the top of the cell away from the active portions of the sensing electrodes. The FGI spoolpiece WEC cell is mounted in a horizontal configuration.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The primary purpose of the testing was to verify the response time of the flammable gas sensors in simulated field configuration. The response time requirement from WHC-SD-WM-SAD-035, *A Safety Assessment of Rotary Mode Core Sampling in Flammable Gas Single Shell Tanks*, was that the sensor output would achieve 90% of the final value in 120 seconds or less. Although there is no stated accuracy requirement in WHC-SD-WM-SAD-035, the test plan suggested that the sensor outputs be compared to the GC measured gas concentrations to determine their ability to accurately represent the duct gas concentrations.

4.1 CONCLUSIONS

4.1.1 The SMC and WEC flammable gas monitoring cells both easily met the required response times in the simulated exhaust duct and spoolpiece flow and pressure conditions, following the modifications to the WEC cell sample delivery system.

4.1.2 Both sensors stayed within 10% of the actual gas chromatograph measured concentrations between 2,000 and 6,500ppm. Adequate testing was not performed to completely characterize the accuracy of the two sensors over their entire operating range or over an extended time. The SMC was not sensitive enough to accurately measure the very low, 200ppm concentrations of hydrogen; however, the limited testing at the additional nominal concentrations of 2,000, 4,000 and 6,000ppm indicated that the sensors are reasonably accurate. The WEC cell output typically read higher than the SMC and tended to slowly increase with extended exposure to hydrogen. Although this will decrease the absolute accuracy, it provides conservative hydrogen concentration values.

4.2 RECOMMENDATIONS

- 4.2.1 The vertical mounting orientation recommended by the vendor should be implemented in the future for improved cell output signal stability, since the horizontal orientation of the WEC cell may continue to cause some intermittent instability in the cell output due to the mobile gas bubbles.

5.0 REFERENCES

- * WHC-SD-WM-SAD-035, *A Safety Assessment of Rotary Mode Core Sampling in Flammable Gas Single Shell Tanks*, Rev. 0A, Los Alamos National Laboratory, Los Alamos New Mexico, August 1996.
- * HNF-SD-WM-TC-073, *Flammable Gas Interlock Spoolpiece Flow Response Test Plan and Procedure*, Rev. 0, Numatec Hanford Corporation, Richland Washington, Feb. 13, 1997
- * HNF-N-3-1, *Testing and System Development Notes for 305 Engineering Testing Laboratory*, Hanford Nuclear Facility. Issued to KS Witwer, 1/8/97.

APPENDIX A - MEASUREMENT AND TEST EQUIPMENT DATA SHEET

FE-1	Main Duct Flow Element	Laminar Flow Element, Meriam Inst. Model 50MC2-4, Serial No. 757200-K1 Range: 0-424.6 SCFM air at std. temp./press. Accuracy: $\pm 1.0\%$ of reading Cal. Std.: Vendor Cal. Record Curve
FT-1	Main Duct Flow Xmitter	Diff. Press., Rosemount, Model 3051CD, Serial No. 32686 Range: 0-25"H ₂ O Accuracy: $\pm 0.1\%$ FS Cal. Std.: Std. Lab. No. 750-80-02-026 Cal. Due Date: 2-3-98
PT-1	Main Duct Press Xmitter	Abs. Press., Rosemount, Model 3051CD, Serial No. 65843 Range: 0-30 psia Accuracy: $\pm 0.1\%$ FS Cal. Std.: Std. Lab. No. 750-80-02-023 Cal. Due Date: 2-3-98
FE-2	Injection Flow Element	Laminar Flow Element, Meriam Inst. Model 50MJ10-10, Serial No. 753510-J3 Range: 0-1.6087 SCFM air at std. temp./press. Accuracy: $\pm 1.0\%$ of reading Cal. Std.: Vendor Cal. Record Curve
FT-2	Injection Flow Xmitter	Diff. Press., Rosemount, Model 3051CD, Serial No. 33807 Range: 0-25"H ₂ O Accuracy: $\pm 0.1\%$ FS Cal. Std.: Std. Lab. No. 750-80-02-025 Cal. Due Date: 2-3-98
PT-2	Injection Press Xmitter	Abs. Press., Rosemount, Model 3051CD, Serial No. 0266492 Range: 0-30 psia Accuracy: $\pm 0.1\%$ FS Cal. Std.: Std. Lab. No. 355-80-02-055 Cal. Due Date: 5-6-97
FI/FCV-3	GC Bypass Flow	Rotameter with outlet control valve, Wallace & Tiernan, Model 32E083S1XX3 Range: 0-2.5 CFH air Accuracy: $\pm 10\%$ FS Cal.: Test Log Comparison (Indication Only)

FI-4 GC Sample Flow	Rotameter, Matheson, Model FM-1050 E1-4Y101-E910 Range: 0-100 ccm air Accuracy: $\pm 5\%$ FS Cal.: Test Log Comparison (Indication Only)
FI/FCV-5 GC Cal. Flow	Rotameter with inlet control valve, Wallace & Tiernan, Model 32E083S1XX2 Range: 0-2.5 CFH air Accuracy: $\pm 10\%$ FS Cal.: Test Log Comparison (Indication Only)
TE-1	Type K stainless steel jacketed thermocouple Cal.: Std. Lab. No. 750-78-02-013 S/N 002 Cal. Due Date: 2-5-98
TE-2	Type K stainless steel jacketed thermocouple Cal.: Std. Lab. No. 750-78-02-013 S/N 236 Cal. Due Date: 2-5-98
TE-3	Type K stainless steel jacketed thermocouple Cal.: Std. Lab. No. 750-78-02-013 S/N 001 Cal. Due Date: 2-5-98
TE-4	Type K stainless steel jacketed thermocouple Cal.: Std. Lab. No. 750-78-02-013 S/N 400 Cal. Due Date: 2-5-98
GC-1 H ₂ Concentration Std.	Dual Column GC, Micro-sensor Tech. Inc., Model M200D, Serial No. 150313 Range: 100-30,000 ppm Accuracy: 10% Reading Cal.: Standard Gas per Appendix F-3
PC-1 GC Control Computer	Lap Top PC, Toshiba Satellite Pro Model 405CS, Serial No. 02628992-1 Range: N/A Accuracy: N/A
DL-1 System Data Logger	H-P Data Logger, Model 3497A, Serial No. 222A09660 Range and Accuracy: 0-0.1 Vdc ($\pm 18\mu\text{Vdc}$), 0-100 Vdc ($\pm 0.3\text{mVdc}$), T/C ($\pm 1^\circ\text{C}$) Cal.: Std. Lab. No. 752-67-11-002 Cal. Due Date: 2-5-98

NIT-1 Whittaker Sig. Cond.	Newport Infinity Voltmeter, Model INFU-0010-DC1 Range: Input (Nom. 0-1mV DC), Output 4-20mA DC Accuracy: Input $\pm 0.005\%$ of readings, Output: $\pm 0.1\%$ Full Scale Calibration performed by Appendix F-2 using standard gases and input from the WEC under test
NE-1 Whittaker Sensor	Electro-Chemical Cell, Whittaker, Model 109D020- 2, Serial No. HS-1226 Range: 0-10% H ₂ by Volume Accuracy: $\pm 0.2\%$ Absolute Cal.: Standard Gas per Appendix F-2
NE-2 SMC Sensor	Combustible Gas Module, Sierra Monitor Corp., Model 4101-02, Serial No. 96-B-4455 Range: 0-100% LFL H ₂ Accuracy: $\pm 3\%$ FS Cal.: Standard Gas per Appendix F-1
Handheld Digital Multimeter	Fluke Model 702, Serial No. 6240608 Cal.: Std. Lab. No. 750-13-71-001 Cal. Due Date: 12-06-97
Reference Rotameter	Wallace and Tiernan Model NPXQ-143 Range: 0-6 SCFH Accuracy: $\pm 10\%$ FS Cal.: Std. Lab. No. 750-28-13-005 Cal. Due Date: 01-23-98

Standard
LAMINAR.BAS VER 1.22 FEBRUARY 1995

CALIBRATION DATE 05-17-1995 PLOT NUMBER 140
LAMINAR MODEL # 50MJ10-10 WORKING MASTER SERIAL # WMMJ10-10
SERIAL # 753510-J3 MASTER MASTER SERIAL # PSMJ10-10
CURVE # 25928 JOB # 753510

uut = Unit Under Test

DATA AS INPUT FROM DATA SHEET mas = Master

RH %	Tuut DEG F	Tmas DEG F	PSuut PSIA	PSmas PSIA	DPuut In H2O	DPmas In H2O
45.4	70.1	69.4	14.198	14.170	1.003	0.951
45.0	70.1	69.5	14.198	14.132	2.008	1.916
44.9	70.1	69.5	14.198	14.097	3.011	2.888
44.9	70.1	69.5	14.198	14.059	4.008	3.861
45.1	70.1	69.4	14.198	14.024	5.020	4.845
45.1	70.1	69.5	14.197	13.987	6.011	5.825
44.9	70.1	69.5	14.197	13.952	7.005	6.814
45.2	70.1	69.5	14.194	13.914	8.006	7.814

Master LFE coefficients

A1 = 4.13844E+01
B1 = -2.27459E+05
C1 = 2.21281E+09

REDUCED DATA, BASED ON MASTER LFE COEFFICIENTS:

DATA POINT	DP uut InH2O@4C	FLOW IN ACFM BASED ON MASTER	CFM* (DATA) BASED ON MASTER	CFM* (CURVE) B*DP+C*DP^2	PERCENT ERROR**
1	1.003	0.214139	0.214070	0.214050	-0.01
2	2.008	0.425349	0.425211	0.425200	-0.00
3	3.011	0.632727	0.632544	0.632177	-0.06
4	4.008	0.835089	0.834847	0.834445	-0.05
5	5.020	1.034980	1.034631	1.033035	0.13
6	5.011	1.229194	1.228839	1.228967	0.09
7	7.005	1.421411	1.421000	1.420994	-0.00
8	8.006	1.611889	1.611424	1.609749	-0.10

*CFM = ACFM x (Flowing viscosity in Micropoise / 181.87)

** PERCENT ERROR = ((CURVE-DATA) / DATA) * 100

A Least Squares Fit of the CFM(DATA) yields the following formula and LFE uut coefficients used to generate the CFM(CURVE) values:

CFM(CURVE) = (B x DP) + (C x DP^2) Where B = 2.15284E-01
C = -1.77494E-03

A Flow of 1.608675 CFM produces a UUT DP of 8.00 In H2O

TERMINAL NON-LINEARITY = 3.315 % FOR DETAILS SEE
INDEPENDENT NON-LINEARITY = 1.069 % FILE NO. 501:440

PRINTOUT DATE :05-18-1995

Filename : 75351003.300

Standard
LAMINAR.BAS VER 1.26 NOVEMBER 1995

CALIBRATION DATE 02-07-1996 PLOT NUMBER 116
LAMINAR MODEL # 50MC2-4 WORKING MASTER SERIAL # 68-9606
SERIAL # 757200-K1 MASTER MASTER SERIAL # 66-8606-2
CURVE # 26862 JOB # 757200

uut = Unit Under Test

DATA AS INPUT FROM DATA SHEET mas = Master

RH %	Tuut DEG F	Tmas DEG F	PSuut PSIA	PSmas PSIA	DPuut In H2O	DPmas In H2O
16.6	68.6	69.6	14.345	14.316	1.009	1.061
16.6	68.7	69.6	14.342	14.273	2.014	2.134
16.6	68.8	69.6	14.334	14.229	3.022	3.226
16.6	69.0	69.7	14.327	14.180	4.028	4.332
16.6	69.2	69.7	14.319	14.132	5.036	5.449
16.6	69.5	69.7	14.305	14.078	6.024	6.575
16.6	69.7	69.8	14.292	14.023	7.034	7.744
16.6	69.9	69.8	14.278	13.967	7.994	8.866

Master LFE coefficients

A1 = 9.46020E+03
B1 = -2.73395E+07
C1 = -1.27140E+11

REDUCED DATA, BASED ON MASTER LFE COEFFICIENTS:

DATA POINT	DP uut InH2O@4C	FLOW IN ACFM BASED ON MASTER	CFM* (DATA) BASED ON MASTER	CFM* (CURVE) B*DP+C*DP^2	PERCENT ERROR**
1	1.009	54.652706	54.543381	54.559998	0.03
2	2.014	108.816788	108.614526	108.611681	-0.00
3	3.022	162.897992	162.624035	162.543097	-0.05
4	4.028	216.485642	216.167520	216.076750	-0.04
5	5.036	269.480673	269.151390	269.436844	0.11
6	6.024	321.781332	321.535990	321.442139	-0.03
7	7.034	374.669687	374.489886	374.335974	-0.04
8	7.994	424.279641	424.210830	424.331075	0.03

*CFM = ACFM x (Flowing viscosity in Micropoise / 181.87)

** PERCENT ERROR = ((CURVE-DATA) / DATA) * 100

A Least Squares Fit of the CFM(DATA) yields the following formula
and LFE uut coefficients used to generate the CFM(CURVE) values:

CFM(CURVE) = (B x DP) + (C x DP^2) Where B = 5.42091E+01
C = -1.41293E-01

A Flow of 424.629974 CFM produces a UUT DP of 8.00 In H2O

TERMINAL NON-LINEARITY = 1.080 % FOR DETAILS SEE
INDEPENDENT NON-LINEARITY = 0.328 % FILE NO. 501:440

PRINTOUT DATE :02-08-1996

Filename : 75720001.100

HANFORD STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

CUSTODIAN/ADDRESS JORDAN-SR Leach NJ L6-13 LS 2347		STANDARDS CODE NUMBER 750-80-02-023		NEW ☒ MODIFY ☐ REFERENCE NUMBER 406864	
INSTRUMENT PRESSURE TRANSMITTER ROSEMOUNT 3051C 0-30 PSIA		SERIAL NUMBER 65843	PROPERTY NUMBER N/A	RECALL STATUS 1 ACTIVE 2 NO RECALL 3 SUSPENDED 4 DELETED 5 PM 6 NONDATA MLTR	ORGANIZATION CODE W30000
SENDER WITWER 6-3019		ROOM N/A	BUILDING 305	SERVICE DEPARTMENT 5	DATE RECEIVED 970131
INSTRUMENT SPECIFICATIONS mfg. Specs +/- 1% FS		TOLERANCE AS RECEIVED 1 IN 2 OUT 3 N/A 4 FAILED		GO 10 ED 8 WE	
STANDARDS USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS 4:1 RATIO Y ☒ N ☐				TRAINING HOURS	
EXPIRATION DATE 002-77-01-205 6-6-99 002-45-08-0472-27-97				CALIBRATION HOURS 2.0	
REMARKS (WP-216)				REPAIR HOURS	
PROCEDURE NUMBER WHC-5-RMT-3051CA REV.3 30PSIA				OTHER HOURS	
				ENG/ADMIN HOURS 4	
				MATERIALS	
				TOTAL CHARGE = (\$150 x SUM OF HOURS) + MATERIAL	
				DATE CALIBRATED 2/3/97	
				DATE DUE 2/3/98	
				AMBIENT TEMPERATURE -23°C	
<p><i>Used on the Laminar Flow Element</i></p> <p><i>Measuring Large Volume Mixed Gases</i></p>					
APPROVED BY M. Menden 2/3/97		CALIBRATED BY [Signature] 21		Project Hanford Management DynCorp Tri-Cities Services, Inc Contractor for the United States Department of Energy Richland, WA 99352	
				PAGE 1.2 OF	

PROCEDURE NAME - 304	STANDARDS CODE NUMBER	REFERENCE NUMBER
WHC-5-RMT-3051CA REV.3 GENERIC	750-80-02-023	406864

DATA SHEET

INPUT TEST POINTS		DESIRED MA	AS FOUND OUTPUT		METER MA	TOLERANCE	
PSI	INH2O		ROSEMOUNT PSI	%		PSI	MA
0	NA	4.002	-0.0037	0.0	3.998	7.03	7.016
7.5		8.003	7.50	25.0	8.000		
15.0		12.000	15.01	50.0	12.006		
22.5		16.006	22.5	75.0	16.007		
30.0		20.008	30.01	100.0	20.009		

INPUT TEST POINTS		DESIRED MA	FINAL OUTPUT		METER MA	TOLERANCE	
PSI	INH2O		ROSEMOUNT	%			MA
		4					
		8					
		12					
		16					
		20					

CONVERSION FACTOR:
INH2O = 27.73 X PSI

APPROVED BY <i>Approval</i> 2/3/97	CALIBRATED BY <i>21</i>	Page 2 of 2
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HANFORD STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

CUSTODIAN/ADDRESS JORDAN SR Luck NJ L6-13 752347		STANDARDS CODE NUMBER 750-80-02-025		NEW MODIFY 406856		REFERENCE NUMBER 406856	
INSTRUMENT PRESSURE TRANSMITTER ROSEMOUNT 3051CD 0-25 IN H2O		SERIAL NUMBER 33807	PROPERTY NUMBER N/A	RECALL STATUS 1 ACTIVE 2 NONRECALL 3 SUSPENDED 4 DELETED 5 PH 6 NONDATA METER	RECALL CYCLE 360	TOLERANCE HISTORY E51549	
SENDER WITWER 6-3019		ROOM N/A	BUILDING 305	SERVICE DEPARTMENT 5	DATE RECEIVED 970131	TOLERANCE AS RECEIVED 1 IN 2 OUT 3 DP 4 DP 5 DP 6 DP	
INSTRUMENT SPECIFICATIONS MFG. SPECS +/- .10 % FS		STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS 4:1 RATIO Y ☒ N ☐ 002-80-02-005 EXPIRATION DATE 4-22-97 002-45-08-047 2-27-97				TRAINING HOURS CALIBRATION HOURS 20 REPAIR HOURS OTHER HOURS ENG/ADMIN HOURS 4X MATERIALS TOTAL CHARGE = (\$50 x SUM OF HOURS) + MATERIALS DATE CALIBRATED 2/3/97 DATE DUE 2/3/98 AMBIENT TEMPERATURE -23°C	
REMARKS (WP-304)		PROCEDURE NUMBER WHC-5-RMT-3051CA REV.3 GENERIC					
<p>Replaced Batteries in 268 Programmer</p> <p>Missing Screws in Cover to Terminal Strip.</p> <p>Used with Laminar Flow Element measuring Flammable gas inlet</p>							

APPROVED BY M. Moore 2/3/97	CALIBRATED BY [Signature]	Project Hanford Management Contractor for the United States Department of Energy	DynCorp Tri-Sities Services, Inc. P.O. Box 1400 Richland, WA 99352	PAGE 12 OF
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PROCEDURE NAME - 304 WHC-5-RMT-305ICA REV.3 GENERIC	STANDARDS CODE NUMBER 750-80-02-025	REFERENCE NUMBER 406 866
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DATA SHEET

INPUT TEST POINTS		DESIRED MA	AS FOUND OUTPUT		METER MA	TOLERANCE	
PSI	INH20		ROSEMOUNT H ₂ O	%		H ₂ O	MA
	0	4	-0.0865	-1	3.969	+0.03	-0.016
	6.25	8	6.149	24.8	7.960		
	12.5	12	12.39	49.7	11.955		
	18.75	16	18.65	74.8	15.970		
	25.0	20	24.92	99.8	19.987		

INPUT TEST POINTS		DESIRED MA	FINAL OUTPUT		METER MA	TOLERANCE	
PSI	INH20		ROSEMOUNT H ₂ O	%		H ₂ O	MA
	0	4	.0025	0.0	3.999	+0.03	-0.016
	6.25	8	6.249	24.9	7.995		
	12.5	12	12.49	49.9	12.001		
	18.75	16	18.75	75.0	16.007		
	25.0	20	25.01	100.0	20.008		

CONVERSION FACTOR:
INH20 = 27.73 X PSI

APPROVED BY H. M. M. 2/3/97	CALIBRATED BY 21	Page 2 of 2
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HANFORD STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

CUSTODIAN/ADDRESS JORDAN BR-Deck NJ LG-13 LS 2-3-97		STANDARDS CODE NUMBER 750-80-02-026		NEW MODIFY	REFERENCE NUMBER 408867
INSTRUMENT PRESSURE TRANSMITTER ROSEMOUNT 3051CD 0-25 IN H2O		SERIAL NUMBER 32686	PROPERTY NUMBER N/A	RECALL STATUS 1 ACTIVE 2 NONRECALL 3 SUSPENDED 4 DELETED 5 PM 6 NONDATA MATE	ORGANIZATION CODE W80000 WORK ORDER 651549
SENDER WITWER 6-3019	COMMENTS	ROOM N/A	BUILDING 305	SERVICE DEPARTMENT 5	RECALL CYCLE 360 DATE RECEIVED 970131
INSTRUMENT SPECIFICATIONS MFG. SPECS. +/- .1% FS		STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS 4:1 RATIO Y ☒ N ☐		TOLERANCE HISTORY 1 IN 2 OUT 3 NA 4 FAILED	
EXPIRATION DATE 002-80-02-005 4-25-97 002-45-08-047 2-27-97		EXPIRATION DATE		TRAINING HOURS CALIBRATION HOURS 28 REPAIR HOURS OTHER HOURS ENG/ADMIN HOURS 44 MATERIALS	
REMARKS (WP-304)		TOTAL CHARGE = (\$150 X SUM OF HOURS) + MATERIALS		DATE CALIBRATED 2/3/97 DATE DUE 2/3/98	
PROCEDURE NUMBER WHC-5-RMT-3051CA REV.3 GENERIC		AMBIENT TEMPERATURE = 23°C			

Used on the Laminar Flow Element
measuring Large Volume / Mixed Gases

APPROVED BY M. Mullen 2/3/97	CALIBRATED BY A. S. 21	Project Hanford Management Contractor: DynCorp Tri-Cities Services, Inc. Contractor: P.O. Box 1100 States Department of Energy Richland, WA 99352	PAGE 1 OF 2
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PROCEDURE NAME - 304	STANDARDS CODE NUMBER	REFERENCE NUMBER
WHC-5-RMT-3051CA REV.3 GENERIC	750-80-02-026	706867

DATA SHEET

INPUT TEST POINTS		DESIRED MA	AS FOUND OUTPUT		METER MA	TOLERANCE	
PSI	INH2O		ROSEMOUNT H ₂ O	%		H ₂ O	MA
	0	4	-1956	-4	3.928	7.03	7.016
	6.25	8	6.050	24.5	7.921		
	12.5	12	12.38	49.6	11.923		
	18.75	16	18.53	74.5	15.923		
	25.0	20	24.81	99.6	19.934		

INPUT TEST POINTS		DESIRED MA	FINAL OUTPUT		METER MA	TOLERANCE	
PSI	INH2O		ROSEMOUNT H ₂ O	%		H ₂ O	MA
	0	4	.0024	0.0	4.001	7.03	7.016
	6.25	8	6.253	24.9	8.008		
	12.5	12	12.50	50.0	12.001		
	18.75	16	18.75	75.0	16.003		
	25.0	20	25.01	100.0	20.008		

CONVERSION FACTOR:
INH2O = 27.73 X PSI

APPROVED BY M. Meacham 2/3/97	CALIBRATED BY 21	Page 2 of 2
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WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT																																					
CUSTODIAN/ADDRESS JORDAN SR		STANDARDS CODE NUMBER 750-28-13-005				NEW MODIFY		REFERENCE NUMBER 406670																													
INSTRUMENT L6-13		SERIAL NUMBER		PROPERTY NUMBER		RECALL STATUS 1 ACTIVE 2 NONRECALL 3 SUSPENDED 4 DELETED 5 PH 6 NONDATA MATR		TOLERANCE HISTORY																													
MOTOMETER W&T NPKQ-143 0-6 SCFH		COMMENTS ROOM N/A BUILDING 305		SERVICE DEPARTMENT N/A		DATE RECEIVED 970123		TOLERANCE AS RECEIVED 1 IN 2 OUT 3 NA 4 FAILED																													
SENDER K WITWER 6-3019		SN#32E093SSXX2				CO ID SD 8 WE																															
INSTRUMENT SPECIFICATIONS +/- 10% FS						TRAINING HOURS																															
STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS 4:1 RATIO Y ☒ N ☐						CALIBRATION HOURS 15																															
002-28-06 007 EXPIRATION DATE 2-1-97						REPAIR HOURS																															
						OTHER HOURS																															
						ENG/ADMIN HOURS 4 1/2																															
						MATERIALS																															
						TOTAL CHARGE = (S150 x SUM OF HOURS) + MATERIAL																															
REMARKS Standard Conditions - 760 mm Hg 70°F						DATE/CALIBRATED DATE DUE 1/23/97 1/23/98																															
PROCEDURE NUMBER WHC-9-LOW FLOW REV. 1						AMBIENT TEMPERATURE - 23°C																															
<table border="1"> <thead> <tr> <th>Test Points</th> <th>AS FOUND</th> <th>FINAL</th> <th>Tol.</th> </tr> </thead> <tbody> <tr> <td>W-T</td> <td colspan="2">Standard</td> <td></td> </tr> <tr> <td>1. SCFH</td> <td>1.17 SCFH</td> <td>Same</td> <td>+/- 0.6 SCFH</td> </tr> <tr> <td>2.</td> <td>2.26 "</td> <td rowspan="5"> </td> <td></td> </tr> <tr> <td>3.</td> <td>3.34 "</td> <td></td> </tr> <tr> <td>4.</td> <td>4.22 "</td> <td></td> </tr> <tr> <td>5.</td> <td>5.33 "</td> <td></td> </tr> <tr> <td>6.</td> <td>5.76 "</td> <td></td> </tr> </tbody> </table>										Test Points	AS FOUND	FINAL	Tol.	W-T	Standard			1. SCFH	1.17 SCFH	Same	+/- 0.6 SCFH	2.	2.26 "			3.	3.34 "		4.	4.22 "		5.	5.33 "		6.	5.76 "	
Test Points	AS FOUND	FINAL	Tol.																																		
W-T	Standard																																				
1. SCFH	1.17 SCFH	Same	+/- 0.6 SCFH																																		
2.	2.26 "																																				
3.	3.34 "																																				
4.	4.22 "																																				
5.	5.33 "																																				
6.	5.76 "																																				
<p>Used as secondary calibration source for</p> <p>2ea 0 to 2.5 SCFH Potometers:</p>																																					
<p>These are used on the Gas chromatograph gas feed lines</p>																																					
APPROVED BY M. Mendenhall 1/22/97		CALIBRATED BY A. 21		Hanford Operations and Maintenance Westinghouse Hanford Company 2800 Broadway, Richland, WA 99352				PAGE 1 OF 1																													

HANFORD STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

CUSTOMER/ADDRESS JORDAN SR		STANDARDS CODE NUMBER 750-78-02-013		NEW MODIFY		REFERENCE NUMBER 406863	
INSTRUMENT L6-13		SERIAL NUMBER N/A		PROPERTY NUMBER N/A		ORGANIZATION CODE W80000	
THERMOCOUPLE		ROOM N/A		BUILDING 305		TOLERANCE HISTORY	
TYPE K		SERVICE DEPARTMENT 4		RECALL STATUS 1 ACTIVE 2 NONRECALL 3 SUSPENDED 4 DELETED 5 PM 6 NONDATA MLTS		RECALL CYCLE 360	
5 EACH		COMMENTS		DATE RECEIVED 970131		TOLERANCE AS RECEIVED 1 IN 2 OUT 3 NA 4 FAILED	
SENDER WITWER 6-3019		CO ID 8		SD WE			

INSTRUMENT SPECIFICATIONS +/- 4°F		TRAINING HOURS 4.0	
STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS 4:1 RATIO Y ☒ N ☐		CALIBRATION HOURS 4.0	
EXPIRATION DATE 002-19-03-001 4/29/97		REPAIR HOURS	
002-19-04-036 3/12/97		OTHER HOURS	
002-14-01-039 4/19/97		ENG/ADMIN HOURS	
REMARKS		MATERIALS	
		TOTAL CHARGE = (\$150 x SUM OF HOURS) + MATERIALS	
		DATE CALIBRATED DATE DUE	
		2/5/97 2/5/98	
PROCEDURE NUMBER WHC-4-TC-CAL REV. 3		AMBIENT TEMPERATURE - 23.4°C	

SERIAL NUMBER	STANDARD	AS FOUND	SERIAL NUMBER	STANDARD	AS FOUND
001	-9.43	-9.13	001	149.28	150.13
002	-9.62	-9.14	002	149.27	149.47
003	-8.92	-9.07	003	149.27	149.47
236	-9.15	-9.85	236	149.27	149.20
400	-8.95	-9.45	400	149.27	149.12
001	49.40	49.58	001	200.76	201.39
002	49.60	49.62	002	200.76	200.81
003	49.60	49.57	003	200.76	201.73
236	49.60	49.41	236	200.78	202.37
400	49.59	49.45	400	200.78	201.94
001	99.38	99.38	001	250.53	251.57
002	99.38	99.32	002	250.51	251.10
003	99.38	99.27	003	250.51	252.11
236	99.38	99.68	236	250.55	253.09
400	99.39	99.36	400	250.54	252.38

APPROVED BY M. Monahan 2/5/97	CALIBRATED BY WHC STDLAB 42	Project Hanford Maintenance Contractor for the United States Department of Energy	Inc. Tri-States Service, Inc. P.O. Box 14 Richland, WA 99352	PAGE 1 OF 1
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WESTINGHOUSE STANDARDS LABORATORY PHYSICAL AND ELECTRICAL RECORD

CUSTODIAN/ADDRESS VARGO GF 94438		STANDARDS CODE NUMBER 750-13-71-001		NEW MODIFY ORGANIZATION CODE W75250		REFERENCE NUMBER 405287 WORK ORDER W58333	
INSTRUMENT FLUKE 702 DOCUMENTING PROCESS		SERIAL NUMBER 6240608	PROPERTY NUMBER WC55456	RECALL STATUS 1 ACTIVE 2 NONRECALL 3 SUSPENDED 4 DELETED 5 PM 6 NONDATA MATE	RECALL CYCLE 360	TOLERANCE HISTORY AS RECEIVED 1 IN 2 OUT 3 NA 4 FAILED	
SENDER G VARGO 6-5387		ROOM N/A	BUILDING 305	SERVICE DEPARTMENT 81 LS 11544	DATE RECEIVED 961115	TOLERANCE HISTORY CO IN SO J WE	
INSTRUMENT SPECIFICATIONS				TRAINING HOURS CALIBRATION HOURS 4.0			
STANDARD(S) USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS 4:1 RATIO Y ☒ N ☐ 002-11-01-042 EXPIRATION DATE 3/11/97 002-45-08-038 EXPIRATION DATE 7/11/97 002-23-01-010 7/23/97 002-23-01-004 6/5/97				REPAIR HOURS			
				OTHER HOURS			
				ENG/ADMIN HOURS 4			
				MATERIALS			
REMARKS NEW - NO WP DATA SHEET IN SYSTEM				TOTAL CHARGE = (5125 x SUM OF HOURS) + MATERIAL DATE CALIBRATED DATE DUE 12/6/96 12/6/97 AMBIENT TEMPERATURE = 20.02			
PROCEDURE NUMBER WHC-1-GEN-PURP-MTRS REV.2							

COPY

APPROVED BY 	CALIBRATED BY 	WHC STDLAB 52	Hanford Operations Engineering Center for the United States Department of Energy	Westinghouse Hanford Company Subsidiary Electronics Division Box 770 Richland, WA 99354	PAGE 1 OF 5
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PROCEDURE NAME - 515 WHC-4-TEMPIND REV.1 FLUKE 701	STANDARDS CODE NUMBER 750-13-71-001	REFERENCE NUMBER 105287
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DATA SHEET

FUNCTION	TC TYPE	STANDARD °C/°F	UUT INDICATION		MANUFACTURER SPECIFICATION
			AS FOUND °C	FINAL °C	
MEASURE	K	-200°C	-199.9	Same	± 1.0°C
°C/°F		-100°C	-99.9		"
		0°C	.1		± 0.5°C
		32°F	.1		± 0.9°C
		100°C	100.1		± 0.5°C
		200°C	200.0		"
		300°C	300.1		"
		400°C	400.0		± 0.7°C
		500°C	499.9		"
		600°C	600.0		"
		700°C	700.1		"
		800°C	800.0		"
		900°C	900.1		"
		1000°C	1000.1		"
		1100°C	1100.0		"
		1200°C	1199.9		± 0.9°C
		1300°C	1200.1		"
		1370°C	1269.9		"
SOURCE	K	-199°C	-199.2		± 1.0°C
		400°C	399.9		± 0.7°C
		1370°C	1269.9		± 0.9°C
MEASURE	J	0°C	.1		± 0.5°C
°C	T	0°C	-.1		± 0.8°C
	E	0°C	.1		± 0.5°C
	R	200°C	200.4		± 1.2°C

APPROVED BY <i>[Signature]</i>	CALIBRATED BY <i>[Signature]</i> 52	Page 2 of 2
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WZ
12/96

Harford Engineering Development Laboratory <small>Measurement Institute Company a subsidiary of Measurement Standards Corporation P.O. Box 1219, Rockville, MD 20850</small>		REPORT OF CALIBRATION PHYSICAL & ELECTRICAL STANDARDS LABORATORY (CONTINUED)		CODE NO. 750-13-71-CS91 DATE 405287	
Function	Standard	Standard	UNIT Indication		MFG's
	Reading	Output	AS FOUND	FINAL	Tolerance
DCV 100mV	100 mV		100.009	Same	± 47uV
Measure	- 100 mV		-100.021		"
1V	1V		1.00016		± 5.6 mV
	- 1V		-1.00017		"
10V	10V		10.0019		± 5.6 mV
	- 10V		-10.0021		"
100V	100V		100.018		± 56 mV
	- 100V		-100.025		"
300V	300V		300.07		± 168 mV
	- 300V		-300.10		"
DCI 30mA	4 mA		4.001		± 9 uA
Measure	20 mA		19.998		± 13 uA
	30 mA		29.997		± 15 uA
	- 30 mA		-29.998		"
100mA	100 mA		99.99		± 110 uA
	- 100 mA		- 99.98		"
2W OHMS 10Ω	10Ω		10.09 Ω		± 16 mΩ
Measure	100Ω		100.07 "		± 150 mΩ
MEASURED & APPROVED 8/10/96	1KΩ		1000.2 "		± 1.5 Ω
	10KΩ		10,001 KΩ		± 20 Ω
ACV 1V	200mV 500Hz		.2001		± 1.5 mV
Measure	1V 20KHz		1.0006		± 21 mV
	" 40KHz		1.0002		"
	" 500KHz		1.0009		± 5.5 mV
	" 1KHz		1.0008		± 21 mV
	" 5KHz		1.0030		± 107 mV
10V	2V 500KHz		2.002		± 15 mV
	10V "		10.013		± 55 mV
	" 5KHz		10.006		± 1.02V
100V	20V 500KHz		20.00		± 150 mV
	100V "		100.00		± 550 mV
	100V 5KHz		100.22		± 10.2V
300V	120V 60KHz		119.9		± 1.1V
	250V 500KHz		249.9		± 4V
	219V 5KHz		219.5		± 23.9
APPROVED BY		CALIBRATED BY		PAGE	
 10/7/96		 10/7/96		4 of 5

WAC
BED LAB
52

PROCEDURE NAME - 16 WHC-67-11-3497A(12-82)	STANDARDS CODE NUMBER 752-67-11-002	REFERENCE NUMBER 406861
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DATA SHEET

DMM RANGE AND DISPLAY	STANDARD READING	DMM READING		ONE YEAR TOLERANCE
		AS FOUND	FINAL	
.1V 5 1/2 DIGIT	.100000	.077989	SAME	± 18 µV
1.0V	1.00000	1.00000		± 160 µV
10.0V	1.1111	1.1111		± .3 mV
	2.2222	2.2222		± .4 mV
	3.3333	3.3333		± .6 mV
	4.4444	4.4444		± .8 mV
	5.5555	5.5555		± .9 mV
	6.6666	6.6666		± 1.1 mV
	7.7777	7.7777		± 1.3 mV
	8.8888	8.8888		± 1.4 mV
	9.9999	9.9999		± 1.6 mV
	10.0000	10.0000		± 1.6 mV
100.0V	50.000	49.998		± 8.0 mV
	100.000	99.996		± 16.0 mV
	-100.000	99.997		± 16.0 mV
	-50.000	-49.997		± 8.0 mV
AUTO RANGE	50.000	49.998		± 8.0 mV
	5.0000	5.0000		± .8 mV
	.50000	.50000		± 80 µV
	.050000	.049993		± 10 µV
10V 4 1/2 DIGIT	9.000	9.000		± 3.0 mV
10V 3 1/2 DIGIT	9.00	9.00	✓	± 20 mV

APPROVED BY M. M. M. 2/5/97	CALIBRATED BY M. M. M. 42	Page 2 of 3
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PROCEDURE NAME - 16
WHC-67-11-3497A(12-82)

DATA SHEET

[illegible]

APPROVED BY <i>M. Hensley</i> 2/5/97	CALIBRATED BY <i>WHO STD LAB</i> 42	Page 3 of 3
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[illegible]

APPROVED BY <u>5-6-96</u> <u>D. J. Nelson</u>	CALIBRATED BY	WIC STD LAB 21	Page 2 of 2
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APPENDIX B - GAS BOTTLE RECORDS

The following information was obtained from cylinder labels attached to the certified standard calibration and injection gases used.

1. The gas used to calibrate the WEC and SMC sensors:

- * Vendor: Scott Specialty Gases
- * PO No. 023372
- * Project No. 08-27000
- * Cylinder Item No.
- * Certified Concentration 8070 ppm H₂, balance air

NOTE: This gas was checked by the test GC following its initial calibration using the 1010 ppm standard gas. The data file is included in APPENDIX C as 8087tst.dif, with the other GC data files.

2. The gas used to calibrate the gas chromatograph:

- * Vendor: Scott Specialty Gases
- * PO No. WGS-YVV-412195
- * Project No. 05-79110
- * Cylinder No. MH1642, item 05022343 4A
- * Certified Concentration 1,010ppm H₂, balance N₂
- * Analytical Accuracy ±2%

3. The gas initially used for low concentration injection gas:

- * Vendor: Scott Specialty Gases
- * PO No. WGS-YVV-412195
- * Project No. 05-79110
- * Cylinder No. A016648, item 05022342 4A
- * Certified Concentration 30,000ppm H₂, balance N₂
- * Analytical Accuracy ±2%

4. The gas used for subsequent low concentration injection gas:

- * Vendor: Scott Specialty Gases
- * PO No. WGS-YVV-455801
- * Project No. 07-37904
- * Cylinder No. ALM046117, item 07022342 4AL
- * Certified Concentration 5.00% H₂, balance N₂
- * Analytical Accuracy ±2%

5. The gas used for the high concentration injection gas was the standard high purity H_2 supplied from the site stores (Cat. No. 21-2870-100).
6. The gas used for the gas chromatograph carrier and purging of the systems was the standard pre-purified N_2 supplied from the site stores (Cat. No. 21-3440-220).

APPENDIX C - DATA RECORDS

FGI FLOW TEST DATA SHEET

TEST ID. No. 1-1 DATA FILE No. GC 021371-1 DLF FGI 21311
SMC ID. No. 96-B-4455 WHITTAKER ID No. HS-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 197.8 CFM
DIFF. PRESS. 3.75 "H₂O ABS. PRESS. 14.80 PSIA TEMP. 77 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.04 FT/SEC
TRANSPORT TIME 2.34 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 200 ppm Calculated H₂ - 232.4 ppm
MEASURED H₂ CONCENTRATION 237.8 ppm
DIFF. PRESS. 6.937 "H₂O ABS. PRESS. 15.89 PSIA TEMP. 71 °F

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 80.2 ppm WHITTAKER 100.3 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 79.3 ppm WHITTAKER 240.4 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 79.7 ppm WHITTAKER 240.4 ppm

TEST PERFORMER [Signature] 12/13/97
Date

TEST DIRECTOR [Signature] 12-13-97
Date

TEST ID 1-1
File FGI21311

FGI FLOW TEST DATA SHEET

TEST ID. No. 1-2 DATA FILE No. GC 021371-2 DL FGI21312
SMC ID. No. 96-B-4455 WHITTAKER ID No. 45-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 198.5 CFM
DIFF. PRESS. 3.77 "H₂O ABS. PRESS. 14.80 PSIA TEMP. 78 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.07 FT/SEC
TRANSPORT TIME 2.33 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 200 ppm *Calculated H₂ - 232 ppm* MEASURED H₂ CONCENTRATION 236 ppm
DIFF. PRESS. 6.95 "H₂O ABS. PRESS. 15.89 PSIA TEMP. 71 °F

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 88.3 ppm WHITTAKER 90.2 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 84.1 ppm WHITTAKER 240.4 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 84.4 ppm WHITTAKER 240.4 ppm

TEST PERFORMER [Signature] 12/13/97
Date

TEST DIRECTOR [Signature] 12-13-97
Date

TEST ID 1-2
File FG121312

FGI FLOW TEST DATA SHEET

TEST ID. No. 1-3 DATA FILE No. GC 021371-3 DL FGI21313
SMC ID. No. 96-B-4455 WHITTAKER ID No. HS-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 199.0 CFM
DIFF. PRESS. 3.78 "H₂O ABS. PRESS. 14.80 PSIA TEMP. 78 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.08 FT/SEC
TRANSPORT TIME 2.33 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 200 ppm MEASURED H₂ CONCENTRATION 235 ppm
DIFF. PRESS. 6.90 "H₂O ABS. PRESS. 15.87 PSIA TEMP. 71 °F
Calculated H₂ - 229 ppm

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 86.1 ppm WHITTAKER 80.2 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 86.9 ppm WHITTAKER 230.3 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 87.8 ppm WHITTAKER 230.4 ppm

TEST PERFORMER

[Signature] 12/13/97
Date

TEST DIRECTOR

[Signature] 12-13-97
Date

TEST ID 1-3
File FGI21313

FGI FLOW TEST DATA SHEET

TEST ID. No. 2-4 DATA FILE No. GC 021372-4 DL F6221324
SMC ID. No. 96-B-4455 WHITTAKER ID No. 45-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 198.7 CFM
DIFF. PRESS. 3.77 "H₂O ABS. PRESS. 14.81 PSIA TEMP. 78 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.07 FT/SEC
TRANSPORT TIME 2.33 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 4000 ppm *Calculated H₂ - 3707 ppm*
MEASURED H₂ CONCENTRATION 4054 ppm
DIFF. PRESS. 1.76 "H₂O ABS. PRESS. 14.73 PSIA TEMP. 71 °F

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 3927.7 ppm WHITTAKER 1732.8 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 3957.8 ppm WHITTAKER 4226 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 3962.7 ppm WHITTAKER 4225.8 ppm

TEST PERFORMER *[Signature]* 12/13/97
Date

TEST DIRECTOR *[Signature]* 12-13-97
Date

TEST ID 2-4
File FG121324

FGI FLOW TEST DATA SHEET

TEST ID. No. EX 1-1 DATA FILE No. GC 02137EX1 DL EX/02137
SMC ID. No. 96-B-4455 WHITTAKER ID No. HS-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 199.2 CFM
DIFF. PRESS. 3.78 "H₂O ABS. PRESS. 14.81 PSIA TEMP. 78 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.09 FT/SEC
TRANSPORT TIME 2.33 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 4000 ppm MEASURED H₂ CONCENTRATION 4040 ppm
DIFF. PRESS. 1.74 "H₂O ABS. PRESS. 14.73 PSIA TEMP. 70 °F
Calculated H₂ - 3656 ppm

SENSOR CONCENTRATION OUTPUT:

NOTE: The SMC gas delivery tube was disabled and the port connected to the WEC.
2 MINUTE CONCENTRATION VALUES:

SMC N/A ppm WHITTAKER 2834 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC N/A ppm WHITTAKER 4425 ppm

15 MINUTE CONCENTRATION VALUES:

SMC N/A ppm WHITTAKER 4426 ppm

TEST PERFORMER [Signature] 12/13/97
Date

TEST DIRECTOR [Signature] 12-13-97
Date

TEST ID EX1-1
File EX102137

FGI FLOW TEST DATA SHEET

TEST ID. No. EX-2 DATA FILE No. GC 02137EX2 DL EX202137
SMC ID. No. 96-B-4455 WHITTAKER ID No. H5-7226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 198.7 CFM
DIFF. PRESS. 3.77 "H₂O ABS. PRESS. 14.81 PSIA TEMP. 78 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.07 FT/SEC
TRANSPORT TIME 2.33 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 4,000 ppm MEASURED H₂ CONCENTRATION 4100 ppm
DIFF. PRESS. 1.736 "H₂O ABS. PRESS. 14.73 PSIA TEMP. 69 °F
Calculated H₂ - 3656 ppm

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 4007 ppm WHITTAKER 4255 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 3968 ppm WHITTAKER 4406 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 3961 ppm WHITTAKER 4386 ppm

TEST PERFORMER [Signature] 12/13/97
Date

TEST DIRECTOR [Signature] 12-13-97
Date

TEST ID EX1-2
File EX202137

FGI FLOW TEST DATA SHEET

TEST ID. No. EX1-3 DATA FILE No. GC 02147EX1 DL EX102147
SMC ID. No. 96-B-4455 WHITTAKER ID No. 45-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 197.8 CFM
DIFF. PRESS. 3.77 "H₂O ABS. PRESS. 14.75 PSIA TEMP. 78 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.0 FT/SEC
TRANSPORT TIME 2.34 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 4000 ppm MEASURED H₂ CONCENTRATION 4150 ppm
DIFF. PRESS. 1.77 "H₂O ABS. PRESS. 14.67 PSIA TEMP. 71 °F
Calculated H₂ Conc. = 3722 ppm

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 4026 ppm WHITTAKER 4095 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 4078 ppm WHITTAKER 4306 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 4082 ppm WHITTAKER 4306 ppm

TEST PERFORMER [Signature] 12/14/97
Date

TEST DIRECTOR [Signature] 12-14-97
Date

TEST ID EX1-3
File EX102147

FGI FLOW TEST DATA SHEET

TEST ID. No. 1-1 DATA FILE No. GC022271-1 DLFGI22211
SMC ID. No. 96-B-4455 WHITTAKER ID No. 45-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 200.4 CFM
DIFF. PRESS. 3.75 "H₂O ABS. PRESS. 14.74 PSIA TEMP. 68 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.12 FT/SEC
TRANSPORT TIME 2.31 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 200 ppm MEASURED H₂ CONCENTRATION 219 ppm
DIFF. PRESS. 4.03 "H₂O ABS. PRESS. 15.06 PSIA TEMP. 69 °F
Calculated Conc. = 207.6 ppm

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 59.2 ppm WHITTAKER 211.4 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 57.9 ppm WHITTAKER 221 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 57.3 ppm WHITTAKER 221.4 ppm

TEST PERFORMER [Signature] 12/22/97
Date

TEST DIRECTOR [Signature] 12-22-97
Date

TEST ID 1-1
File FGI22211

FGI FLOW TEST DATA SHEET

TEST ID. No. 1-2 DATA FILE No. GC 022271-2 DL F6F22212
SMC ID. No. 96-B-4455 WHITTAKER ID No. H5-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 200.9 CFM
DIFF. PRESS. 3.76 "H₂O ABS. PRESS. 14.74 PSIA TEMP. 68 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.14 FT/SEC
TRANSPORT TIME 2.31 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 200 ppm *Calculated Conc. H₂ = 206.4*
MEASURED H₂ CONCENTRATION 218 ppm
DIFF. PRESS. 4.017 "H₂O ABS. PRESS. 15.66 PSIA TEMP. 69 °F

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 54 ppm WHITTAKER 211.3 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 53 ppm WHITTAKER 231.4 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 52.5 ppm WHITTAKER 230 ppm

TEST PERFORMER [Signature] 12/22/97
Date

TEST DIRECTOR [Signature] 12-22-97
Date

TEST ID 1-2
File FGI22212

FGI FLOW TEST DATA SHEET

TEST ID. No. 1-3 DATA FILE No. GC 022271-3 DLF 6122213
SMC ID. No. 96-B-4455 WHITTAKER ID No. H5-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 201.1 CFM
DIFF. PRESS. 3.76 "H₂O ABS. PRESS. 14.75 PSIA TEMP. 68 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.14 FT/SEC
TRANSPORT TIME 2.31 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 200 ppm MEASURED H₂ CONCENTRATION 217 ppm
DIFF. PRESS. 3.98 "H₂O ABS. PRESS. 15.06 PSIA TEMP. 69 °F
Calculated H₂ Concentr. = 204.3 ppm

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 48.0 ppm WHITTAKER 211.3 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 47.4 ppm WHITTAKER 218 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 48 ppm WHITTAKER 210.6 ppm

TEST PERFORMER [Signature] 12/22/97
Date

TEST DIRECTOR [Signature] 12-22-97
Date

TEST ID 1-3
File FGI22213

FGI FLOW TEST DATA SHEET

TEST ID. No. 27 DATA FILE No. GC 022272-1 DL FGI22221
SMC ID. No. 96-B-4455 WHITTAKER ID No. HS-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 204.0 CFM
DIFF. PRESS. 3.815 "H₂O ABS. PRESS. 14.75 PSIA TEMP. 68 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.23 FT/SEC
TRANSPORT TIME 2.27 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 2000 ppm MEASURED H₂ CONCENTRATION 2029 ppm
DIFF. PRESS. 0.940 "H₂O ABS. PRESS. 14.62 PSIA TEMP. 69 °F
Calculated H₂ corr. = 1917.5

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 1893 ppm WHITTAKER 2012 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 1878 ppm WHITTAKER 2093 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 1885 ppm WHITTAKER 2093 ppm

TEST PERFORMER

[Signature] 12/22/97
Date

TEST DIRECTOR

[Signature] 12-22-97
Date

TEST ID 2-1
File FGI22221

FGI FLOW TEST DATA SHEET

TEST ID. No. 2-2 DATA FILE No. GC 022272-2 DL FG222222
SMC ID. No. 96-B-4455 WHITTAKER ID No. 45-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 198.6 CFM
DIFF. PRESS. 3.74 "H₂O ABS. PRESS. 14.75 PSIA TEMP. 69 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.1 FT/SEC
TRANSPORT TIME 2.32 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 2000 ppm MEASURED H₂ CONCENTRATION 2170 ppm
DIFF. PRESS. 0.987 "H₂O ABS. PRESS. 14.63 PSIA TEMP. 69 °F
Calculated H₂ Conc. = 2055

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 2006 ppm WHITTAKER 2173 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 2023 ppm WHITTAKER 2273.8 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 2030 ppm WHITTAKER 2273.8 ppm

TEST PERFORMER

[Signature] 12/24/97
Date

TEST DIRECTOR

[Signature] 12-22-97
Date

TEST ID 2-2
File FG122222

FGI FLOW TEST DATA SHEET

TEST ID. No. 2-3 DATA FILE No. GC 022272-3 DL FG222223
SMC ID. No. 96-B-4455 WHITTAKER ID No. 45-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 200.1 CFM
DIFF. PRESS. 3.75 "H₂O ABS. PRESS. 14.75 PSIA TEMP. 69 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.1 FT/SEC
TRANSPORT TIME 2.32 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 2000 ppm *Calculated H₂ Conc. = 2031 ppm*
MEASURED H₂ CONCENTRATION 2159 ppm
DIFF. PRESS. 0.978 "H₂O ABS. PRESS. 14.63 PSIA TEMP. 70 °F

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 1923 ppm WHITTAKER 2142 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 1988 ppm WHITTAKER 2263 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 1999 ppm WHITTAKER 2264 ppm

TEST PERFORMER

[Signature] 12/22/97
Date

TEST DIRECTOR

[Signature] 12-22-97
Date

TEST ID 2-3
File FGI22223

FGI FLOW TEST DATA SHEET

TEST ID. No. 2-4 DATA FILE No. GC 62222-4 DL FG222224
SMC ID. No. 96-B-4455 WHITTAKER ID No. H5-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 199.6 CFM
DIFF. PRESS. 3.74 "H₂O ABS. PRESS. 14.75 PSIA TEMP. 69 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.1 FT/SEC
TRANSPORT TIME 2.32 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 4000 ppm MEASURED H₂ CONCENTRATION 4355 ppm
DIFF. PRESS. 2.000 "H₂O ABS. PRESS. 14.69 PSIA TEMP. 70 °F
Calculated H₂ Conc. = 4182

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 4240 ppm WHITTAKER 4335 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 4324 ppm WHITTAKER 4606 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 4335 ppm WHITTAKER 4605 ppm

TEST PERFORMER

[Signature] 12/22/97
Date

TEST DIRECTOR

[Signature] 12-22-97
Date

TEST ID 2-4
File FGI22224

FGI FLOW TEST DATA SHEET

TEST ID. No. 2-5 DATA FILE No. GC 022272-5 DL FG22225
SMC ID. No. 96-B-4455 WHITTAKER ID No. H5-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 200.1 CFM
DIFF. PRESS. 3.75 "H₂O ABS. PRESS. 14.75 PSIA TEMP. 69 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.12 FT/SEC
TRANSPORT TIME 2.32 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 4000 ppm MEASURED H₂ CONCENTRATION 4373 ppm
DIFF. PRESS. 1.999 "H₂O ABS. PRESS. 14.69 PSIA TEMP. 70 °F
Calculated H₂ Conc. = 4169

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 4252 ppm WHITTAKER 4345 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 4324 ppm WHITTAKER 4636 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 4348 ppm WHITTAKER 4636 ppm

TEST PERFORMER

[Signature]

12/24/97
Date

TEST DIRECTOR

[Signature]

12-22-97
Date

TEST ID 2-5
File FGI22225

FGI FLOW TEST DATA SHEET

TEST ID. No. 2-6 DATA FILE No. GC 022272-6 DL FGI2226
SMC ID. No. 96-B-4455 WHITTAKER ID No. H5-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 198.6 CFM
DIFF. PRESS. 3.74 "H₂O ABS. PRESS. 14.75 PSIA TEMP. 69 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.1 FT/SEC
TRANSPORT TIME 2.32 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 4000 ppm MEASURED H₂ CONCENTRATION 4377 ppm
DIFF. PRESS. 1.979 "H₂O ABS. PRESS. 14.69 PSIA TEMP. 70 °F
Calculated H₂ Conc. = 4138

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 4267 ppm WHITTAKER 4365 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 4287 ppm WHITTAKER 4655 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 4304 ppm WHITTAKER 4656 ppm

TEST PERFORMER

[Signature] 12/22/97
Date

TEST DIRECTOR

[Signature] 12-22-97
Date

TEST ID 2-6
File FGI22226

FGI FLOW TEST DATA SHEET

TEST ID. No. 2-7 DATA FILE No. GC 022272-7 DL FGF22227
SMC ID. No. 96-B-4455 WHITTAKER ID No. H5-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 199.6 CFM
DIFF. PRESS. 3.74 "H₂O ABS. PRESS. 14.75 PSIA TEMP. 69 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.1 FT/SEC
TRANSPORT TIME 2.32 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 6000 ppm MEASURED H₂ CONCENTRATION 6432 ppm
DIFF. PRESS. 2.97 "H₂O ABS. PRESS. 14.75 PSIA TEMP. 70 °F
Calculated H₂ Concentration = 6235 ppm

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 6373 ppm WHITTAKER 6466 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 6477 ppm WHITTAKER 6918 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 6485 ppm WHITTAKER 6928 ppm

TEST PERFORMER

[Signature] 12/22/97
Date

TEST DIRECTOR

[Signature] 12-22-97
Date

TEST ID 2-7
File FGI22227

FGI FLOW TEST DATA SHEET

TEST ID. No. 2-8 DATA FILE No. GC 022272-8 DL FG22228
SMC ID. No. 96-B-4455 WHITTAKER ID No. 45-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 199.2 CFM
DIFF. PRESS. 3.74 "H₂O ABS. PRESS. 14.75 PSIA TEMP. 70 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.1 FT/SEC
TRANSPORT TIME 2.33 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 6000 ppm CALCULATED H₂ CONCENTRATION = 6269 ppm
MEASURED H₂ CONCENTRATION 6605 ppm
DIFF. PRESS. 2.98 "H₂O ABS. PRESS. 14.75 PSIA TEMP. 70 °F

SENSOR CONCENTRATION OUTPUT: *NOTE: The hydrogen bottle ran out of gas causing the gas mixture to be unusable. Retested per 2 SA.*
2 MINUTE CONCENTRATION VALUES:

SMC 6322 ppm WHITTAKER 6506 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC N/A ppm WHITTAKER N/A ppm

15 MINUTE CONCENTRATION VALUES:

SMC N/A ppm WHITTAKER N/A ppm

TEST PERFORMER [Signature] 12/22/97
Date

TEST DIRECTOR [Signature] 12-22-97
Date

TEST ID 2-8
File FGI22228

FGI FLOW TEST DATA SHEET

TEST ID. No. 2-8A DATA FILE No. GC 0222728A DL FG 22228A
SMC ID. No. 96-B-4455 WHITTAKER ID No. 45-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 200.2 CFM
DIFF. PRESS. 3.76 "H₂O ABS. PRESS. 14.74 PSIA TEMP. 70 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.1 FT/SEC
TRANSPORT TIME 2.32 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 6000 ppm MEASURED H₂ CONCENTRATION 6523 ppm
DIFF. PRESS. 3.000 "H₂O ABS. PRESS. 14.75 PSIA TEMP. 70 °F
Calculated H₂ Conc. = 6279 ppm

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 6437 ppm WHITTAKER 6566 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 6538 ppm WHITTAKER 7068 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 6547 ppm WHITTAKER 7069 ppm

TEST PERFORMER [Signature] 12/22/97
Date

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Date

TEST ID 2-8A
File FG22228A

FGI FLOW TEST DATA SHEET

TEST ID. No. 2-9 DATA FILE No. GC 022272-9 DL FGI22229
SMC ID. No. 96-B-4455 WHITTAKER ID No. 45-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 199.3 CFM
DIFF. PRESS. 3.744 "H₂O ABS. PRESS. 14.74 PSIA TEMP. 70 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.1 FT/SEC
TRANSPORT TIME 2.33 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 6000 ppm MEASURED H₂ CONCENTRATION 6480 ppm
DIFF. PRESS. 2.991 "H₂O ABS. PRESS. 14.75 PSIA TEMP. 70 °F
Calculated H₂ conc. = 6289 ppm

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 6388 ppm WHITTAKER 6586 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 6488 ppm WHITTAKER 7008 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 6475 ppm WHITTAKER 7008 ppm

TEST PERFORMER [Signature] 12/22/97
Date

TEST DIRECTOR [Signature] 12-22-97
Date

TEST ID 2-9
File FGI22229

FGI FLOW TEST DATA SHEET

TEST ID. No. EX37 DATA FILE No. GC02227EX1 DL EX102227
SMC ID. No. 96-B-4455 WHITTAKER ID No. H5-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 180 CFM CALCULATED FLOW 180.8 CFM
DIFF. PRESS. 3.39 "H₂O ABS. PRESS. 14.74 PSIA TEMP. 69 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 5.52 FT/SEC
TRANSPORT TIME 2.56 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 4000 ppm MEASURED H₂ CONCENTRATION 4149 ppm
DIFF. PRESS. 1.80 "H₂O ABS. PRESS. 14.67 PSIA TEMP. 70 °F

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 4012 ppm WHITTAKER 4475 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 4041 ppm WHITTAKER 4776 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 4072 ppm WHITTAKER 4776 ppm

TEST PERFORMER

[Signature] 12/22/97
Date

TEST DIRECTOR

[Signature] 12-22-97
Date

TEST ID EX3-1
File EX102227

FGI FLOW TEST DATA SHEET

TEST ID. No. EX3-2 DATA FILE No. GC02227EX2 DL EX202227
SMC ID. No. 96-B-4455 WHITTAKER ID No. 45-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 180 CFM CALCULATED FLOW 180.9 CFM
DIFF. PRESS. 3.40 "H₂O ABS. PRESS. 14.73 PSIA TEMP. 70 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 5.53 FT/SEC
TRANSPORT TIME 2.56 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 4000 ppm MEASURED H₂ CONCENTRATION 4340 ppm
DIFF. PRESS. 1.795 "H₂O ABS. PRESS. 14.67 PSIA TEMP. 70 °F
Calculated H₂ Conc. = 4135 ppm

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 4013 ppm WHITTAKER 4485 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 4026 ppm WHITTAKER 4766 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 4030 ppm WHITTAKER 4766 ppm

TEST PERFORMER [Signature] 12/22/97
Date

TEST DIRECTOR [Signature] 12-22-97
Date

TEST ID EX3-2
File EX202227

FGI FLOW TEST DATA SHEET

TEST ID. No. EX3-3 DATA FILE No. GC02227EX3 DL EX302227
SMC ID. No. 96-B-4455 WHITTAKER ID No. 45-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 180 CFM CALCULATED FLOW 180.7 CFM
DIFF. PRESS. 3.396 "H₂O ABS. PRESS. 14.73 PSIA TEMP. 70 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 5.52 FT/SEC
TRANSPORT TIME 2.57 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 4000 ppm MEASURED H₂ CONCENTRATION 4330 ppm
DIFF. PRESS. 1.787 "H₂O ABS. PRESS. 14.67 PSIA TEMP. 70 °F
Calculated H₂ Concentration = 4122

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 3973 ppm WHITTAKER 4465 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 4049 ppm WHITTAKER 4756 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 4026 ppm WHITTAKER 4766 ppm

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Date

TEST DIRECTOR [Signature] 12-22-97
Date

TEST ID EX3-2
File EX302227

FGI FLOW TEST DATA SHEET

TEST ID. No. EX4-1 DATA FILE No. GC 02257EX1 DLEX 102257
SMC ID. No. 96-B-4455 WHITTAKER ID No. 115-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 198.97 CFM
DIFF. PRESS. 3.805 "H₂O ABS. PRESS. 14.56 PSIA TEMP. 73 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.1 FT/SEC
TRANSPORT TIME 2.33 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 4,000 ppm Calculated H₂ conc. = 3696 ppm
MEASURED H₂ CONCENTRATION 3800 ppm
DIFF. PRESS. 1.798 "H₂O ABS. PRESS. 14.48 PSIA TEMP. 73 °F

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 3667 ppm WHITTAKER 3745 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 3706 ppm WHITTAKER 3976 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 3707 ppm WHITTAKER 3976 ppm

TEST PERFORMER [Signature] 12-25-97
Date

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Date

TEST ID EX4-1
File EX102257

FGI FLOW TEST DATA SHEET

TEST ID. No. EX4-2 DATA FILE No. GC02257EX2 DL EX202257
SMC ID. No. 96B-4455 WHITTAKER ID No. 45-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 197.98 CFM
DIFF. PRESS. 3.827 "H₂O ABS. PRESS. 14.55 PSIA TEMP. 73 °F
DUCT LENGTH 18.17 FT. FLOW VELOCITY 6.1 FT/SEC
TRANSPORT TIME 2.32 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 4000 ppm Calculated H₂ conc = 4094 ppm
MEASURED H₂ CONCENTRATION 4217 ppm
DIFF. PRESS. 2.000 "H₂O ABS. PRESS. 14.49 PSIA TEMP. 73 °F

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 4067 ppm WHITTAKER 4195 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 4120 ppm WHITTAKER 4436 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 4137 ppm WHITTAKER 4436 ppm

TEST PERFORMER [Signature]

12/25/97
Date

TEST DIRECTOR [Signature]

12-25-97
Date

TEST ID EX4-2
File EX202257

FGI FLOW TEST DATA SHEET

TEST ID. No. EK4-3 DATA FILE No. GC02257EX3 DL EK302357
SMC ID. No. 96B-4455 WHITTAKER ID No. H5-1226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 199.05 CFM
DIFF. PRESS. 3.802 "H₂O ABS. PRESS. 14.55 PSIA TEMP. 72 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.1 FT/SEC
TRANSPORT TIME 2.32 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 4,000 ppm CALCULATED H₂ CONC. = 4120 ppm
MEASURED H₂ CONCENTRATION 4210 ppm
DIFF. PRESS. 2.005 "H₂O ABS. PRESS. 14.48 PSIA TEMP. 73 °F

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 4054 ppm WHITTAKER 4236 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 4135 ppm WHITTAKER 4466 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 4128 ppm WHITTAKER 4466 ppm

TEST PERFORMER

[Signature] 12/25/97
Date

TEST DIRECTOR

[Signature] 12-25-97
Date

TEST ID EX4-3
File EX302257

FGI FLOW TEST DATA SHEET

TEST ID. No. EX4-4 DATA FILE No. GC02257EX4 DL EX402257
SMC ID. No. 26-B-4455 WHITTAKER ID No. 454226

MAIN DUCT FLOW PARAMETERS:

REQUIRED FLOW 200 CFM CALCULATED FLOW 200.3 CFM
DIFF. PRESS. 3.836 "H₂O ABS. PRESS. 14.54 PSIA TEMP. 73 °F
DUCT LENGTH 14.17 FT. FLOW VELOCITY 6.12 FT/SEC
TRANSPORT TIME 2.31 SEC.

INJECTION FLOW PARAMETERS:

DESIRED H₂ CONCENTRATION 4000 ppm MEASURED H₂ CONCENTRATION 4210 ppm
DIFF. PRESS. 2.010 "H₂O ABS. PRESS. 14.48 PSIA TEMP. 73 °F
Calculated H₂ conc. = 4105 ppm

SENSOR CONCENTRATION OUTPUT:

2 MINUTE CONCENTRATION VALUES:

SMC 4046 ppm WHITTAKER 4225 ppm

14 MINUTE 30 SECOND CONCENTRATION VALUES:

SMC 4127 ppm WHITTAKER 4486 ppm

15 MINUTE CONCENTRATION VALUES:

SMC 4136 ppm WHITTAKER 4486 ppm

TEST PERFORMER

[Signature]

12/25/97
Date

TEST DIRECTOR

[Signature]

1-2-95-97
Date

TEST ID EX4-4
File EX402257

The following data provides listing of the gas chromatograph (GC) calibration and test concentration data. The second file listed identifies a validation test of the sensor calibration gas. The GC file number can be referenced to the data sheets in APPENDIX C. The concentrations listed on the individual data sheets are not averaged concentrations, but concentrations that the GC read nominally 6 minutes into the 15 minute test.

Feb 13, 1997	12:52:32	0	Hydrogen	02137cal.dif	eric_shp.
Feb 13, 1997	12:51:32	1	1009.355		
Feb 13, 1997	12:53:34	2	1008.977		
Feb 13, 1997	12:55:36	3	1009.561		
Feb 13, 1997	12:57:38	4	1009.179		
Feb 13, 1997	13:01:49	0	Hydrogen	8070tst.dif	eric_shp.
Feb 13, 1997	13:00:49	1	3372.827		
Feb 13, 1997	13:02:51	2	8055.043		
Feb 13, 1997	13:04:53	3	8040.089		
Feb 13, 1997	13:06:55	4	8032.270		
Feb 13, 1997	15:36:05	0	Hydrogen	021371-1.dif	eric_shp.
Feb 13, 1997	15:35:05	1	0.000		
Feb 13, 1997	15:37:07	2	239.844		
Feb 13, 1997	15:39:09	3	237.123		
Feb 13, 1997	15:41:11	4	236.914		
Feb 13, 1997	15:43:13	5	237.646		
Feb 13, 1997	15:45:15	6	238.797		
Feb 13, 1997	15:47:17	7	237.863		
Feb 13, 1997	15:49:20	8	238.328		
Feb 13, 1997	15:51:22	9	239.220		
Feb 13, 1997	15:53:24	10	0.000		
Feb 13, 1997	16:37:45	0	Hydrogen	021371-2.dif	eric_shp.
Feb 13, 1997	16:36:45	1	0.000		
Feb 13, 1997	16:38:47	2	232.394		
Feb 13, 1997	16:40:49	3	237.027		
Feb 13, 1997	16:42:51	4	235.787		
Feb 13, 1997	16:44:53	5	236.225		
Feb 13, 1997	16:46:55	6	236.727		
Feb 13, 1997	16:48:57	7	237.220		
Feb 13, 1997	16:50:59	8	236.609		
Feb 13, 1997	16:53:00	9	236.613		
Feb 13, 1997	16:55:03	10	0.000		

Feb 13, 1997	19:24:00	0	Hydrogen	021371-3.dif	eric_shp.
Feb 13, 1997	19:23:00	1	0.000		
Feb 13, 1997	19:25:02	2	234.535		
Feb 13, 1997	19:27:04	3	235.240		
Feb 13, 1997	19:29:06	4	234.585		
Feb 13, 1997	19:31:08	5	234.680		
Feb 13, 1997	19:33:10	6	234.548		
Feb 13, 1997	19:35:12	7	235.114		
Feb 13, 1997	19:37:14	8	235.391		
Feb 13, 1997	19:39:16	9	235.654		
Feb 13, 1997	19:41:18	10	0.000		
Feb 13, 1997	20:49:41	0	Hydrogen	021372-4.dif	eric_shp.
Feb 13, 1997	20:48:41	1	0.000		
Feb 13, 1997	20:50:43	2	4084.144		
Feb 13, 1997	20:52:45	3	4064.679		
Feb 13, 1997	20:54:47	4	4060.621		
Feb 13, 1997	20:56:50	5	4054.331		
Feb 13, 1997	20:58:52	6	4039.324		
Feb 13, 1997	21:00:54	7	4047.384		
Feb 13, 1997	21:02:57	8	4032.408		
Feb 13, 1997	21:04:59	9	4034.537		
Feb 13, 1997	21:07:01	10	0.000		
Feb 13, 1997	21:45:58	0	Hydrogen	02137ex1.dif	eric_shp.
Feb 13, 1997	21:44:58	1	0.000		
Feb 13, 1997	21:47:00	2	0.000		
Feb 13, 1997	21:49:02	3	0.000		
Feb 13, 1997	21:51:05	4	4054.654		
Feb 13, 1997	21:53:08	5	4038.196		
Feb 13, 1997	21:55:10	6	4026.650		
Feb 13, 1997	21:57:12	7	4028.207		
Feb 13, 1997	21:59:14	8	4012.841		
Feb 13, 1997	22:01:15	9	4003.602		
Feb 13, 1997	22:03:18	10	4001.193		
Feb 13, 1997	22:05:20	11	5.988		
Feb 13, 1997	22:54:21	0	Hydrogen	02137ex2.dif	eric_shp.
Feb 13, 1997	22:53:20	1	0.000		
Feb 13, 1997	22:55:22	2	0.000		
Feb 13, 1997	22:57:24	3	4165.151		
Feb 13, 1997	22:59:26	4	4115.762		
Feb 13, 1997	23:01:28	5	4104.827		
Feb 13, 1997	23:03:30	6	4071.867		
Feb 13, 1997	23:05:32	7	4064.729		
Feb 13, 1997	23:07:34	8	4059.202		
Feb 13, 1997	23:09:36	9	4049.874		
Feb 13, 1997	23:11:38	10	3901.815		
Feb 13, 1997	23:13:40	11	0.000		

Feb 14, 1997	14:53:56	0	Hydrogen	02147EX1.dif	eric_shp.
Feb 14, 1997	14:52:56	1	0.000		
Feb 14, 1997	14:54:58	2	0.000		
Feb 14, 1997	14:57:00	3	0.000		
Feb 14, 1997	14:59:02	4	3931.989		
Feb 14, 1997	15:01:04	5	4173.215		
Feb 14, 1997	15:03:06	6	4166.864		
Feb 14, 1997	15:05:08	7	4155.838		
Feb 14, 1997	15:07:10	8	4147.488		
Feb 14, 1997	15:09:12	9	4141.784		
Feb 14, 1997	15:11:14	10	4124.018		
Feb 22, 1997	06:09:54	0	Hydrogen	02227cal.dif	eric_shp.
Feb 22, 1997	06:08:53	1	1009.363		
Feb 22, 1997	06:10:55	2	1009.599		
Feb 22, 1997	06:12:57	3	1010.336		
Feb 22, 1997	06:14:59	4	1009.090		
Feb 22, 1997	06:17:01	5	1010.709		
Feb 22, 1997	07:39:31	0	Hydrogen	022271-1.dif	eric_shp.
Feb 22, 1997	07:38:30	1	0.000		
Feb 22, 1997	07:40:33	2	219.714		
Feb 22, 1997	07:42:35	3	219.018		
Feb 22, 1997	07:44:37	4	219.921		
Feb 22, 1997	07:46:39	5	219.373		
Feb 22, 1997	07:48:41	6	219.898		
Feb 22, 1997	07:50:43	7	220.156		
Feb 22, 1997	07:52:45	8	220.417		
Feb 22, 1997	08:01:05	0	Hydrogen	022271-2.dif	eric_shp.
Feb 22, 1997	08:00:05	1	0.000		
Feb 22, 1997	08:02:07	2	218.815		
Feb 22, 1997	08:04:09	3	218.121		
Feb 22, 1997	08:06:12	4	218.178		
Feb 22, 1997	08:08:14	5	218.737		
Feb 22, 1997	08:10:16	6	219.049		
Feb 22, 1997	08:12:18	7	218.768		
Feb 22, 1997	08:14:20	8	219.358		
Feb 22, 1997	08:21:44	0	Hydrogen	022271-3.dif	eric_shp.
Feb 22, 1997	08:20:44	1	0.000		
Feb 22, 1997	08:22:46	2	0.000		
Feb 22, 1997	08:24:48	3	216.933		
Feb 22, 1997	08:26:50	4	216.803		
Feb 22, 1997	08:28:52	5	216.617		
Feb 22, 1997	08:30:54	6	216.377		
Feb 22, 1997	08:32:56	7	216.655		
Feb 22, 1997	08:34:58	8	216.375		
Feb 22, 1997	08:37:00	9	215.919		

Feb 22, 1997	09:15:01	0	Hydrogen	022272-1.dif	eric_shp.
Feb 22, 1997	09:14:01	1	0.000		
Feb 22, 1997	09:16:03	2	2039.065		
Feb 22, 1997	09:18:05	3	2029.069		
Feb 22, 1997	09:20:08	4	2021.438		
Feb 22, 1997	09:22:10	5	2017.879		
Feb 22, 1997	09:24:12	6	2008.246		
Feb 22, 1997	09:26:14	7	2002.091		
Feb 22, 1997	09:28:16	8	1994.316		
Feb 22, 1997	09:36:15	0	Hydrogen	022272-2.dif	eric_shp.
Feb 22, 1997	09:35:15	1	4.887		
Feb 22, 1997	09:37:17	2	4.507		
Feb 22, 1997	09:39:19	3	2176.016		
Feb 22, 1997	09:41:22	4	2171.520		
Feb 22, 1997	09:43:24	5	2166.213		
Feb 22, 1997	09:45:26	6	2169.162		
Feb 22, 1997	09:47:28	7	2163.635		
Feb 22, 1997	09:49:30	8	2165.513		
Feb 22, 1997	09:51:32	9	2152.860		
Feb 22, 1997	09:59:04	0	Hydrogen	022272-3.dif	eric_shp.
Feb 22, 1997	09:58:03	1	5.678		
Feb 22, 1997	10:00:05	2	2106.223		
Feb 22, 1997	10:02:07	3	2158.866		
Feb 22, 1997	10:04:09	4	2149.787		
Feb 22, 1997	10:06:11	5	2148.808		
Feb 22, 1997	10:08:13	6	2151.172		
Feb 22, 1997	10:10:15	7	2147.346		
Feb 22, 1997	10:12:18	8	2146.195		
Feb 22, 1997	10:14:20	9	2144.823		
Feb 22, 1997	10:29:05	0	H2	022272-4.dif	eric_shp.
Feb 22, 1997	10:28:04	1	7.733		
Feb 22, 1997	10:30:06	2	4346.532		
Feb 22, 1997	10:32:08	3	4358.887		
Feb 22, 1997	10:34:10	4	4354.556		
Feb 22, 1997	10:36:12	5	4358.121		
Feb 22, 1997	10:38:14	6	4353.721		
Feb 22, 1997	10:40:16	7	4366.371		
Feb 22, 1997	10:42:18	8	4352.970		
Feb 22, 1997	10:44:20	9	4352.487		

Feb 22, 1997	10:53:18	0	Hydrogen	022272-5.dif	eric_shp.
Feb 22, 1997	10:52:17	1	10.768		
Feb 22, 1997	10:54:20	2	10.627		
Feb 22, 1997	10:56:22	3	4037.397		
Feb 22, 1997	10:58:24	4	4373.104		
Feb 22, 1997	11:00:26	5	4366.323		
Feb 22, 1997	11:02:27	6	4369.537		
Feb 22, 1997	11:04:30	7	4353.324		
Feb 22, 1997	11:06:32	8	4365.395		
Feb 22, 1997	11:08:34	9	4350.768		
Feb 22, 1997	11:10:36	10	4366.129		
Feb 22, 1997	11:22:17	0	Hydrogen	022272-6.dif	eric_shp.
Feb 22, 1997	11:21:17	1	12.067		
Feb 22, 1997	11:23:19	2	11.164		
Feb 22, 1997	11:25:21	3	4359.464		
Feb 22, 1997	11:27:23	4	4376.943		
Feb 22, 1997	11:29:26	5	4365.416		
Feb 22, 1997	11:31:28	6	4367.537		
Feb 22, 1997	11:33:30	7	4369.850		
Feb 22, 1997	11:35:32	8	4373.277		
Feb 22, 1997	11:37:34	9	4363.086		
Feb 22, 1997	11:39:36	10	4373.491		
Feb 22, 1997	11:57:06	0	Hydrogen	022272-7.dif	eric_shp.
Feb 22, 1997	11:56:05	1	14.257		
Feb 22, 1997	11:58:07	2	6445.277		
Feb 22, 1997	12:00:09	3	6432.761		
Feb 22, 1997	12:02:11	4	6452.556		
Feb 22, 1997	12:04:13	5	6444.227		
Feb 22, 1997	12:06:16	6	6452.016		
Feb 22, 1997	12:08:18	7	6446.407		
Feb 22, 1997	12:10:20	8	6464.080		
Feb 22, 1997	12:12:22	9	6477.664		
Feb 22, 1997	12:28:31	0	Hydrogen	022272-8.dif	eric_shp.
Feb 22, 1997	12:27:31	1	16.176		
Feb 22, 1997	12:29:33	2	6464.012		
Feb 22, 1997	12:31:36	3	6464.790		
Feb 22, 1997	12:33:38	4	6510.901		
Feb 22, 1997	12:35:40	5	6588.073		
Feb 22, 1997	12:37:42	6	6674.932		
Feb 22, 1997	12:39:44	7	6767.710		
Feb 22, 1997	12:41:47	8	6853.703		
Feb 22, 1997	12:43:49	9	470.631		

Feb 22, 1997	12:59:29	0	Hydrogen	0222728A.dif	eric_shp.
Feb 22, 1997	12:58:28	1	17.330		
Feb 22, 1997	13:00:30	2	30.399		
Feb 22, 1997	13:02:32	3	6504.745		
Feb 22, 1997	13:04:34	4	6522.693		
Feb 22, 1997	13:06:36	5	6552.434		
Feb 22, 1997	13:08:39	6	6559.853		
Feb 22, 1997	13:10:41	7	6563.333		
Feb 22, 1997	13:12:43	8	6545.603		
Feb 22, 1997	13:14:45	9	6570.091		
Feb 22, 1997	13:37:35	0	Hydrogen	022272-9.dif	eric_shp.
Feb 22, 1997	13:36:35	1	18.006		
Feb 22, 1997	13:38:37	2	6506.151		
Feb 22, 1997	13:40:39	3	6489.973		
Feb 22, 1997	13:42:40	4	6473.920		
Feb 22, 1997	13:44:43	5	6481.234		
Feb 22, 1997	13:46:45	6	6475.514		
Feb 22, 1997	13:48:47	7	6471.816		
Feb 22, 1997	13:50:49	8	6464.026		
Feb 22, 1997	13:52:51	9	6447.447		
Feb 22, 1997	14:13:26	0	Hydrogen	02227EX1.dif	eric_shp.
Feb 22, 1997	14:12:26	1	19.338		
Feb 22, 1997	14:14:28	2	4349.394		
Feb 22, 1997	14:16:30	3	4359.913		
Feb 22, 1997	14:18:32	4	4347.964		
Feb 22, 1997	14:20:35	5	4357.109		
Feb 22, 1997	14:22:37	6	4352.464		
Feb 22, 1997	14:24:39	7	4349.592		
Feb 22, 1997	14:26:41	8	4338.969		
Feb 22, 1997	14:28:43	9	4349.167		
Feb 22, 1997	14:43:47	0	Hydrogen	02227EX2.dif	eric_shp.
Feb 22, 1997	14:42:46	1	18.225		
Feb 22, 1997	14:44:48	2	4357.292		
Feb 22, 1997	14:46:50	3	4347.703		
Feb 22, 1997	14:48:52	4	4331.313		
Feb 22, 1997	14:50:54	5	4335.274		
Feb 22, 1997	14:52:57	6	4325.595		
Feb 22, 1997	14:54:59	7	4336.448		
Feb 22, 1997	14:57:01	8	4331.169		
Feb 22, 1997	14:59:03	9	4340.922		
Feb 22, 1997	15:01:06	10	21.342		

Feb 22, 1997	15:14:46	0	Hydrogen	02227EX3.dif	eric_shp.
Feb 22, 1997	15:13:46	1	18.629		
Feb 22, 1997	15:15:48	2	4336.479		
Feb 22, 1997	15:17:50	3	4323.214		
Feb 22, 1997	15:19:52	4	4326.033		
Feb 22, 1997	15:21:54	5	4322.145		
Feb 22, 1997	15:23:56	6	4312.876		
Feb 22, 1997	15:25:58	7	4313.123		
Feb 22, 1997	15:28:00	8	4316.208		
Feb 22, 1997	15:30:02	9	4304.706		
Feb 25, 1997	12:04:06	0	Hydrogen	02257cal.dif	eric_shp.
Feb 25, 1997	12:03:06	1	1009.299		
Feb 25, 1997	12:05:08	2	1008.832		
Feb 25, 1997	12:07:10	3	1009.226		
Feb 25, 1997	12:09:12	4	1008.699		
Feb 25, 1997	12:11:14	5	1008.425		
Feb 25, 1997	13:46:04	0	Hydrogen	02257EX1.dif	eric_shp.
Feb 25, 1997	13:45:03	1	0.000		
Feb 25, 1997	13:47:05	2	2447.853		
Feb 25, 1997	13:49:07	3	3809.017		
Feb 25, 1997	13:51:10	4	3805.322		
Feb 25, 1997	13:53:12	5	3799.938		
Feb 25, 1997	13:55:14	6	3796.007		
Feb 25, 1997	13:57:16	7	3793.973		
Feb 25, 1997	13:59:18	8	3784.658		
Feb 25, 1997	14:01:20	9	3801.212		
Feb 25, 1997	14:12:56	0	Hydrogen	02257EX2.dif	eric_shp.
Feb 25, 1997	14:11:55	1	0.000		
Feb 25, 1997	14:13:57	2	4216.762		
Feb 25, 1997	14:15:59	3	4217.365		
Feb 25, 1997	14:18:01	4	4213.579		
Feb 25, 1997	14:20:03	5	4208.123		
Feb 25, 1997	14:22:05	6	4204.204		
Feb 25, 1997	14:24:07	7	4208.516		
Feb 25, 1997	14:26:09	8	4206.871		
Feb 25, 1997	14:42:18	0	Hydrogen	02257EX3.dif	eric_shp.
Feb 25, 1997	14:41:18	1	4.639		
Feb 25, 1997	14:43:20	2	4206.640		
Feb 25, 1997	14:45:22	3	4211.951		
Feb 25, 1997	14:47:24	4	4212.225		
Feb 25, 1997	14:49:26	5	4208.801		
Feb 25, 1997	14:51:28	6	4215.577		
Feb 25, 1997	14:53:30	7	4211.121		
Feb 25, 1997	14:55:32	8	4215.286		
Feb 25, 1997	14:57:35	9	4212.332		

Feb 25, 1997	15:15:26	0	Hydrogen	02257EX4.dif	eric_shp.
Feb 25, 1997	15:14:26	1	9.041		
Feb 25, 1997	15:16:28	2	27.646		
Feb 25, 1997	15:18:30	3	4223.193		
Feb 25, 1997	15:20:33	4	4211.308		
Feb 25, 1997	15:22:35	5	4224.475		
Feb 25, 1997	15:24:37	6	4209.358		
Feb 25, 1997	15:26:39	7	4209.040		
Feb 25, 1997	15:28:42	8	4222.687		
Feb 25, 1997	15:30:44	9	4221.587		

TEST: EX102227 22 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 4348ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.0200195	3.40222258	14.7419885	0.612388064	14.68425	111.225	-3.349758	70.5	69.8	69.3	69.5	0.000247
5.0200195	3.39784569	14.7434878	1.79597072	14.67825	111.35	-3.225604	70.5	69.7	69.2	69.5	0.000248
10.02002	3.39409407	14.7427381	1.7972216	14.6775	181.5	1040.41292	70.5	69.9	69.3	69.5	0.000276
15.02002	3.39409407	14.7427381	1.7972216	14.67825	644.5	2366.87426	70.5	69.9	69.3	69.5	0.000349
20.02002	3.3971718	14.7419885	1.79784704	14.67825	1230.25	3108.57025	70.5	69.9	69.3	69.5	0.000439
25.02002	3.39409407	14.7434878	1.7972216	14.6775	1782	3461.66423	70.3	69.9	69.1	69.4	0.000522
30.02002	3.39159299	14.7412389	1.7972216	14.6775	2253.75	3649.38508	70.3	69.9	69.1	69.5	0.000593
35.02002	3.38659083	14.7427381	1.79909792	14.6775	2681.5	3756.90244	70.3	69.9	69.2	69.5	0.00065
40.02002	3.42285649	14.7412389	1.79972336	14.6775	3023.5	3836.85762	70.2	69.9	69.3	69.5	0.000696
45.02002	3.39847096	14.7427381	1.79972336	14.6775	3281.5	3869.88258	70.3	69.9	69.3	69.5	0.000733
50.02002	3.38534029	14.7419885	1.79972336	14.67675	3504	3907.37709	70.3	69.9	69.2	69.5	0.000764
55.02002	3.39409407	14.7419885	1.79847248	14.6775	3704.25	3917.30941	70.4	69.9	69.1	69.5	0.000789
60.02002	3.40222258	14.7404893	1.79909792	14.6775	3833.75	3937.91897	70.3	69.9	69.2	69.5	0.000808
65.02002	3.3997215	14.7419885	1.8003488	14.67825	3971.5	3945.36821	70.3	69.9	69.3	69.5	0.000825
70.02002	3.41597852	14.7427381	1.8003488	14.6775	4035	3944.37498	70.4	69.9	69.3	69.6	0.000838
75.02002	3.39534461	14.7419885	1.80285056	14.67675	4115	3945.86483	70.4	69.9	69.3	69.5	0.000849
80.02002	3.40222258	14.7419885	1.80285056	14.6775	4194.75	3966.47439	70.4	69.9	69.2	69.5	0.000859
85.02002	3.40409839	14.7434878	1.80159968	14.67825	4254.5	3975.9101	70.4	69.9	69.3	69.5	0.000867
90.02002	3.39284353	14.7404893	1.80097424	14.67825	4294.75	3979.1361	70.3	69.9	69.3	69.6	0.000873
95.02002	3.3809634	14.7419885	1.80159968	14.67825	4344.75	3974.66856	70.3	69.9	69.3	69.5	0.000879
100.02002	3.3934688	14.7427381	1.80159968	14.67825	4365.25	3989.31873	70.3	69.9	69.3	69.5	0.000884
105.02002	3.3997215	14.7427381	1.80222512	14.67825	4405.25	4011.91476	70.3	70	69.2	69.5	0.000888
110.02002	3.38846684	14.7419885	1.80222512	14.6775	4435	4020.85384	70.3	69.9	69.3	69.5	0.000892
115.02002	3.39784569	14.7419885	1.80159968	14.67825	4455	4008.43844	70.4	69.9	69.3	69.5	0.000895
120.02002	3.40847528	14.7419885	1.80097424	14.6775	4475.25	4012.65968	70.4	69.9	69.3	69.5	0.000898
125.02002	3.39471934	14.7427381	1.803476	14.6775	4485	4026.06831	70.5	69.9	69.2	69.5	0.000901
130.02002	3.40785001	14.7419885	1.80097424	14.6775	4505	4044.4431	70.4	70	69.2	69.6	0.000901
135.02002	3.3997215	14.7412389	1.80159968	14.67825	4515.5	4053.38219	70.3	70	69.3	69.5	0.000904
140.02002	3.3997215	14.7427381	1.80159968	14.67675	4525.5	4061.57636	70.3	69.9	69.2	69.5	0.000906
145.02002	3.40159731	14.7419885	1.80159968	14.67675	4535.25	4048.18772	70.3	70	69.2	69.6	0.000908

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.0200195	3.40222258	14.7419885	0.612388064	14.68425	111.225	-3.349758	70.5	69.8	69.3	69.5	0.000247
150.02002	3.39534461	14.7412389	1.80159968	14.67825	4555.5	4052.88558	70.4	70	69.3	69.6	0.00091
155.02002	3.40159731	14.7427381	1.80222512	14.67825	4565	4060.33482	70.3	70	69.4	69.5	0.000911
160.02002	3.4372377	14.7404893	1.80097424	14.6775	4575.75	4072.75022	70.4	70	69.3	69.5	0.000911
165.02002	3.38659083	14.7427381	1.80472688	14.6775	4585.5	4074.73668	70.4	70	69.3	69.6	0.000913
170.02002	3.38971718	14.7427381	1.80222512	14.6775	4585	4070.01883	70.3	70	69.2	69.6	0.000914
175.04001	3.38283921	14.7412389	1.80222512	14.6775	4595.25	4075.4816	70.3	70	69.3	69.6	0.000916
180.02002	3.39784569	14.7404893	1.80097424	14.6775	4605.5	4072.50191	70.3	70	69.3	69.6	0.000916
185.02002	3.38846664	14.7419885	1.80159968	14.6775	4615.25	4075.4816	70.3	70	69.2	69.5	0.000917
190.02002	3.39159299	14.7404893	1.80222512	14.6775	4625.5	4082.18592	70.3	70	69.2	69.5	0.000918
195.02002	3.39784569	14.7412389	1.80159968	14.6775	4625.5	4087.15208	70.3	70	69.2	69.6	0.000919
200.02002	3.39722042	14.7412389	1.80159968	14.6775	4625.5	4088.64193	70.3	70	69.3	69.6	0.00092
205.02002	3.39722042	14.7412389	1.80159968	14.67825	4635.25	4100.80902	70.3	70	69.3	69.6	0.00092
210.03	3.3997215	14.7419885	1.80159968	14.6775	4635.5	4111.48626	70.3	70	69.2	69.5	0.00092
215.02002	3.39784569	14.7412389	1.80222512	14.67675	4635.75	4094.1047	70.3	70	69.2	69.6	0.000921
220.02002	3.38909191	14.7404893	1.80097424	14.6775	4634.75	4098.07763	70.3	70	69.2	69.5	0.000921
225.02002	3.4059742	14.7412389	1.80159968	14.6775	4645.75	4092.61486	70.3	70	69.3	69.5	0.000922
230.02002	3.38659083	14.7404893	1.80159968	14.67675	4654.75	4093.8564	70.3	70	69.3	69.5	0.000923
235.02002	3.40034677	14.7419885	1.80159968	14.67675	4655.75	4099.31917	70.4	70	69.2	69.5	0.000923
240.02002	3.3872161	14.7419885	1.80159968	14.67675	4655.5	4086.15885	70.4	70	69.2	69.6	0.000924
245.02002	3.39784569	14.7412389	1.80159968	14.6775	4665.5	4080.94438	70.4	70	69.3	69.6	0.000924
250.02002	3.41535325	14.7412389	1.80159968	14.67675	4665.5	4076.72314	70.3	70	69.3	69.6	0.000924
255.02002	3.40659947	14.7427381	1.80159968	14.6775	4665.5	4048.91265	70.4	70	69.3	69.6	0.000924
260.02002	3.39722042	14.7412389	1.80159968	14.6775	4665.25	4064.80436	70.3	70	69.2	69.6	0.000925
265.02002	3.39159299	14.7412389	1.80097424	14.67825	4665.25	4072.99852	70.3	70	69.3	69.6	0.000926
270.03	3.40722474	14.7419885	1.80159968	14.6775	4675.5	4089.63516	70.3	70	69.2	69.6	0.000926
275.02002	3.39659515	14.7412389	1.80222512	14.6775	4675.75	4089.63516	70.3	70	69.2	69.6	0.000927
280.02002	3.39596988	14.7419885	1.80097424	14.67675	4675.25	4096.07763	70.3	70	69.2	69.6	0.000926
285.03	3.4122269	14.7419885	1.80159968	14.6775	4685.75	4096.58778	70.4	70	69.3	69.6	0.000927
290.02002	3.3934688	14.7419885	1.80159968	14.67825	4685	4097.0844	70.3	70	69.2	69.6	0.000928
295.02002	3.38784137	14.7412389	1.80159968	14.6775	4685.75	4083.17915	70.4	70.1	69.3	69.6	0.000928
300.02002	3.38909191	14.7427381	1.79909792	14.6775	4685.75	4076.72314	70.4	70.1	69.3	69.6	0.000928
305.03	3.40034677	14.7404893	1.79972336	14.6775	4685.25	4059.09328	70.4	70.1	69.2	69.6	0.000927
310.02002	3.39221826	14.7427381	1.79909792	14.67675	4686	4086.90377	70.4	70	69.2	69.6	0.000928

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.0200195	3.40222258	14.7419885	0.612388064	14.68425	111.225	-3.349758	70.5	69.8	69.3	69.5	0.000247
315.02002	3.40159731	14.7427381	1.79909792	14.67825	4692.5	4085.91054	70.5	70	69.3	69.6	0.000929
320.02002	3.39722042	14.7427381	1.79972336	14.6775	4695.25	4098.82256	70.5	70	69.2	69.6	0.000929
325.02002	3.39784569	14.7404893	1.79847248	14.6775	4695.5	4102.29887	70.5	70	69.3	69.6	0.000929
330.02002	3.38971718	14.7427381	1.79847248	14.67675	4695.75	4088.89024	70.5	70.1	69.3	69.6	0.000929
335.02002	3.40159731	14.7427381	1.79972336	14.6775	4695.25	4090.8767	70.5	70.1	69.2	69.6	0.00093
340.02002	3.3872161	14.7427381	1.79909792	14.6775	4705.75	4082.43423	70.5	70.1	69.2	69.6	0.00093
345.02002	3.39596988	14.7404893	1.79909792	14.67675	4706	4081.93761	70.5	70.1	69.3	69.6	0.00093
350.02002	3.40847528	14.7427381	1.79909792	14.6775	4705	4076.22653	70.6	70.1	69.3	69.6	0.00093
355.02002	3.39159299	14.7412389	1.79972336	14.67675	4705.75	4078.21299	70.6	70.1	69.3	69.6	0.00093
360.02002	3.38971718	14.7427381	1.79972336	14.6775	4705.5	4081.93761	70.6	70.1	69.2	69.6	0.000931
365.02002	3.39784569	14.7412389	1.79909792	14.6775	4714.75	4081.441	70.6	70.1	69.2	69.6	0.000932
370.02002	3.39159299	14.7434878	1.79847248	14.6775	4716	4085.16562	70.6	70.1	69.3	69.6	0.000931
375.02002	3.39847096	14.7427381	1.79972336	14.6775	4716	4098.07763	70.6	70.1	69.4	69.6	0.000933
380.02002	3.40284785	14.7427381	1.79909792	14.67675	4715.5	4093.11147	70.5	70.1	69.4	69.6	0.000932
385.02002	3.41910487	14.7412389	1.79909792	14.6775	4716	4096.58778	70.5	70.1	69.3	69.6	0.000932
390.05002	3.38596556	14.7419885	1.79972336	14.67675	4715.75	4087.40039	70.5	70.1	69.4	69.6	0.000933
395.02002	3.40284785	14.7419885	1.7972216	14.6775	4715.5	4092.61466	70.6	70.1	69.4	69.6	0.000933
400.02002	3.39596988	14.7412389	1.79847248	14.6775	4726	4090.13178	70.6	70.1	69.3	69.6	0.000933
405.02002	3.39034245	14.7419885	1.7972216	14.6775	4725.75	4080.69607	70.6	70.2	69.2	69.6	0.000932
410.03	3.39722042	14.7412389	1.7972216	14.67825	4725.75	4094.84963	70.5	70.1	69.2	69.6	0.000933
415.02002	3.39784569	14.7419885	1.79972336	14.67825	4725.75	4100.0641	70.5	70.2	69.4	69.6	0.000934
420.07001	3.40222258	14.7419885	1.7972216	14.67675	4724.5	4093.11147	70.5	70.1	69.4	69.6	0.000933
425.02002	3.42348176	14.7412389	1.79784704	14.67675	4717.25	4082.18592	70.6	70.2	69.4	69.6	0.000933
430.02002	3.3872161	14.7412389	1.79659616	14.67675	4726	4067.28744	70.6	70.1	69.3	69.6	0.000933
435.02002	3.40284785	14.7412389	1.7972216	14.6775	4726	4082.68254	70.6	70.2	69.3	69.6	0.000933
440.08002	3.40347312	14.7412389	1.7972216	14.67675	4725.75	4079.95115	70.5	70.2	69.4	69.6	0.000933
445.02002	3.39221826	14.7404893	1.79784704	14.6775	4726	4073.24683	70.4	70.2	69.3	69.6	0.000934
450.02002	3.39847096	14.7412389	1.79659616	14.6775	4726	4096.83609	70.2	70.2	69.3	69.6	0.000934
455.02002	3.39784569	14.7404893	1.79659616	14.6775	4735.75	4110.24472	70.1	70.2	69.2	69.6	0.000934
460.11002	3.39784569	14.7412389	1.7972216	14.6775	4735.75	4106.5201	70.1	70.2	69.3	69.6	0.000934
465.02002	3.40159731	14.7419885	1.7972216	14.6775	4736	4080.69607	70	70.2	69.4	69.6	0.000934
470.02002	3.3872161	14.7412389	1.79659616	14.6775	4735.75	4074.24006	70.1	70.2	69.3	69.6	0.000934
475.02002	3.43348608	14.7412389	1.79659616	14.6775	4736	4069.0256	70.2	70.2	69.3	69.6	0.000934

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.0200195	3.40222258	14.7419885	0.612388064	14.68425	111.225	-3.349758	70.5	69.8	69.3	69.5	0.000247
480.02002	3.39659615	14.7412389	1.7972216	14.67675	4736	4076.47484	70.3	70.2	69.2	69.6	0.000934
485.02002	3.3997215	14.7412389	1.7972216	14.6775	4735.75	4091.37332	70.3	70.2	69.3	69.6	0.000934
490.02002	3.39596988	14.7412389	1.7972216	14.6775	4736	4093.35978	70.3	70.2	69.4	69.6	0.000935
495.02002	3.40722474	14.7427381	1.7972216	14.6775	4736	4101.55394	70.3	70.2	69.4	69.6	0.000935
500.02002	3.38534029	14.7419885	1.79784704	14.6775	4735.75	4094.35301	70.4	70.2	69.4	69.6	0.000935
505.02002	3.3934688	14.7412389	1.7972216	14.6775	4746	4076.97145	70.5	70.3	69.3	69.6	0.000935
510.05002	3.41660379	14.7412389	1.79659616	14.67675	4746	4064.80436	70.5	70.2	69.4	69.6	0.000936
515.02002	3.39847096	14.7427381	1.79784704	14.67825	4745.75	4068.77729	70.5	70.3	69.3	69.6	0.000936
520.02002	3.39784569	14.7419885	1.79659616	14.6775	4746	4075.2333	70.5	70.2	69.3	69.6	0.000936
525.02002	3.39596988	14.7427381	1.79659616	14.6775	4746	4062.07297	70.6	70.2	69.3	69.6	0.000937
530.02002	3.40847528	14.7419885	1.79784704	14.6775	4745.75	4066.0459	70.6	70.2	69.3	69.6	0.000937
535.02002	3.39784569	14.7419885	1.7972216	14.67825	4746	4072.00529	70.6	70.2	69.2	69.6	0.000937
540.06	3.40722474	14.7427381	1.79659616	14.67675	4745.75	4040.47018	70.6	70.2	69.3	69.6	0.000938
545.03	3.39847096	14.7427381	1.79659616	14.6775	4745.5	4044.93972	70.6	70.2	69.3	69.6	0.000938
550.02002	3.42098068	14.7434878	1.7972216	14.67675	4755.75	4061.82468	70.6	70.2	69.4	69.6	0.000937
555.02002	3.39159299	14.7419885	1.7972216	14.67825	4755.5	4074.24006	70.6	70.2	69.5	69.6	0.000938
560.02002	3.41785433	14.7427381	1.79784704	14.6775	4756	4079.45453	70.6	70.2	69.4	69.6	0.000938
565.02002	3.39159299	14.7412389	1.7972216	14.67825	4745.75	4092.11824	70.7	70.2	69.4	69.6	0.000938
570.05002	3.39847096	14.7419885	1.7972216	14.6775	4755.75	4089.63516	70.7	70.2	69.3	69.6	0.000938
575.02002	3.41097636	14.7397397	1.79784704	14.6775	4755.75	4095.34624	70.8	70.2	69.5	69.6	0.000938
580.02002	3.39096772	14.7412389	1.7972216	14.6775	4755.75	4103.04379	70.8	70.2	69.3	69.6	0.000938
585.03	3.40222258	14.7419885	1.79659616	14.67825	4756	4095.59455	70.7	70.3	69.4	69.7	0.000938
590.02002	3.39596988	14.7412389	1.7972216	14.6775	4755.5	4108.75488	70.7	70.3	69.4	69.6	0.000938
595.02002	3.38346448	14.7419885	1.79659616	14.6775	4755.75	4113.47273	70.6	70.3	69.4	69.6	0.000938
600.05002	3.40659947	14.7419885	1.7972216	14.67675	4756	4118.9355	70.6	70.3	69.3	69.6	0.000938
605.02002	3.40785001	14.7427381	1.7972216	14.6775	4756	4114.71427	70.6	70.3	69.4	69.6	0.000938
610.02002	3.3872161	14.7427381	1.79784704	14.67675	4756	4102.79548	70.6	70.2	69.3	69.6	0.000938
615.02002	3.40847528	14.7427381	1.7972216	14.6775	4755.5	4093.8564	70.6	70.3	69.3	69.6	0.000938
620.02002	3.39784569	14.7427381	1.79784704	14.6775	4756	4088.14531	70.6	70.3	69.4	69.6	0.000939
625.02002	3.40910055	14.7419885	1.79784704	14.6775	4766	4089.88347	70.5	70.3	69.4	69.6	0.00094
630.04001	3.41722906	14.7434878	1.79659616	14.6775	4756	4095.09794	70.5	70.3	69.4	69.6	0.000938
635.02002	3.40472366	14.7412389	1.79784704	14.67825	4756	4102.79548	70.5	70.3	69.3	69.6	0.000938
640.02002	3.38471502	14.7397397	1.7972216	14.6775	4755.75	4111.23796	70.5	70.3	69.3	69.6	0.000938

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.0200195	3.40222258	14.7419885	0.612388064	14.68425	111.225	-3.349758	70.5	69.8	69.3	69.5	0.000247
645.06	3.39221826	14.7412389	1.7972216	14.6775	4756	4096.58778	70.5	70.3	69.2	69.6	0.000938
650.02002	3.38784137	14.7404893	1.7972216	14.679	4756	4087.15208	70.5	70.3	69.2	69.6	0.000937
655.02002	3.3872161	14.7412389	1.79847248	14.67675	4762.5	4075.4816	70.5	70.3	69.2	69.6	0.000938
660.03	3.40910055	14.7412389	1.7972216	14.6775	4760	4063.81113	70.5	70.3	69.2	69.6	0.000938
665.02002	3.40472366	14.7419885	1.79597072	14.6775	4756	4068.54252	70.5	70.3	69.3	69.6	0.000938
670.02002	3.39722042	14.7412389	1.79784704	14.6775	4756	4058.10004	70.5	70.3	69.1	69.7	0.000938
675.02002	3.39221826	14.7419885	1.79534528	14.67825	4756	4069.52221	70.5	70.3	69.4	69.7	0.000938
680.02002	3.39784569	14.7412389	1.79534528	14.6775	4756	4084.17238	70.5	70.3	69.2	69.7	0.000938
685.02002	3.38471502	14.7419885	1.7972216	14.67825	4755.75	4099.81579	70.5	70.3	69.3	69.6	0.000937
690.03	3.40409639	14.7412389	1.79534528	14.6775	4756	4101.55394	70.5	70.4	69.3	69.6	0.000938
695.05002	3.39159299	14.7412389	1.79784704	14.6775	4756	4098.82256	70.6	70.4	69.4	69.7	0.000938
700.02002	3.39784569	14.7419885	1.79847248	14.6775	4756	4087.40039	70.6	70.4	69.4	69.7	0.000938
705.07001	3.39096772	14.7412389	1.79597072	14.67825	4766	4092.61486	70.5	70.4	69.2	69.7	0.000938
710.02002	3.41973014	14.7419885	1.79534528	14.6775	4766	4082.93084	70.6	70.4	69.4	69.7	0.000938
715.02002	3.40034677	14.7419885	1.79534528	14.6775	4766	4091.62162	70.6	70.3	69.3	69.6	0.000938
720.02002	3.40659947	14.7412389	1.79471984	14.6775	4755.5	4082.18592	70.5	70.3	69.2	69.7	0.000939
725.02002	3.40847528	14.7419885	1.79534528	14.6775	4756	4077.71638	70.5	70.4	69.3	69.7	0.000939
730.02002	3.39722042	14.7419885	1.79471984	14.6775	4756	4084.42069	70.5	70.4	69.4	69.7	0.000939
735.03	3.39784569	14.7412389	1.79534528	14.6775	4766.25	4088.89024	70.5	70.4	69.4	69.7	0.000939
740.08002	3.38909191	14.7412389	1.79597072	14.6775	4766	4098.07763	70.4	70.4	69.4	69.7	0.000939
745.02002	3.40159731	14.7412389	1.79597072	14.6775	4766.25	4068.28067	70.3	70.4	69.4	69.6	0.000939
750.02002	3.40847528	14.7397397	1.79534528	14.6775	4765.5	4064.30774	70.1	70.4	69.3	69.6	0.00094
755.02002	3.38534029	14.7412389	1.79534528	14.67825	4766	4079.70284	70.1	70.4	69.3	69.7	0.000939
760.02002	3.39159299	14.7419885	1.79597072	14.67825	4776	4083.92408	70.1	70.4	69.2	69.6	0.00094
765.05002	3.39159299	14.7404893	1.79534528	14.6775	4776	4102.29887	70.1	70.4	69.3	69.7	0.00094
770.02002	3.42348176	14.7397397	1.79471984	14.6775	4776	4115.21088	70.2	70.4	69.3	69.7	0.00094
775.02002	3.39534461	14.7412389	1.79534528	14.6775	4776	4108.25826	70.1	70.4	69.3	69.7	0.000941
780.05002	3.39596988	14.7419885	1.79597072	14.67825	4776	4085.91054	70.2	70.3	69.3	69.7	0.00094
785.02002	3.39159299	14.7419885	1.79534528	14.67825	4776	4075.4816	70.3	70.4	69.4	69.7	0.00094
790.02002	3.38659083	14.7419885	1.79534528	14.6775	4776	4082.43423	70.3	70.4	69.3	69.7	0.00094
795.03	3.40284785	14.7419885	1.79534528	14.67825	4776	4104.03702	70.3	70.4	69.3	69.7	0.000942
800.02002	3.40034677	14.7397397	1.7959616	14.67825	4776	4104.53364	70.3	70.4	69.4	69.7	0.00094
805.02002	3.40222258	14.7404893	1.79597072	14.67825	4776.25	4090.13178	70.3	70.4	69.3	69.7	0.000941

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.0200195	3.40222258	14.7419885	0.612388064	14.68425	111.225	-3.349758	70.5	69.8	69.3	69.5	0.000247
810.05002	3.39409407	14.7419885	1.79471984	14.67825	4776	4094.84963	70.4	70.4	69.3	69.7	0.00094
815.02002	3.38909191	14.7419885	1.79471984	14.67825	4776	4105.77518	70.4	70.4	69.3	69.7	0.000939
820.02002	3.40034677	14.7412389	1.79471984	14.6775	4766	4108.25826	70.3	70.4	69.3	69.7	0.00094
825.03	3.39847096	14.7419885	1.79471984	14.6775	4765.75	4103.78872	70.4	70.4	69.4	69.7	0.00094
830.02002	3.40284785	14.7397397	1.79534528	14.67825	4766	4102.79548	70.3	70.4	69.3	69.7	0.000939
835.02002	3.38534029	14.7404893	1.79534528	14.6775	4776.25	4083.42746	70.4	70.4	69.3	69.7	0.00094
840.04001	3.40222258	14.7404893	1.79471984	14.67825	4776	4077.96468	70.4	70.4	69.3	69.7	0.000941
845.02002	3.39409407	14.7397397	1.79534528	14.6775	4776	4090.62839	70.4	70.4	69.3	69.7	0.00094
850.02002	3.39596988	14.7412389	1.79597072	14.67825	4776	4084.91731	70.4	70.4	69.3	69.7	0.00094
855.03	3.40972582	14.7419885	1.79534528	14.6775	4776	4088.39362	70.4	70.4	69.3	69.7	0.000941
860.02002	3.40785001	14.7404893	1.79471984	14.6775	4776	4075.4816	70.4	70.4	69.3	69.7	0.00094
865.02002	3.40659947	14.7412389	1.79534528	14.67675	4776	4080.08651	70.5	70.4	69.3	69.7	0.000939
870.04001	3.38846864	14.7404893	1.79471984	14.6775	4776	4041.46341	70.4	70.4	69.3	69.7	0.000941
875.02002	3.39847096	14.7404893	1.79597072	14.67675	4776	4055.12035	70.4	70.4	69.4	69.7	0.000942
880.02002	3.38909191	14.7412389	1.79471984	14.67675	4776	4080.19946	70.4	70.4	69.4	69.7	0.000941
885.08002	3.38346448	14.7404893	1.79346896	14.6775	4776	4087.40039	70.4	70.4	69.4	69.7	0.000942
890.04001	3.39221826	14.7404893	1.79471984	14.6775	4776	4084.17238	70.4	70.4	69.3	69.6	0.000941
895.02002	3.40409839	14.7412389	1.79534528	14.6775	4776	4071.01206	70.3	70.4	69.3	69.6	0.00094
900.06	3.39534461	14.7412389	1.79534528	14.67675	4776	4071.75696	70.3	70.4	69.3	69.7	0.000941
905.02002	3.38909191	14.7419885	1.79471984	14.676	4776	4083.92408	70.4	70.4	69.4	69.7	0.00094
910.02002	3.3872161	14.7419885	1.79534528	14.67675	4776	4081.93761	70.4	70.4	69.3	69.6	0.000941
915.07001	3.39221826	14.7412389	1.79346896	14.6775	4775.75	4069.52221	70.4	70.4	69.2	69.7	0.000941
920.02002	3.38971718	14.7419885	1.7940944	14.6775	4776	4065.54928	70.4	70.4	69.4	69.7	0.000941

TEST: EX202227 22 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 4340ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
0.0099793	3.43848824	14.73974	0.542526	14.6625	120.95	-3.59807	70.3	69.6	69.5	69.5	0.00025
5.019989	3.38534029	14.73899	1.786589	14.6775	121.55	-3.47391	70.3	69.7	69.4	69.5	0.000249
10.019989	3.44661675	14.73899	1.789716	14.6775	191.525	1049.352	70.3	69.8	69.6	69.5	0.000278
15.019989	3.39847096	14.73899	1.790342	14.6775	601.5	2403.624	70.4	69.8	69.5	69.5	0.000352
20.019989	3.39221826	14.73899	1.791593	14.67675	1188.75	3136.132	70.4	69.8	69.5	69.5	0.00044
25.019989	3.3934688	14.74049	1.791593	14.6775	1773	3506.36	70.4	69.8	69.6	69.5	0.000523
30.019989	3.39221826	14.73974	1.793469	14.6775	2280	3688.866	70.4	69.7	69.5	69.5	0.000593
35.019989	3.38596556	14.73899	1.793469	14.67825	2689.5	3764.848	70.5	69.7	69.4	69.5	0.000651
40.019989	3.40284785	14.73974	1.794094	14.6775	3012.5	3824.194	70.5	69.7	69.4	69.5	0.000697
45.019989	3.42098068	14.73899	1.794094	14.67825	3304	3856.722	70.6	69.8	69.5	69.5	0.000735
50.019989	3.41660379	14.74049	1.793469	14.6775	3524.25	3877.58	70.5	69.8	69.6	69.5	0.000766
55.019989	3.39847096	14.73899	1.795345	14.67675	3723.75	3900.424	70.5	69.8	69.5	69.5	0.00079
60.019989	3.39847096	14.73824	1.795345	14.67675	3834.5	3912.592	70.5	69.8	69.5	69.5	0.000811
65.019989	3.41722906	14.73899	1.795971	14.6775	3968.25	3929.973	70.4	69.8	69.5	69.6	0.000827
70.019989	3.40159731	14.73899	1.795345	14.67825	4044	3938.167	70.3	69.7	69.5	69.5	0.00084
75.019989	3.40409839	14.74049	1.795345	14.6775	4134.5	3957.287	70.4	69.8	69.4	69.5	0.000852
80.019989	3.39847096	14.73974	1.795971	14.6775	4194.75	3957.784	70.3	69.8	69.4	69.6	0.000861
85.019989	3.38784137	14.73974	1.795345	14.67675	4254.5	3953.314	70.4	69.8	69.5	69.5	0.000869
90.019989	3.39847096	14.73974	1.795971	14.676	4314.75	3960.267	70.5	69.8	69.4	69.6	0.000876
95.019989	3.39409407	14.73974	1.795345	14.6775	4344.75	3969.702	70.4	69.8	69.4	69.5	0.000882
100.03	3.40222258	14.74049	1.795345	14.6775	4374.5	3966.723	70.3	69.8	69.3	69.5	0.000885
105.01999	3.3997215	14.73899	1.797847	14.6775	4415	3974.172	70.4	69.8	69.5	69.5	0.00089
110.01999	3.40847528	14.73974	1.795345	14.6775	4435.25	3987.332	70.4	69.8	69.5	69.5	0.000893
115.22	3.39847096	14.73899	1.795971	14.6775	4465.25	4003.721	70.5	69.8	69.5	69.5	0.000897
120.01999	3.40409839	14.73974	1.795971	14.6775	4485	4013.156	70.5	69.8	69.5	69.5	0.000898
125.13001	3.40222258	14.73899	1.795345	14.67825	4495.25	4008.19	70.6	69.8	69.5	69.5	0.000901
130.01999	3.40222258	14.73824	1.797222	14.67825	4515.25	4000.493	70.6	69.8	69.5	69.5	0.000903
135.06	3.40284785	14.73749	1.797222	14.6775	4525.5	4009.68	70.6	69.8	69.4	69.5	0.000904
140.01999	3.39534461	14.73899	1.797222	14.6775	4535.25	4021.847	70.6	69.9	69.4	69.5	0.000906
145.01999	3.39221826	14.73824	1.795345	14.67675	4545.25	4020.109	70.6	69.9	69.4	69.5	0.000908

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.0099793	3.43848824	14.73974	0.542526	14.6625	120.95	-3.59807	70.3	69.6	69.5	69.5	0.00025
150.01999	3.40847528	14.73899	1.797222	14.6775	4555	4025.075	70.6	69.8	69.4	69.5	0.000908
155.01999	3.39847096	14.73899	1.797222	14.6775	4565.5	4010.425	70.6	69.8	69.5	69.6	0.00091
160.01999	3.40472366	14.73974	1.795345	14.67675	4575.5	4014.398	70.6	69.9	69.5	69.5	0.000912
165.03	3.39847096	14.73899	1.796596	14.67675	4585.5	4002.479	70.6	69.8	69.3	69.6	0.000914
170.01999	3.39596988	14.74049	1.797847	14.6775	4595.25	4007.197	70.7	69.8	69.5	69.5	0.000915
175.06	3.40534893	14.73899	1.795345	14.6775	4605.75	4017.626	70.7	69.9	69.5	69.6	0.000916
180.03	3.40222258	14.73899	1.795971	14.67675	4605.75	4039.477	70.7	69.9	69.4	69.6	0.000918
185.01999	3.40034677	14.74049	1.796596	14.6775	4615.5	4047.671	70.6	69.9	69.5	69.5	0.000918
190.01999	3.40722474	14.74049	1.797222	14.6775	4625.5	4044.94	70.6	69.9	69.4	69.5	0.000918
195.07001	3.39346688	14.73749	1.79472	14.67675	4625.75	4058.348	70.6	69.9	69.5	69.5	0.000919
200.01999	3.39534461	14.73824	1.795345	14.6775	4635.25	4059.838	70.5	69.9	69.5	69.5	0.00092
205.06	3.40659947	14.73899	1.795345	14.6775	4635.75	4052.637	70.6	69.9	69.5	69.5	0.000921
210.01999	3.39409407	14.73899	1.795345	14.67675	4645.25	4050.899	70.5	69.9	69.6	69.6	0.000922
215.01999	3.38971718	14.73974	1.795345	14.67675	4645.75	4054.872	70.5	69.9	69.5	69.6	0.000922
220.01999	3.39409407	14.73824	1.795345	14.6775	4645.75	4061.328	70.5	69.9	69.5	69.6	0.000923
225.01999	3.39784569	14.73899	1.795345	14.6775	4655.75	4070.267	70.5	69.9	69.5	69.6	0.000924
230.01999	3.39784569	14.73824	1.795345	14.67675	4665.5	4073.247	70.6	69.9	69.5	69.6	0.000924
235.01999	3.4247323	14.73749	1.795971	14.67675	4665.5	4071.757	70.7	69.9	69.5	69.6	0.000926
240.07001	3.40222258	14.73824	1.795971	14.6775	4675.25	4066.543	70.7	70	69.4	69.6	0.000926
245.03	3.40284785	14.73974	1.795345	14.6775	4675.75	4049.906	70.7	70	69.4	69.6	0.000926
250.10999	3.40222258	14.73899	1.795345	14.67675	4675.5	4051.892	70.6	70	69.4	69.6	0.000927
255.01999	3.39221826	14.73899	1.79472	14.67675	4675.75	4067.287	70.6	70	69.4	69.6	0.000927
260.01999	3.40910055	14.73974	1.79472	14.6775	4685.25	4072.254	70.6	70	69.5	69.6	0.000928
265.39999	3.39034245	14.73974	1.795345	14.6775	4685	4069.522	70.6	70	69.4	69.6	0.000928
270.01999	3.39722042	14.73899	1.795345	14.67675	4685.75	4071.26	70.5	70	69.4	69.5	0.000926
275.01999	3.39159299	14.73899	1.794094	14.6775	4685.5	4073.247	70.5	70	69.4	69.6	0.000927
280.01999	3.41660379	14.73824	1.795345	14.6775	4685.5	4074.985	70.5	70	69.4	69.6	0.000927
285.01999	3.39034245	14.74049	1.795345	14.67675	4686	4070.019	70.5	70	69.5	69.6	0.000928
290.01999	3.38659083	14.73974	1.795345	14.676	4685.25	4064.306	70.5	70	69.4	69.6	0.000928
295.01999	3.38971718	14.73974	1.793469	14.6775	4695.25	4064.804	70.4	70	69.4	69.6	0.000929
300.01999	3.39596988	14.74124	1.792844	14.6775	4696	4068.529	70.4	70	69.4	69.6	0.000929
305.03	3.39722042	14.73899	1.792844	14.67675	4695.75	4069.771	70.4	70.1	69.4	69.6	0.000929
310.01999	3.40847528	14.74049	1.792844	14.676	4695.25	4076.723	70.4	70.1	69.4	69.6	0.000929

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.0099793	3.43848824	14.73974	0.542526	14.6625	120.95	-3.59807	70.3	69.6	69.5	69.5	0.00025
315.03	3.42223122	14.73899	1.792218	14.67675	4695.75	4077.468	70.4	70	69.4	69.6	0.00093
320.01999	3.3872161	14.73899	1.792218	14.6775	4705.25	4070.019	70.5	70.1	69.4	69.6	0.00093
325.01999	3.39847096	14.73899	1.792844	14.6775	4706	4068.529	70.4	70.1	69.4	69.6	0.000931
330.01999	3.39722042	14.73899	1.792844	14.67675	4705.25	4064.556	70.4	70.1	69.5	69.6	0.000931
335.01999	3.3872161	14.73824	1.793469	14.67825	4705.5	4063.563	70.4	70.1	69.4	69.6	0.000931
340.01999	3.39596988	14.73824	1.793469	14.6775	4705.75	4077.468	70.4	70.1	69.4	69.6	0.000931
345.01999	3.39534461	14.73899	1.792844	14.6775	4716	4075.482	70.5	70.1	69.4	69.6	0.000931
350.01999	3.39784569	14.73824	1.792844	14.67675	4715.75	4061.08	70.5	70.1	69.5	69.6	0.000932
355.01999	3.42680811	14.73899	1.792218	14.67825	4716	4063.315	70.5	70.1	69.5	69.6	0.000932
360.01999	3.40222258	14.73824	1.793469	14.6775	4716	4055.12	70.4	70.1	69.4	69.6	0.000932
365.01999	3.39471934	14.73974	1.794094	14.6775	4715.5	4046.678	70.5	70.1	69.3	69.6	0.000932
370.01999	3.40910055	14.73824	1.792844	14.6775	4715.75	4057.107	70.5	70.1	69.4	69.6	0.000932
375.01999	3.40472366	14.73974	1.793469	14.6775	4716	4057.852	70.5	70.1	69.6	69.7	0.000932
380.01999	3.40222258	14.73899	1.794094	14.67825	4715.75	4073.743	70.6	70.1	69.6	69.6	0.000933
385.01999	3.39221826	14.74049	1.793469	14.6775	4726	4087.649	70.6	70.1	69.5	69.6	0.000933
390.01999	3.40534893	14.73974	1.793469	14.67825	4726	4103.789	70.7	70.1	69.4	69.6	0.000932
395.01999	3.39221826	14.73899	1.792844	14.67825	4725.75	4098.326	70.6	70.1	69.4	69.6	0.000933
400.09	3.40284785	14.73974	1.794094	14.6775	4726	4096.091	70.6	70.1	69.5	69.6	0.000932
405.01999	3.41973014	14.73974	1.792844	14.67825	4726	4095.098	70.6	70.2	69.5	69.6	0.000933
410.09	3.39534461	14.74049	1.792844	14.67675	4725.75	4088.642	70.6	70.1	69.6	69.6	0.000932
415.01999	3.40222258	14.73974	1.793469	14.67675	4726	4088.89	70.6	70.2	69.5	69.6	0.000933
420.10999	3.39784569	14.73974	1.792218	14.6775	4725.75	4090.38	70.6	70.1	69.5	69.6	0.000933
425.01999	3.40222258	14.73974	1.793469	14.67675	4725.5	4099.319	70.5	70.2	69.6	69.6	0.000934
430.01999	3.43786297	14.74049	1.792844	14.67825	4725.75	4086.407	70.4	70.2	69.6	69.6	0.000933
435.01999	3.39596988	14.73824	1.793469	14.6775	4726	4066.046	70.5	70.2	69.6	69.6	0.000934
440.01999	3.39847096	14.73899	1.793469	14.6775	4725.5	4046.678	70.5	70.2	69.5	69.6	0.000934
445.01999	3.39534461	14.73824	1.792218	14.67825	4726	4045.436	70.5	70.2	69.6	69.6	0.000934
450.01999	3.39596988	14.73824	1.790967	14.6775	4736	4071.757	70.4	70.2	69.6	69.6	0.000934
455.01999	3.40847528	14.73974	1.791593	14.6775	4735.5	4067.039	70.4	70.2	69.5	69.6	0.000934
460.01999	3.38784137	14.74124	1.792844	14.6775	4736	4046.678	70.4	70.2	69.5	69.6	0.000934
465.01999	3.39284353	14.73974	1.791593	14.6775	4736	4040.47	70.3	70.2	69.5	69.6	0.000935
470.01999	3.4059742	14.73899	1.790342	14.67825	4735.5	4055.369	70.3	70.2	69.6	69.6	0.000936
475.01999	3.39784569	14.73899	1.791593	14.6745	4736	4063.315	70.4	70.2	69.6	69.6	0.000935

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.0099793	3.43848824	14.73974	0.542526	14.6625	120.95	-3.59807	70.3	69.6	69.5	69.5	0.00025
480.01999	3.41785433	14.73974	1.791593	14.67675	4745.75	4079.455	70.4	70.2	69.5	69.6	0.000936
485.01999	3.40034677	14.73899	1.790967	14.67675	4735.5	4072.999	70.4	70.2	69.5	69.6	0.000935
490.01999	3.39409407	14.73974	1.791593	14.67675	4745.75	4068.777	70.5	70.3	69.5	69.6	0.000936
495.01999	3.39221826	14.73974	1.790967	14.67675	4746	4050.899	70.5	70.3	69.6	69.6	0.000936
500.01999	3.38909191	14.73899	1.791593	14.6775	4745.5	4050.651	70.4	70.3	69.6	69.6	0.000935
505.01999	3.39409407	14.73899	1.790342	14.67675	4745.75	4065.798	70.4	70.2	69.5	69.6	0.000936
510.07001	3.39722042	14.74049	1.790342	14.676	4745.25	4079.951	70.5	70.3	69.5	69.6	0.000935
515.03998	3.39847096	14.73899	1.790967	14.67675	4746	4072.005	70.6	70.3	69.5	69.6	0.000936
520.01999	3.39409407	14.73899	1.789716	14.676	4746	4071.509	70.6	70.3	69.6	69.6	0.000936
525.07001	3.40659947	14.73974	1.791593	14.67525	4746	4072.254	70.6	70.3	69.7	69.6	0.000936
530.01999	3.40409839	14.73899	1.791593	14.67675	4745.5	4083.179	70.6	70.3	69.6	69.6	0.000936
535.01999	3.39159299	14.73974	1.790967	14.67675	4745.75	4062.321	70.7	70.3	69.5	69.6	0.000936
540.03	3.40847528	14.73749	1.789091	14.67675	4746	4061.825	70.7	70.3	69.6	69.6	0.000936
545.09	3.39659515	14.74124	1.791593	14.6775	4745.5	4066.791	70.7	70.3	69.6	69.7	0.000936
550.01999	3.38534029	14.73824	1.790967	14.6775	4745.75	4070.515	70.7	70.3	69.5	69.6	0.000936
555.01999	3.39096772	14.73749	1.789716	14.6775	4746	4052.141	70.6	70.3	69.5	69.6	0.000936
560.01999	3.40659947	14.73899	1.790967	14.6745	4755.5	4068.597	70.6	70.3	69.5	69.6	0.000936
565.01999	3.41097636	14.73899	1.789091	14.67675	4756	4071.757	70.6	70.3	69.5	69.7	0.000937
570.03998	3.39159299	14.73824	1.789091	14.676	4755.75	4069.771	70.6	70.3	69.5	69.6	0.000938
575.01999	3.39596988	14.73899	1.791593	14.67675	4755.5	4057.852	70.6	70.3	69.5	69.6	0.000937
580.01999	3.41722906	14.73974	1.789716	14.6775	4756	4050.154	70.6	70.3	69.5	69.6	0.000937
585.07001	3.40284785	14.73974	1.788465	14.6775	4755.5	4051.644	70.6	70.3	69.5	69.6	0.000937
590.07001	3.4059742	14.74049	1.789716	14.6775	4756	4066.046	70.6	70.3	69.6	69.6	0.000937
595.01999	3.40659947	14.73974	1.789091	14.6775	4756	4070.764	70.6	70.3	69.5	69.7	0.000938
600.01999	3.43223554	14.73899	1.789091	14.67675	4756	4060.583	70.6	70.3	69.5	69.7	0.000938
605.01999	3.40472366	14.73824	1.789091	14.67825	4755.75	4064.308	70.6	70.3	69.5	69.7	0.000937
610.01999	3.40222258	14.74049	1.788465	14.67675	4756	4061.576	70.6	70.3	69.5	69.7	0.000937
615.04999	3.38471502	14.74049	1.788465	14.6775	4756	4066.791	70.6	70.3	69.5	69.7	0.000939
620.01999	3.3997215	14.73974	1.788465	14.67675	4755.5	4051.396	70.6	70.3	69.5	69.6	0.000939
625.01999	3.38534029	14.73974	1.788465	14.6775	4756	4048.913	70.6	70.4	69.5	69.7	0.000938
630.04999	3.39784569	14.74049	1.788465	14.6775	4756	4041.96	70.6	70.3	69.4	69.7	0.000939
635.01999	3.3934688	14.73899	1.789091	14.6775	4755.75	4050.154	70.6	70.4	69.5	69.7	0.000938
640.01999	3.38408975	14.74049	1.78784	14.67675	4755.75	4056.61	70.6	70.4	69.3	69.7	0.000939

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.0099793	3.43848824	14.73974	0.542526	14.6625	120.95	-3.59807	70.3	69.6	69.5	69.5	0.00025
645.03	3.3872161	14.73974	1.788465	14.676	4756	4064.059	70.5	70.4	69.3	69.7	0.000938
650.01999	3.3934688	14.74049	1.788465	14.6775	4755.75	4065.549	70.6	70.3	69.5	69.7	0.000938
655.01999	3.4184796	14.73899	1.789091	14.67675	4765.75	4051.147	70.6	70.4	69.5	69.7	0.000938
660.07001	3.40659947	14.73974	1.78784	14.67675	4766	4046.926	70.7	70.4	69.5	69.7	0.000939
665.01999	3.39784569	14.73899	1.788465	14.6775	4765.75	4031.779	70.6	70.4	69.5	69.7	0.000938
670.01999	3.40659947	14.73824	1.788465	14.6775	4756	4047.671	70.7	70.4	69.5	69.7	0.000938
675.04999	3.39784569	14.73824	1.789091	14.67675	4756	4041.96	70.6	70.4	69.6	69.7	0.000938
680.01999	3.39159299	14.73824	1.788465	14.6775	4756	4045.436	70.6	70.4	69.5	69.7	0.000939
685.01999	3.39159299	14.74049	1.789091	14.6775	4762.75	4050.154	70.6	70.4	69.4	69.7	0.000938
690.03998	3.38909191	14.74049	1.788465	14.6775	4766	4041.215	70.6	70.4	69.4	69.7	0.00094
695.06	3.39784569	14.73899	1.788465	14.6775	4766	4033.518	70.6	70.4	69.4	69.7	0.000939
700.01999	3.39722042	14.74049	1.789091	14.6775	4773.75	4040.47	70.6	70.4	69.5	69.7	0.00094
705.01999	3.38471502	14.73824	1.786589	14.6775	4766	4037.739	70.5	70.4	69.4	69.7	0.000941
710.03998	3.3934688	14.73899	1.788465	14.67675	4766	4058.597	70.5	70.4	69.4	69.7	0.00094
715.01999	3.41973014	14.73824	1.789091	14.67675	4766	4079.703	70.5	70.5	69.5	69.7	0.00094
720.04999	3.40785001	14.74049	1.787215	14.6745	4766	4088.394	70.5	70.4	69.4	69.7	0.000939
725.01999	3.4184796	14.73899	1.788465	14.67675	4765.75	4079.703	70.5	70.4	69.4	69.7	0.00094
730.01999	3.40222258	14.73749	1.786589	14.67675	4766	4074.24	70.6	70.4	69.5	69.7	0.000939
735.01999	3.39847096	14.74049	1.787215	14.67675	4766	4066.046	70.6	70.4	69.5	69.7	0.000939
740.01999	3.41910487	14.73899	1.786589	14.67675	4766	4066.791	70.6	70.5	69.4	69.7	0.000939
745.01999	3.38596556	14.73899	1.787215	14.67375	4776	4081.825	70.6	70.5	69.6	69.7	0.000939
750.03998	3.39847096	14.73899	1.787215	14.6775	4776	4053.134	70.7	70.4	69.5	69.7	0.00094
755.01999	3.39159299	14.73899	1.787215	14.6775	4774.5	4048.913	70.7	70.5	69.6	69.7	0.000939
760.01999	3.39784569	14.73974	1.785964	14.6775	4766	4062.321	70.7	70.5	69.4	69.6	0.000937
765.03998	3.44474094	14.74049	1.786589	14.67675	4766.25	4052.389	70.7	70.5	69.5	69.7	0.000939
770.01999	3.39596988	14.73899	1.787215	14.676	4766	4040.222	70.7	70.4	69.6	69.7	0.000939
775.01999	3.40284785	14.74049	1.786589	14.6775	4766.25	4031.034	70.6	70.5	69.6	69.7	0.000938
780.04999	3.40847528	14.73974	1.785964	14.6775	4766	4035.256	70.6	70.5	69.6	69.7	0.00094
785.01999	3.41680379	14.73974	1.787215	14.6775	4765.75	4032.773	70.7	70.5	69.5	69.8	0.000941
790.01999	3.40159731	14.73824	1.785964	14.67675	4765.75	4038.98	70.7	70.5	69.7	69.8	0.00094
795.01999	3.39596988	14.73899	1.787215	14.67825	4766	4049.409	70.7	70.5	69.6	69.7	0.000939
800.01999	3.42285649	14.73974	1.785964	14.6775	4767.5	4041.463	70.7	70.5	69.5	69.7	0.000939
805.01999	3.38596556	14.73974	1.787215	14.67675	4776	4043.45	70.7	70.5	69.5	69.7	0.00094

Flammable Gas Interlock Spoolpiece Testing

EX202227.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.0099793	3.43848824	14.73974	0.542526	14.6625	120.95	-3.59807	70.3	69.6	69.5	69.5	0.00025
810.07001	3.40222258	14.73824	1.787215	14.6775	4766.25	4053.879	70.6	70.4	69.4	69.7	0.00094
815.01999	3.39847096	14.73974	1.787215	14.6775	4766	4046.181	70.5	70.5	69.4	69.7	0.000938
820.01999	3.40222258	14.73748	1.787215	14.67675	4766	4045.188	70.6	70.5	69.4	69.7	0.000939
825.03998	3.42160595	14.73974	1.78784	14.67675	4766	4054.127	70.6	70.5	69.4	69.7	0.000939
830.01999	3.39847096	14.73974	1.786589	14.67675	4766	4058.845	70.6	70.5	69.6	69.7	0.000939
835.01999	3.40847528	14.73824	1.786589	14.67825	4766	4056.362	70.6	70.5	69.6	69.7	0.000939
840.07001	3.39722042	14.74124	1.787215	14.6775	4765.75	4023.585	70.7	70.5	69.4	69.7	0.000939
845.09	3.41097636	14.73899	1.786589	14.6775	4766	4016.136	70.7	70.5	69.5	69.7	0.000939
850.01999	3.39847096	14.73974	1.787215	14.6775	4766.25	3996.271	70.7	70.5	69.6	69.7	0.000939
855.01999	3.44661675	14.73899	1.786589	14.6775	4766.25	4021.847	70.6	70.5	69.5	69.7	0.00094
860.06	3.39596988	14.73899	1.787215	14.6775	4766	4029.048	70.6	70.5	69.5	69.7	0.000939
865.01999	3.39034245	14.73974	1.786589	14.67675	4766	4011.915	70.7	70.5	69.5	69.7	0.00094
870.04999	3.40847528	14.73899	1.787215	14.6775	4766	4026.068	70.7	70.6	69.6	69.7	0.000941
875.01999	3.40034677	14.73974	1.787215	14.67825	4776	4032.028	70.7	70.5	69.6	69.7	0.00094
880.01999	3.38971718	14.73899	1.786589	14.67675	4766.25	4042.208	70.7	70.5	69.6	69.7	0.000939
885.03998	3.41097636	14.73899	1.786589	14.6775	4766	4035.504	70.7	70.5	69.7	69.7	0.000939
890.01999	3.43348608	14.74049	1.786589	14.6775	4765.75	4037.987	70.7	70.5	69.6	69.7	0.000939
895.01999	3.3997215	14.74049	1.786589	14.6775	4766	4043.202	70.7	70.5	69.7	69.8	0.000939
900.04999	3.39909623	14.73899	1.786589	14.6775	4766	4030.29	70.6	70.6	69.7	69.7	0.000939
905.01999	3.40222258	14.73899	1.786589	14.67675	4766.25	4029.545	70.7	70.6	69.7	69.7	0.00094
910.01999	3.40097204	14.73899	1.786589	14.67825	4766	4032.524	70.7	70.5	69.7	69.7	0.00094
915.03998	3.39909623	14.73899	1.785964	14.6775	4766.25	4039.974	70.7	70.5	69.7	69.7	0.000939
920.01999	3.40097204	14.73824	1.786589	14.6775	4766	4044.195	70.7	70.5	69.7	69.7	0.00094
925.01999	3.40284785	14.74124	1.787215	14.6775	4766	4048.913	70.7	70.5	69.7	69.7	0.00094
930.03	3.39409407	14.73899	1.785338	14.67525	4766	4046.678	70.7	70.6	69.6	69.7	0.000939
935.01999	3.38971718	14.73824	10.16686	17.118	4776	4029.048	70.7	70.8	69.7	69.7	0.000939

TEST: EX302227 22 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 4330ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL VOLTS
0.0100098	3.40972582	14.73899003	0.457716752	14.6625	120.9	-3.4490812	70.7	69.8	69.6	69.6	0.000249
5.019989	3.40222258	14.73899003	1.78033472	14.67525	121.35	-3.473912	70.6	69.9	69.5	69.5	0.000249
10.019989	3.45474526	14.74048928	1.78533824	14.6745	201.375	1029.98398	70.5	69.9	69.4	69.5	0.000277
15.019989	3.39847096	14.74048928	1.78533824	14.67525	601.75	2351.72747	70.5	69.9	69.5	69.6	0.000351
20.019989	3.40097204	14.73899003	1.78408736	14.67525	1172.75	3083.98776	70.6	69.9	69.5	69.6	0.000439
25.019989	3.39659515	14.73973965	1.78721456	14.6745	1752.5	3452.97345	70.6	69.9	69.6	69.6	0.000522
30.019989	3.40284785	14.73824041	1.78658912	14.6745	2283.5	3643.42568	70.6	69.9	69.6	69.6	0.000593
35.019989	3.40097204	14.73973965	1.78721456	14.6745	2693.5	3733.06487	70.6	69.9	69.5	69.5	0.000651
40.019989	3.40534893	14.73973965	1.78658912	14.67525	3032.5	3789.9274	70.6	69.9	69.6	69.5	0.000697
45.019989	3.43911351	14.73973965	1.78658912	14.67525	3304	3810.53697	70.7	69.9	69.6	69.6	0.000735
50.019989	3.39784569	14.73824041	1.78784	14.67525	3503.5	3834.12623	70.6	69.8	69.5	69.6	0.000764
55.029999	3.40284785	14.73899003	1.78658912	14.67525	3674	3856.72226	70.6	69.9	69.6	69.6	0.000789
60.019989	3.40910055	14.73973965	1.78846544	14.67525	3854.25	3857.9638	70.5	69.9	69.4	69.6	0.000808
65.019989	3.38784137	14.73899003	1.78596368	14.676	3954.25	3872.61397	70.6	69.9	69.6	69.6	0.000824
70.019989	3.41722906	14.73824041	1.78909088	14.67525	4034.5	3891.48538	70.5	69.9	69.7	69.6	0.000838
75.019989	3.39159299	14.73973965	1.78846544	14.6745	4124.75	3909.11524	70.6	69.9	69.6	69.6	0.000849
80.019989	3.39847096	14.73973965	1.78971632	14.67375	4194.25	3928.73158	70.6	69.9	69.7	69.5	0.00086
85.019989	3.43161027	14.73899003	1.78909088	14.67525	4244.75	3939.90544	70.6	69.9	69.6	69.6	0.000867
90.220001	3.40534893	14.73824041	1.78971632	14.67525	4304.75	3938.6639	70.7	69.9	69.7	69.6	0.000874
95.019989	3.39409407	14.73899003	1.78909088	14.67525	4324.5	3940.40205	70.7	69.9	69.7	69.5	0.000879
100.03	3.39847096	14.73824041	1.7909672	14.676	4364.75	3955.05222	70.7	69.9	69.7	69.6	0.000883
105.01999	3.39596988	14.73973965	1.78909088	14.67525	4395.5	3971.93717	70.7	69.9	69.6	69.6	0.000887
110.01999	3.40722474	14.73973965	1.78784	14.6745	4424.5	3989.81534	70.7	69.9	69.6	69.6	0.00089
115.01999	3.3934688	14.73899003	1.78909088	14.67525	4445.25	3992.54673	70.7	70	69.6	69.6	0.000894
120.01999	3.40472366	14.73899003	1.79034176	14.67375	4465.25	3973.17871	70.8	69.9	69.7	69.6	0.000897
125.01999	3.38846664	14.73973965	1.79034176	14.6745	4484.75	3979.88302	70.7	69.9	69.8	69.6	0.000901
130.01999	3.40284785	14.73973965	1.78846544	14.6745	4503.25	3990.06365	70.7	70	69.7	69.6	0.000901
135.01999	3.39596988	14.73973965	1.79159264	14.6745	4515.25	3984.60088	70.7	70	69.6	69.6	0.000905
140.03	3.39534461	14.73973965	1.78909088	14.6745	4525	3984.10426	70.7	70	69.7	69.6	0.000906
145.01999	3.39847096	14.74048928	1.78909088	14.6745	4545.25	3973.67532	70.7	70	69.7	69.6	0.000908

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL VOLTS
0.0100098	3.40972582	14.73899003	0.457716752	14.6625	120.9	-3.4490812	70.7	69.8	69.6	69.6	0.000249
150.06	3.40284785	14.73899003	1.79159264	14.67525	4555	3969.20578	70.8	70	69.7	69.6	0.000909
155.01999	3.40910055	14.73973965	1.7909672	14.6745	4565.25	3976.65502	70.8	70	69.7	69.6	0.00091
160.01999	3.40222258	14.73824041	1.78846544	14.67375	4575.25	3985.59411	70.7	70	69.7	69.6	0.000911
165.01999	3.41097636	14.73973965	1.78784	14.6745	4575.5	3985.09749	70.8	70	69.7	69.6	0.000912
170.01999	3.38596556	14.73899003	1.78971632	14.6745	4585.5	4006.9486	70.8	70	69.7	69.6	0.000913
175.01999	3.41097636	14.74048928	1.78909088	14.6745	4595.75	3999.25105	70.8	70.1	69.7	69.6	0.000914
180.01999	3.39159299	14.73899003	1.78846544	14.67525	4605.5	4010.92152	70.7	70	69.6	69.6	0.000916
185.01999	3.39847096	14.73899003	1.78909088	14.67525	4605	4022.34369	70.8	70.1	69.6	69.6	0.000917
190.01999	3.40034677	14.74048928	1.79034176	14.6745	4615.25	4022.34369	70.6	70	69.7	69.6	0.000918
195.01999	3.43348608	14.74048928	1.78971632	14.67525	4625.25	4009.67998	70.6	70	69.8	69.6	0.000919
200.01999	3.41660379	14.73973965	1.7909672	14.6745	4625.5	4011.91476	70.6	70.1	69.8	69.6	0.000918
205.01999	3.4059742	14.74048928	1.78846544	14.6745	4633	3988.82211	70.5	70.1	69.7	69.6	0.000919
210.01999	3.40284785	14.73824041	1.7909672	14.67525	4635.5	3999.00274	70.5	70.1	69.7	69.7	0.000919
215.01999	3.39159299	14.73899003	1.78846544	14.67525	4635	4013.4046	70.5	70.1	69.8	69.7	0.000921
220.01999	3.38971718	14.73899003	1.7909672	14.67525	4645.25	4017.37753	70.5	70.1	69.8	69.7	0.000921
225.01999	3.39159299	14.73899003	1.78909088	14.67525	4646	4021.35046	70.5	70.1	69.8	69.7	0.000922
230.01999	3.38534029	14.73749079	1.78909088	14.6745	4645.75	4025.07508	70.5	70.1	69.7	69.7	0.000922
235.01999	3.39534461	14.73824041	1.78909088	14.67375	4656	4017.87415	70.6	70.1	69.6	69.6	0.000922
240.01999	3.38909191	14.73824041	1.78909088	14.6745	4655.75	4001.23751	70.6	70.1	69.6	69.6	0.000922
245.01999	3.39284353	14.73899003	1.78909088	14.67375	4665.25	4012.65968	70.6	70.2	69.7	69.6	0.000924
250.01999	3.39847096	14.73899003	1.78846544	14.67375	4665.75	4032.77263	70.6	70.2	69.7	69.6	0.000925
255.01999	3.41722906	14.73824041	1.78846544	14.6745	4665.25	4040.96679	70.7	70.1	69.7	69.7	0.000926
260.01999	3.39784569	14.73899003	1.78971632	14.67525	4676	4042.20833	70.6	70.2	69.6	69.6	0.000926
265.01999	3.39284353	14.73899003	1.78909088	14.6745	4675.75	4039.97356	70.6	70.2	69.6	69.7	0.000926
270.03	3.40222258	14.74048928	1.78971632	14.67375	4675.5	4026.31662	70.6	70.2	69.5	69.6	0.000926
275.03	3.39784569	14.73899003	1.78909088	14.6745	4685.5	4036.00063	70.7	70.2	69.7	69.7	0.000926
280.01999	3.3997215	14.73824041	1.78846544	14.67525	4685.75	4030.04124	70.7	70.2	69.6	69.6	0.000926
285.01999	3.40785001	14.73899003	1.78971632	14.6745	4685.75	4047.91942	70.7	70.2	69.6	69.6	0.000928
290.03	3.40785001	14.73973965	1.78909088	14.6745	4685.75	4051.39573	70.7	70.2	69.6	69.6	0.000928
295.03	3.40159731	14.73824041	1.78846544	14.6745	4685.5	4038.73202	70.8	70.2	69.7	69.7	0.000928
300.01999	3.39784569	14.73824041	1.78909088	14.67375	4695.75	4033.26924	70.8	70.2	69.7	69.7	0.000928
305.01999	3.40034677	14.73899003	1.78971632	14.67525	4695	4031.7794	70.8	70.2	69.7	69.7	0.000929
310.01999	3.39847096	14.73899003	1.78909088	14.67375	4696	4040.22187	70.8	70.2	69.5	69.6	0.000929

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL VOLTS
0.0100098	3.40972582	14.73899003	0.457716752	14.6625	120.9	-3.4490812	70.7	69.8	69.6	69.6	0.000249
315.01999	3.39847096	14.73899003	1.78846544	14.67375	4695.5	4049.16096	70.8	70.2	69.6	69.7	0.000929
320.01999	3.40847528	14.73824041	1.78596368	14.67525	4695.75	4033.02094	70.8	70.2	69.6	69.7	0.00093
325.01999	3.40222258	14.73899003	1.78721456	14.676	4695.75	4020.35723	70.8	70.2	69.8	69.7	0.00093
330.01999	3.41722906	14.73899003	1.78784	14.6745	4705.25	4028.30308	70.8	70.2	69.7	69.7	0.00093
335.01999	3.39847096	14.73824041	1.78658912	14.6745	4706	4029.04801	70.8	70.2	69.6	69.7	0.000931
340.01999	3.38659083	14.73899003	1.78658912	14.67525	4705.5	4025.5717	70.8	70.2	69.6	69.7	0.000932
345.01999	3.39847096	14.73973965	1.78721456	14.6745	4715.75	4024.57846	70.8	70.2	69.7	69.7	0.000932
350.01999	3.40910055	14.73899003	1.78721456	14.6745	4716	4046.42957	70.8	70.3	69.7	69.7	0.000931
355.01999	3.40034677	14.73824041	1.78721456	14.6745	4716	4048.66434	70.8	70.2	69.7	69.7	0.000931
360.01999	3.40034677	14.73899003	1.78658912	14.673	4715.75	4035.0074	70.8	70.2	69.7	69.6	0.000931
365.01999	3.39909623	14.73824041	1.78721456	14.67375	4715.5	4023.58523	70.8	70.3	69.8	69.7	0.000931
370.01999	3.39471934	14.74048928	1.78721456	14.67375	4726	4030.04124	70.8	70.3	69.7	69.7	0.000932
375.01999	3.40284785	14.73749079	1.78721456	14.67375	4725.75	4032.27601	70.7	70.3	69.7	69.7	0.000932
380.01999	3.38784137	14.73973965	1.78721456	14.6745	4725.75	4036.49725	70.7	70.3	69.6	69.7	0.000933
385.01999	3.40034677	14.73973965	1.78721456	14.67375	4726	4044.69141	70.7	70.2	69.5	69.7	0.000933
390.01999	3.40284785	14.73899003	1.78658912	14.67375	4725.75	4030.78616	70.7	70.3	69.7	69.7	0.000933
395.01999	3.40284785	14.73973965	1.78596368	14.6745	4725.5	4030.53786	70.7	70.3	69.6	69.7	0.000933
400.01999	3.39847096	14.73973965	1.78658912	14.6745	4726	4047.67111	70.7	70.3	69.7	69.7	0.000932
405.06	3.40284785	14.74048928	1.78658912	14.67375	4726	4046.92618	70.7	70.3	69.6	69.7	0.000933
410.01999	3.38971718	14.73899003	1.78658912	14.6745	4725.75	4049.90588	70.7	70.3	69.7	69.7	0.000933
415.09	3.40347312	14.73899003	1.78658912	14.6745	4725.75	4032.52432	70.7	70.3	69.6	69.7	0.000933
420.01999	3.3997215	14.73973965	1.78596368	14.67375	4726	4033.76586	70.7	70.3	69.8	69.7	0.000933
425.09	3.39096772	14.73899003	1.78658912	14.67375	4726	4026.31662	70.7	70.3	69.7	69.7	0.000935
430.01999	3.40722474	14.73749079	1.78658912	14.67375	4725.75	4021.10215	70.7	70.3	69.8	69.7	0.000934
435.07001	3.39847096	14.73899003	1.78596368	14.67375	4725.5	4019.364	70.7	70.3	69.7	69.7	0.000935
440.01999	3.40034677	14.73973965	1.78596368	14.6745	4735.75	4006.70029	70.7	70.3	69.6	69.7	0.000934
445.01999	3.39909623	14.73973965	1.78721456	14.67525	4736	4005.45875	70.8	70.3	69.7	69.7	0.000935
450.01999	3.39847096	14.73824041	1.78658912	14.6745	4735.5	3992.54673	70.8	70.3	69.8	69.7	0.000934
455.01999	3.39784569	14.73899003	1.78784	14.67525	4736	4011.66645	70.8	70.4	69.8	69.7	0.000935
460.01999	3.40284785	14.74048928	1.78658912	14.67525	4736	4019.86061	70.8	70.4	69.7	69.8	0.000935
465.01999	3.39909623	14.74048928	1.78658912	14.67525	4735.5	3994.7815	70.7	70.4	69.7	69.7	0.000936
470.01999	3.40910055	14.73899003	1.78658912	14.6745	4735.75	4007.1969	70.7	70.3	69.8	69.8	0.000935
475.01999	3.39284353	14.73749079	1.78721456	14.6745	4736	4004.71382	70.6	70.4	69.8	69.7	0.000936

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL VOLTS
0.0100098	3.40972582	14.73899003	0.457716752	14.6625	120.9	-3.4490812	70.7	69.8	69.6	69.6	0.000249
480.01999	3.39409407	14.73899003	1.78658912	14.67525	4735.5	4002.47905	70.5	70.4	69.8	69.8	0.000935
485.01999	3.39221826	14.73824041	1.78658912	14.6745	4736	4016.3843	70.6	70.4	69.7	69.8	0.000937
490.01999	3.3934688	14.73899003	1.78658912	14.6745	4736	4026.06831	70.6	70.4	69.7	69.7	0.000936
495.01999	3.40222258	14.73899003	1.78658912	14.67375	4745.5	4023.08862	70.6	70.4	69.7	69.7	0.000936
500.01999	3.39847096	14.73973965	1.78658912	14.6745	4746	4012.41137	70.7	70.4	69.8	69.7	0.000936
505.01999	3.39784569	14.73899003	1.78596368	14.6745	4746	4029.29632	70.7	70.4	69.8	69.7	0.000937
510.01999	3.39034245	14.73899003	1.78658912	14.67375	4745.5	4021.84708	70.6	70.4	69.7	69.8	0.000937
515.04999	3.39159299	14.73899003	1.78596368	14.6745	4746	4021.84708	70.7	70.4	69.8	69.8	0.000937
520.01999	3.40659947	14.73899003	1.78721456	14.6745	4746	4018.86738	70.7	70.4	69.7	69.7	0.000936
525.01999	3.40034677	14.73899003	1.78596368	14.6745	4745.75	4009.92829	70.7	70.4	69.7	69.8	0.000935
530.01999	3.40034677	14.74048928	1.78658912	14.6745	4745.75	4026.06831	70.8	70.5	69.8	69.8	0.000936
535.01999	3.39034245	14.73824041	1.78721456	14.67525	4746	4037.24217	70.7	70.4	69.7	69.8	0.000936
540.01999	3.39284353	14.73824041	1.78596368	14.6745	4745.5	4042.45664	70.6	70.4	69.6	69.8	0.000936
545.04999	3.39284353	14.73973965	1.7847128	14.67375	4745.5	4048.91265	70.6	70.5	69.6	69.8	0.000936
550.01999	3.40034677	14.74048928	1.78596368	14.67375	4746	4040.22187	70.7	70.4	69.7	69.8	0.000936
555.01999	3.40284785	14.73973965	1.78596368	14.6745	4746	4048.41603	70.6	70.5	69.6	69.8	0.000937
560.04999	3.39221826	14.73899003	1.78596368	14.67375	4746	4047.91942	70.7	70.5	69.6	69.8	0.000937
565.01999	3.39596988	14.74048928	1.78408736	14.6745	4746	4043.44987	70.7	70.5	69.6	69.8	0.000935
570.01999	3.39221826	14.74048928	1.7847128	14.67375	4745.75	4039.72525	70.6	70.5	69.5	69.8	0.000935
575.04999	3.39471934	14.73899003	1.7847128	14.67375	4746	4011.91476	70.6	70.5	69.6	69.8	0.000936
580.01999	3.40659947	14.73899003	1.7847128	14.6745	4746.25	4018.86738	70.6	70.5	69.6	69.8	0.000936
585.01999	3.40347312	14.73973965	1.7847128	14.6745	4745.75	4037.24217	70.6	70.5	69.5	69.8	0.000938
590.07999	3.41035109	14.74048928	1.78408736	14.6745	4745.75	4046.18126	70.7	70.5	69.7	69.8	0.000937
595.01999	3.3997215	14.73899003	1.7847128	14.67525	4746	4028.7997	70.7	70.6	69.7	69.7	0.000937
600.01999	3.40222258	14.73824041	1.7847128	14.6745	4746.75	4017.62584	70.8	70.5	69.6	69.8	0.000936
605.01999	3.42035541	14.73899003	1.7847128	14.67375	4755.75	3999.25105	70.8	70.5	69.6	69.8	0.000937
610.01999	3.40847528	14.73973965	1.78408736	14.6745	4746	4016.88092	70.8	70.5	69.7	69.8	0.000937
615.01999	3.40222258	14.73824041	1.78408736	14.6745	4745.75	4028.7997	70.8	70.5	69.6	69.8	0.000936
620.06	3.40409839	14.73824041	1.7847128	14.6745	4746	4034.75909	70.8	70.5	69.6	69.8	0.000936
625.01999	3.40222258	14.73899003	1.78658912	14.67375	4746	4033.26924	70.8	70.5	69.6	69.8	0.000936
630.01999	3.39471934	14.73973965	1.7847128	14.6745	4745.75	4030.28955	70.8	70.5	69.6	69.7	0.000936
635.01999	3.39847096	14.73899003	1.78408736	14.6745	4746	4022.592	70.8	70.5	69.7	69.7	0.000936
640.01999	3.40847528	14.73674117	1.78408736	14.6745	4745.75	4026.56493	70.7	70.5	69.6	69.8	0.000936

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL VOLTS
0.0100098	3.40972582	14.73899003	0.457716752	14.6625	120.9	-3.4490812	70.7	69.8	69.6	69.6	0.000249
645.01999	3.40284785	14.73899003	1.78408736	14.6745	4745.75	4036.49725	70.7	70.6	69.6	69.8	0.000936
650.06	3.38971718	14.73824041	1.78408736	14.67375	4746	4029.54462	70.7	70.5	69.7	69.8	0.000937
655.01999	3.39784569	14.73899003	1.7847128	14.67525	4746.25	4027.06154	70.7	70.6	69.7	69.8	0.000937
660.01999	3.40159731	14.73899003	1.7847128	14.6745	4745.75	4036.74556	70.7	70.6	69.8	69.8	0.000937
665.01999	3.40034677	14.73899003	1.78533824	14.67525	4746	4031.53109	70.8	70.6	69.8	69.8	0.000937
670.01999	3.40347312	14.74048928	1.7847128	14.6745	4746	4021.84708	70.8	70.6	69.7	69.8	0.000937
675.01999	3.39847096	14.74048928	1.78408736	14.67525	4754.75	4025.5717	70.7	70.6	69.7	69.8	0.000937
680.06	3.40284785	14.73899003	1.78408736	14.67375	4756	4019.6123	70.7	70.6	69.7	69.8	0.000938
685.01999	3.42285649	14.73973965	1.78346192	14.6745	4756	4003.72059	70.8	70.6	69.6	69.8	0.000937
690.01999	3.40034677	14.73973965	1.78408736	14.67375	4755.75	4012.65968	70.7	70.6	69.7	69.8	0.000938
695.04999	3.40972582	14.73973965	1.7847128	14.6745	4756	4030.78616	70.8	70.6	69.7	69.8	0.000937
700.01999	3.39847096	14.73899003	1.78346192	14.6745	4756	4035.25571	70.7	70.6	69.6	69.8	0.000936
705.01999	3.39784569	14.73749079	1.78346192	14.6745	4755.75	4024.82677	70.8	70.6	69.7	69.8	0.000937
710.01999	3.39596988	14.73899003	1.7847128	14.6745	4756	4027.80647	70.8	70.6	69.7	69.8	0.000937
715.01999	3.41722906	14.73973965	1.7847128	14.673	4756	4042.20833	70.8	70.6	69.7	69.8	0.000938
720.01999	3.40034677	14.73824041	1.78408736	14.6745	4755.75	4037.49048	70.8	70.6	69.6	69.8	0.000939
725.04001	3.39596988	14.73899003	1.7847128	14.67375	4756	4026.81324	70.8	70.6	69.6	69.8	0.000939
730.01999	3.39596988	14.73973965	1.7847128	14.6715	4756	4005.45875	70.7	70.6	69.6	69.8	0.000938
735.01999	3.41035109	14.73899003	1.7847128	14.67225	4756	3995.77474	70.7	70.6	69.6	69.8	0.000938
740.01999	3.40910055	14.73899003	1.7847128	14.67375	4756	4013.4046	70.6	70.6	69.6	69.8	0.000938
745.01999	3.40472366	14.73973965	1.7847128	14.6715	4756	4010.92152	70.7	70.6	69.6	69.8	0.000939
750.01999	3.41035109	14.73973965	1.78408736	14.67225	4756	3997.51289	70.6	70.6	69.6	69.8	0.000939
755.04999	3.41973014	14.74048928	1.7847128	14.67375	4756	4001.73413	70.6	70.6	69.6	69.8	0.000939
760.01999	3.38971718	14.73973965	1.7847128	14.6715	4756	4000.49259	70.6	70.6	69.7	69.8	0.000939
765.01999	3.41097636	14.73899003	1.78408736	14.6745	4756	4021.10215	70.7	70.6	69.7	69.8	0.000938
770.01999	3.40534893	14.73899003	1.78221104	14.67375	4756	4032.52432	70.7	70.6	69.6	69.8	0.000938
775.01999	3.39784569	14.73824041	1.78408736	14.6745	4756	4029.29632	70.7	70.6	69.6	69.8	0.000939
780.01999	3.39847096	14.73824041	1.78408736	14.67375	4766	4018.86738	70.7	70.6	69.7	69.8	0.000939
785.04999	3.39784569	14.73899003	1.78408736	14.67075	4766	4008.88675	70.6	70.6	69.6	69.8	0.000938
790.03	3.40222258	14.73824041	1.78221104	14.6745	4766	4020.85384	70.7	70.6	69.5	69.8	0.000938
795.01999	3.41285217	14.73899003	1.78408736	14.6745	4765.75	4035.0074	70.7	70.7	69.6	69.8	0.000939
800.04001	3.3934668	14.73899003	1.78221104	14.6715	4765.75	4033.51755	70.7	70.6	69.6	69.8	0.000939
805.01999	3.42848392	14.73973965	1.7815856	14.6745	4766	4017.87415	70.7	70.6	69.6	69.8	0.000938

SECONDS	MAIN DUCT	MAIN DUCT	GAS INJECT	GAS INJECT	NEWPORT	SMC	AMBIENT	GAS INJECT	MAIN DUCT	WEC CELL	WEC CELL
	DIFF (IN H2O)	ABS (PSIA)	DIFF (IN H2O)	ABS (PSIA)	(PPM)	(PPM)	TEMP. (F)	TEMP. (F)	TEMP. (F)	TEMP. (F)	VOLTS
0.0100098	3.40972582	14.73899003	0.457716752	14.6625	120.9	-3.4490812	70.7	69.8	69.6	69.6	0.000249
810.01999	3.41285217	14.73973965	1.78408736	14.6715	4766	4031.53109	70.7	70.6	69.6	69.8	0.000939
815.07001	3.39096772	14.73899003	1.78221104	14.6745	4766.25	4036.49725	70.6	70.7	69.7	69.8	0.000938
820.01999	3.39847096	14.73899003	1.7815856	14.67225	4766	4032.0277	70.5	70.6	69.6	69.8	0.000939
825.01999	3.40910055	14.73824041	1.78221104	14.6715	4766	4030.04124	70.7	70.6	69.6	69.8	0.00094
830.01999	3.40534893	14.73899003	1.78283648	14.6715	4766	4035.75232	70.7	70.6	69.6	69.8	0.000939
835.01999	3.39847096	14.73824041	1.78283648	14.6715	4766	4033.51755	70.7	70.6	69.7	69.8	0.000938
840.01999	3.40159731	14.73824041	1.78221104	14.6715	4766	4039.97356	70.7	70.7	69.6	69.8	0.000939
845.06	3.40347312	14.73824041	1.78283648	14.67225	4766	4057.85174	70.8	70.7	69.7	69.8	0.000939
850.01999	3.39221826	14.73749079	1.78221104	14.67225	4766	4063.0662	70.8	70.7	69.8	69.8	0.000938
855.01999	3.40910055	14.73973965	1.78346192	14.6715	4756	4052.88558	70.9	70.7	69.8	69.8	0.000937
860.01999	3.39409407	14.73899003	1.78283648	14.67225	4756	4056.11358	70.9	70.7	69.8	69.8	0.000937
865.01999	3.39596988	14.73973965	1.78221104	14.67225	4756	4056.11358	70.9	70.7	69.7	69.7	0.000937
870.01999	3.39596988	14.73824041	1.78033472	14.67075	4756	4048.91265	70.9	70.6	69.7	69.8	0.000937
875.01999	3.38784137	14.73899003	1.7815856	14.67375	4756.25	4054.62373	70.9	70.7	69.8	69.8	0.000939
880.01999	3.40859947	14.73824041	1.78221104	14.6745	4756	4041.96002	70.8	70.7	69.8	69.8	0.000938
885.01999	3.41347744	14.73899003	1.78221104	14.67375	4756	4044.4431	70.9	70.7	69.7	69.8	0.000939
890.04999	3.39847096	14.73973965	1.78221104	14.6715	4766	4038.73202	70.8	70.7	69.7	69.8	0.000938
895.04999	3.39909623	14.74048928	1.7815856	14.6715	4766.25	4016.63261	70.9	70.7	69.7	69.8	0.000938
900.01999	3.39596988	14.73973965	1.7815856	14.6715	4765.75	4023.58523	70.9	70.7	69.7	69.8	0.000939
905.04999	3.41660379	14.7412389	1.7815856	14.67225	4766	4026.06831	70.8	70.7	69.8	69.8	0.00094
910.01999	3.39409407	14.73973965	1.7815856	14.6745	4765.75	4026.81324	70.7	70.7	69.7	69.8	0.000939
915.01999	3.40097204	14.73973965	1.78221104	14.673	4766.25	4029.29632	70.7	70.7	69.6	69.8	0.000939
920.04999	3.40097204	14.73824041	1.78221104	14.6715	4766	4024.08185	70.7	70.7	69.6	69.8	0.000939
925.01999	3.40910055	14.73899003	1.78033472	14.6715	4766.25	4021.10215	70.8	70.7	69.6	69.8	0.000939
930.01999	3.39221826	14.73824041	1.77970928	14.6715	4766.25	4031.7794	70.8	70.7	69.6	69.8	0.000939
935.01999	3.39847096	14.73824041	1.78096016	14.6715	4766	4055.86527	70.8	70.7	69.7	69.8	0.000939
940.03	3.39847096	14.73973965	1.78096016	14.6715	4766	4059.09328	70.8	70.7	69.6	69.8	0.000939
945.01999	3.41660379	14.73749079	0.213419888	14.604	4765.5	4065.30098	70.7	70.7	69.7	69.8	0.000938

TEST: EX102257 25 Feb 1997 WEC-S-Pool

Measured Hydrogen Concentration = 3800ppm

SECONDS	MAIN DUCT	MAIN DUCT	GAS INJECT	GAS INJECT	NEWPORT	SMC	AMBIENT	GAS INJECT	MAIN DUCT	WEC CELL	WEC CELL
	DIFF (IN H2O)	ABS (PSIA)	DIFF (IN H2O)	ABS (PSIA)	(PPM)	(PPM)	TEMP.(F)	TEMP.(F)	TEMP.(F)	TEMP.(F)	TEMP.(F)
											(VOLTS)

0.000779	72.7	72.3	72.6	73.2	73.2	3845	3702.02637	14.48625	14.563785	1.79784704	14.5620792	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.5635785	1.79784704	14.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Flammable Gas Interlock Spoolpiece Testing

EX102257.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
190.02002	3.81052389	14.5628289	1.79784704	14.4855	3845.25	3704.75776	73.2	72.7	72.3	72.7	0.00078
195.02002	3.81990294	14.5628289	1.79784704	14.48625	3854.75	3712.45531	73.2	72.7	72.4	72.7	0.00078
200.02002	3.80864808	14.5620792	1.7972216	14.4855	3855	3701.77806	73.2	72.7	72.4	72.7	0.000781
205.08002	3.8123997	14.5620792	1.79784704	14.4855	3855.25	3700.28822	73.2	72.7	72.4	72.7	0.000782
210.16	3.82553037	14.5628289	1.79784704	14.4855	3865	3713.20023	73.2	72.7	72.5	72.7	0.000782
215.02002	3.806147	14.5635785	1.79647248	14.4855	3864.75	3714.69008	73.3	72.7	72.5	72.7	0.000783
220.12	3.81177443	14.5635785	1.79784704	14.4855	3865.25	3721.14609	73.4	72.7	72.4	72.7	0.000783
225.02002	3.81740186	14.5635785	1.79784704	14.4855	3875.5	3728.09871	73.4	72.7	72.5	72.8	0.000784
230.02002	3.83053253	14.566577	1.79784704	14.4855	3875	3707.98576	73.5	72.7	72.4	72.7	0.000784
235.04001	3.80489646	14.5635785	1.79847248	14.48475	3874.75	3707.48915	73.4	72.7	72.4	72.8	0.000784
240.14999	3.80802281	14.5628289	1.79784704	14.4855	3885.5	3708.73069	73.4	72.7	72.3	72.7	0.000784
245.02002	3.84303793	14.5635785	1.79847248	14.48625	3885.25	3705.9993	73.3	72.7	72.3	72.8	0.000784
250.09	3.81490078	14.5635785	1.79784704	14.48625	3885.5	3702.02637	73.3	72.7	72.3	72.8	0.000786
255.02002	3.81802713	14.5635785	1.79847248	14.4855	3895.5	3704.75776	73.3	72.7	72.3	72.8	0.000786
260.02002	3.80239538	14.5635785	1.79784704	14.48475	3895.5	3714.19346	73.2	72.7	72.2	72.8	0.000786
265.02002	3.83178307	14.5635785	1.79784704	14.4855	3895.5	3722.88424	73.1	72.7	72.2	72.7	0.000786
270.17999	3.82115348	14.5643281	1.79784704	14.4855	3895.25	3719.40793	73.1	72.7	72.1	72.8	0.000785
275.02002	3.81490078	14.5643281	1.79847248	14.48475	3895.25	3720.15286	73.1	72.7	72.1	72.7	0.000786
280.05002	3.81114916	14.5628289	1.79847248	14.48475	3895.25	3709.72392	73.1	72.7	72.1	72.8	0.000788
285.02002	3.83240834	14.5635785	1.79597072	14.48475	3905.5	3710.96546	73.2	72.7	72.3	72.8	0.000786
290.02002	3.83240834	14.5620792	1.7972216	14.4855	3905.5	3715.1867	73.2	72.7	72.3	72.8	0.000787
295.02002	3.80802281	14.5643281	1.79784704	14.48475	3905.5	3716.17993	73.2	72.7	72.3	72.8	0.000788
300.02002	3.80927335	14.5635785	1.79659616	14.4855	3905.5	3726.85717	73.2	72.7	72.3	72.8	0.000788
305.02002	3.81740186	14.5628289	1.79784704	14.4855	3905.5	3727.10548	73.2	72.7	72.2	72.7	0.000788
310.08002	3.80927335	14.5628289	1.79659616	14.4855	3915.5	3714.69008	73.1	72.7	72.1	72.7	0.000789
315.14001	3.83365688	14.5658274	1.79784704	14.48625	3915.5	3730.58179	73	72.7	72	72.8	0.000788
320.02002	3.83035777	14.5635785	1.7972216	14.48475	3915.5	3729.09194	72.9	72.7	71.9	72.7	0.000788
325.09	3.8186524	14.5658274	1.7972216	14.48475	3915.25	3721.8427	72.8	72.7	71.9	72.8	0.000789
330.02002	3.80802281	14.5635785	1.7972216	14.48625	3915.5	3717.17316	72.9	72.7	71.9	72.8	0.000789
335.02002	3.82177875	14.5628289	1.79784704	14.48625	3915.5	3723.38086	72.9	72.7	71.9	72.8	0.000789
340.02002	3.80239538	14.5628289	1.79784704	14.48175	3915.5	3733.06487	72.8	72.7	71.8	72.8	0.000789
345.03	3.81677659	14.5635785	1.79784704	14.4825	3915.75	3726.85717	72.8	72.7	71.9	72.8	0.000789
350.02002	3.80427119	14.5635785	1.79784704	14.484	3925.5	3723.13255	72.9	72.7	71.9	72.8	0.00079
355.03	3.80239538	14.5635785	1.79597072	14.48175	3925.5	3720.15286	72.8	72.7	71.9	72.8	0.000791
360.02002	3.81552605	14.5628289	1.7972216	14.48175	3925	3724.37409	72.8	72.7	72	72.8	0.000791
365.02002	3.81927767	14.5628289	1.79784704	14.4825	3925.5	3729.34025	72.8	72.7	72	72.8	0.000791
370.06	3.80239538	14.5628289	1.79659616	14.4825	3925.25	3728.84364	72.8	72.7	72	72.8	0.000792
375.02002	3.80864808	14.5628289	1.7972216	14.48475	3925.25	3729.09194	72.8	72.7	72	72.8	0.000791
380.02002	3.82052821	14.5643281	1.79534528	14.48475	3925.5	3731.82333	72.9	72.7	72	72.8	0.00079
385.03	3.80427119	14.5620792	1.79597072	14.4825	3925.5	3714.19346	72.8	72.7	71.9	72.8	0.000791
390.14001	3.83178307	14.5635785	1.79534528	14.4825	3925.5	3711.46208	72.8	72.7	71.9	72.8	0.000791
395.02002	3.81427551	14.5643281	1.79597072	14.4825	3925.5	3705.9993	72.8	72.7	71.9	72.8	0.000792

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
400.02002	3.80864808	14.5643281	1.7972216	14.484	3925.5	3715.93162	72.7	72.7	71.9	72.8	0.000791
405.02002	3.8186524	14.5635785	1.79697072	14.4825	3925.25	3712.45531	72.7	72.7	71.9	72.8	0.000792
410.02002	3.8186524	14.5635785	1.79697072	14.48325	3925.5	3712.45531	72.8	72.7	72	72.8	0.000792
415.02002	3.806147	14.5635785	1.79697072	14.48175	3935	3712.207	72.8	72.7	71.9	72.8	0.000792
420.02002	3.82615564	14.5635785	1.7972216	14.48325	3935.25	3712.45531	72.8	72.7	71.9	72.8	0.000792
425.04001	3.80927335	14.5635785	1.79659616	14.48325	3935.25	3714.69008	72.7	72.7	71.9	72.8	0.000792
430.02002	3.81552605	14.5643281	1.79634528	14.48325	3935.5	3711.21377	72.8	72.8	71.8	72.7	0.000791
435.14001	3.81927767	14.5643281	1.79659616	14.48325	3935.5	3714.93839	72.8	72.8	71.8	72.7	0.000792
440.17001	3.80864808	14.5643281	1.79697072	14.48325	3935.5	3708.979	72.8	72.7	71.9	72.8	0.000792
445.17999	3.81552605	14.5650777	1.79784704	14.48325	3935.5	3719.90455	72.9	72.7	72	72.8	0.000793
450.02002	3.82553037	14.5643281	1.79471984	14.48325	3935	3724.37409	73	72.8	72	72.8	0.000793
455.12	3.81740186	14.5650777	1.79784704	14.48325	3935.25	3716.92485	73	72.7	72	72.8	0.000793
460.02002	3.83490942	14.5650777	1.79534528	14.4825	3945	3706.99253	73	72.7	72.1	72.8	0.000793
465.02002	3.81490078	14.5658274	1.79697072	14.48325	3944.25	3710.96546	73	72.7	72.1	72.7	0.000793
470.02002	3.81740186	14.5643281	1.79471984	14.48325	3945.75	3718.66301	72.9	72.7	72.1	72.8	0.000794
475.05002	3.81677659	14.5628289	1.79534528	14.4825	3945.75	3727.8504	72.9	72.8	72	72.8	0.000792
480.02002	3.82115348	14.5628289	1.79471984	14.4825	3945.5	3732.81656	72.8	72.7	71.9	72.8	0.000793
485.17001	3.81927767	14.5643281	1.79534528	14.4825	3935.5	3712.70362	73	72.7	72	72.7	0.000793
490.02002	3.81740186	14.5635785	1.79534528	14.4825	3935.5	3706.24761	73	72.7	72	72.8	0.000793
495.02002	3.83240834	14.5635785	1.79534528	14.4825	3935.5	3713.69685	73	72.7	72.1	72.8	0.000792
500.02002	3.83240834	14.5620792	1.79659616	14.4825	3935.5	3711.46208	73	72.8	72	72.8	0.000792
505.08002	3.82302929	14.5635785	1.79697072	14.48325	3935.25	3712.70362	72.9	72.8	71.9	72.8	0.000792
510.02002	3.82553037	14.5635785	1.79697072	14.4825	3935.5	3699.04668	72.9	72.7	72	72.8	0.000792
515.02002	3.82553037	14.5650777	1.79697072	14.4825	3935.5	3709.72392	72.9	72.7	72	72.8	0.000792
520.02002	3.82302929	14.5643281	1.79697072	14.48175	3935.5	3703.51622	72.9	72.7	72	72.8	0.000793
525.04001	3.81490078	14.56058	1.79534528	14.4825	3945.25	3701.77806	73	72.7	72	72.8	0.000793
530.08002	3.82177875	14.5635785	1.79534528	14.48325	3945.5	3705.25438	72.9	72.7	71.9	72.8	0.000794
535.03	3.81615132	14.5643281	1.79697072	14.4825	3945.25	3705.50268	72.9	72.7	72	72.8	0.000794
540.03	3.83240834	14.5643281	1.79534528	14.4825	3945	3710.22054	72.9	72.7	72	72.8	0.000794
545.02002	3.8123997	14.5643281	1.79471984	14.48325	3945.75	3711.95869	72.9	72.7	72	72.8	0.000793
550.03	3.81052389	14.5643281	1.79534528	14.48325	3945.25	3707.73746	72.9	72.7	72	72.8	0.000793
555.02002	3.82615564	14.5643281	1.79534528	14.4825	3946	3703.26791	72.9	72.7	72	72.8	0.000794
560.03	3.81927767	14.5643281	1.79471984	14.4825	3945.5	3704.75776	72.9	72.7	72	72.8	0.000794
565.02002	3.8374105	14.5628289	1.79534528	14.4825	3945.5	3701.77806	72.9	72.7	72	72.8	0.000794
570.02002	3.82177875	14.5620792	1.79534528	14.4825	3945.5	3703.26791	72.9	72.8	72.1	72.8	0.000794
575.02002	3.80864808	14.56058	1.79534528	14.48175	3945.5	3707.48915	72.9	72.7	72.1	72.8	0.000793
580.02002	3.82115348	14.5598304	1.79534528	14.481	3945.5	3702.27468	72.9	72.8	72.2	72.8	0.000795
585.02002	3.80927335	14.56058	1.79697072	14.48175	3945.5	3703.26791	72.9	72.8	72.2	72.8	0.000794
590.02002	3.83428415	14.5635785	1.79697072	14.48175	3955.5	3701.52976	72.9	72.8	72.1	72.7	0.000795
595.03	3.81927767	14.5643281	1.79534528	14.4825	3955	3707.24084	73	72.8	72.1	72.7	0.000795
600.02002	3.81552605	14.5628289	1.79697072	14.4825	3955.75	3707.24084	73	72.7	72.1	72.8	0.000795
605.02002	3.81927767	14.5620792	1.79534528	14.48175	3955	3706.99253	73	72.8	72.1	72.7	0.000795

Flammable Gas Interlock Spoolpiece Testing

EX102257.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
610.02002	3.82365456	14.5620792	1.79597072	14.48325	3955.25	3706.24761	73.1	72.8	72.1	72.7	0.000795
615.05002	3.82990726	14.5628289	1.79534528	14.4825	3955.5	3704.50945	73.2	72.8	72.2	72.7	0.000794
620.08002	3.81927767	14.5643281	1.79597072	14.48325	3955.75	3700.78483	73.2	72.8	72.2	72.7	0.000795
625.02002	3.81490078	14.5635785	1.79534528	14.48325	3956	3703.76453	73.3	72.8	72.1	72.7	0.000795
630.03	3.82553037	14.5643281	1.79534528	14.48325	3955.5	3708.979	73.3	72.8	72.1	72.7	0.000795
635.07001	3.82177875	14.5643281	1.79534528	14.4825	3955.5	3707.24084	73.3	72.8	72.1	72.7	0.000794
640.02002	3.80864808	14.5643281	1.79534528	14.48325	3955.5	3712.207	73.3	72.8	72.2	72.7	0.000795
645.04001	3.81552605	14.5643281	1.79471984	14.4825	3948.75	3710.71715	73.2	72.8	72.2	72.8	0.000794
650.09	3.81927767	14.5643281	1.79597072	14.48325	3945.25	3710.22054	73.2	72.8	72.2	72.7	0.000794
655.02002	3.81490078	14.5650777	1.79597072	14.4825	3955.5	3718.91132	73.3	72.8	72.2	72.8	0.000794
660.02002	3.83178307	14.5635785	1.79471984	14.4825	3955.5	3716.92485	73.2	72.8	72.1	72.8	0.000795
665.08002	3.81365024	14.5643281	1.79534528	14.4825	3955.75	3709.2273	73.2	72.8	72	72.8	0.000795
670.02002	3.80927335	14.5643281	1.79471984	14.4825	3955.75	3701.52976	73.1	72.8	72	72.8	0.000795
675.06	3.80864808	14.5650777	1.79534528	14.4825	3955.25	3705.50268	73.1	72.8	72.1	72.8	0.000795
680.05002	3.806147	14.5643281	1.79534528	14.4825	3955.25	3693.08728	73.1	72.8	72.2	72.8	0.000797
685.02002	3.80864808	14.5598304	1.79534528	14.4825	3956	3708.73069	73.1	72.8	72.1	72.8	0.000796
690.07001	3.80864808	14.5643281	1.79597072	14.4825	3955.5	3717.17316	73.1	72.8	72.2	72.8	0.000796
695.02002	3.81302497	14.5635785	1.79534528	14.4825	3955.25	3716.92485	73	72.8	72.1	72.7	0.000796
700.02002	3.81490078	14.5650777	1.79597072	14.48175	3965.5	3710.96546	73	72.8	72.1	72.7	0.000795
705.05002	3.83428415	14.5650777	1.79597072	14.4825	3965.5	3712.95192	73	72.8	72.1	72.7	0.000796
710.02002	3.81302497	14.5628289	1.79597072	14.4825	3965.75	3718.4147	73	72.9	72.1	72.8	0.000796
715.02002	3.86117076	14.5635785	1.79534528	14.4825	3965.5	3707.98576	73.1	72.9	72.1	72.7	0.000796
720.02002	3.81740186	14.5643281	1.79534528	14.48175	3965.75	3702.27468	73	72.9	72.1	72.7	0.000795
725.08002	3.81239997	14.5635785	1.79597072	14.4825	3965.75	3706.49592	73.1	72.9	72.1	72.8	0.000797
730.02002	3.81052389	14.5635785	1.79597072	14.48325	3966	3699.04668	73	72.9	72.2	72.8	0.000796
735.02002	3.82990726	14.5620792	1.79597072	14.4825	3965.75	3709.2273	73	72.9	72.1	72.7	0.000797
740.02002	3.82928199	14.5628289	1.79597072	14.4825	3965.5	3709.2273	73	72.9	72.2	72.8	0.000797
745.02002	3.81990294	14.5643281	1.79597072	14.48175	3965.75	3709.47561	73	72.9	72.1	72.8	0.000797
750.06	3.81427551	14.5613296	1.79534528	14.481	3966	3715.1667	73	72.9	72.2	72.7	0.000795
755.02002	3.82803145	14.5613296	1.79597072	14.4825	3967	3711.21377	73	72.9	72.2	72.7	0.000794
760.02002	3.84491374	14.5628289	1.79471984	14.48175	3960.25	3708.979	73.1	72.9	72.2	72.8	0.000796
765.03	3.82678091	14.5635785	1.79597072	14.4825	3965.75	3712.207	73.2	72.9	72.2	72.8	0.000796
770.06	3.83178307	14.5620792	1.79471984	14.4825	3965.5	3705.25438	73.2	72.9	72.2	72.8	0.000796
775.02002	3.82803145	14.56058	1.79597072	14.4825	3965.75	3691.59744	73.3	72.9	72.2	72.8	0.000796
780.04001	3.82553037	14.5628289	1.79534528	14.4825	3966	3696.30175	73.3	72.9	72.2	72.7	0.000797
785.02002	3.87117508	14.5628289	1.79597072	14.48175	3965.75	3702.52299	73.3	72.9	72.2	72.8	0.000797
790.02002	3.80989862	14.5590808	1.79597072	14.48175	3965.75	3707.48915	73.3	72.9	72.2	72.7	0.000797
795.02002	3.80864808	14.56058	1.79597072	14.4825	3965.5	3716.67654	73.3	72.9	72.2	72.7	0.000796
800.04001	3.8249051	14.5643281	1.79597072	14.48325	3965.25	3718.4147	73.4	72.9	72.2	72.7	0.000797
805.02002	3.83615996	14.5635785	1.79597072	14.4825	3965.5	3713.69685	73.4	72.9	72.2	72.7	0.000797
810.02002	3.81552605	14.5613296	1.79597072	14.48175	3965.5	3716.67654	73.4	72.9	72.2	72.7	0.000797
815.10001	3.83178307	14.56058	1.79597072	14.4825	3965.5	3711.46208	73.4	72.9	72.2	72.7	0.000797

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
820.02002	3.81677659	14.56058	1.79597072	14.48175	3965.5	3706.99253	73.4	72.9	72.2	72.7	0.000797
825.07001	3.81490078	14.56058	1.79597072	14.48325	3965.5	3706.74422	73.5	72.9	72.3	72.7	0.000797
830.08002	3.8186524	14.5620792	1.79534528	14.4825	3965.75	3713.44854	73.4	72.9	72.2	72.7	0.000797
835.02002	3.8123997	14.5613296	1.79597072	14.4825	3965.75	3711.21377	73.4	72.9	72.3	72.7	0.000796
840.03	3.84303793	14.5635785	1.79597072	14.48325	3965.75	3701.28145	73.3	73	72.3	72.7	0.000797
845.02002	3.81677659	14.5598304	1.79597072	14.48175	3965.5	3718.4147	73.3	72.9	72.4	72.7	0.000796
850.02002	3.83803577	14.56058	1.79534528	14.4825	3965.75	3719.40793	73.2	72.9	72.4	72.7	0.000796
855.03	3.80864808	14.5613296	1.79597072	14.4825	3965.5	3724.12578	73.3	72.9	72.3	72.7	0.000797
860.02002	3.81490078	14.5598304	1.79534528	14.4825	3965.75	3715.93162	73.3	73	72.4	72.7	0.000797
865.02002	3.8374105	14.5613296	1.79534528	14.4825	3975	3701.52976	73.3	73	72.4	72.7	0.000798
870.06	3.81927767	14.5620792	1.79597072	14.4825	3975.5	3706.49592	73.4	72.9	72.3	72.8	0.000797
875.11002	3.82740618	14.5613296	1.79534528	14.4825	3965.5	3709.47561	73.4	73	72.4	72.8	0.000797
880.02002	3.83178307	14.5613296	1.79534528	14.4825	3965.25	3706.24761	73.4	72.9	72.3	72.7	0.000797
885.02002	3.82427983	14.5628289	1.79534528	14.4825	3975.75	3711.71038	73.3	73	72.4	72.7	0.000798
890.02002	3.82553037	14.5613296	1.79597072	14.4825	3975.5	3715.93162	73.3	72.9	72.3	72.8	0.000798
895.02002	3.81302497	14.5613296	1.79597072	14.4825	3975.25	3711.46208	73.3	73	72.3	72.8	0.000798
900.02002	3.81677659	14.5613296	1.79534528	14.4825	3975.75	3706.99253	73.4	73	72.3	72.8	0.000799
905.04001	3.80802281	14.5620792	1.79597072	14.4825	3975.5	3697.30852	73.4	73	72.3	72.7	0.000798
910.02002	3.82553037	14.5613296	1.79659616	14.4825	3975.5	3701.28145	73.4	73	72.3	72.8	0.000799
915.02002	3.80677227	14.5613296	1.79534528	14.48175	3975.5	3704.50945	73.3	73	72.3	72.8	0.000798

TEST: EX202257 25 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 4217ppm

SECOND	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
0.01001	3.8249051	14.55908075	0.661922912	14.499	51.5	-0.0224308	73.3	72.6	72.5	72.7	0.000214
5.019989	3.81490078	14.55908075	1.99611152	14.49225	51.4	136.10001	73.3	72.6	72.5	72.8	0.000216
10.01999	3.84866536	14.55833113	1.99548608	14.4915	224.925	1936.8048	73.3	72.8	72.3	72.7	0.000259
15.01999	3.83428415	14.55908075	1.99548608	14.49	702.25	3107.577	73.2	72.8	72.3	72.8	0.000343
20.01999	3.83803577	14.55983037	1.99923872	14.4885	1302.25	3582.8385	73.3	72.8	72.3	72.7	0.000433
25.01999	3.83928631	14.55833113	1.99923872	14.49	1920	3760.6271	73.4	72.8	72.3	72.7	0.000512
30.01999	3.80552173	14.55908075	1.99923872	14.49075	2328.75	3835.1195	73.4	72.8	72.3	72.7	0.000576
35.01999	3.82302929	14.55833113	1.99923872	14.48925	2723.75	3883.7878	73.5	72.8	72.3	72.7	0.000627
40.01999	3.83991158	14.55983037	1.99986416	14.49075	2994.25	3905.1423	73.4	72.8	72.4	72.7	0.000669
45.01999	3.8249051	14.55833113	2.0004896	14.49	3254.25	3913.0882	73.4	72.8	72.4	72.8	0.0007
50.01999	3.82115348	14.55908075	1.99923872	14.48925	3414.5	3922.7722	73.3	72.8	72.4	72.7	0.000725
55.01999	3.81490078	14.56058	1.99986416	14.49	3596.25	3957.7836	73.3	72.8	72.4	72.8	0.000746
60.01999	3.81114916	14.55983037	2.00111504	14.49	3674.75	3955.0522	73.3	72.8	72.4	72.7	0.000761
65.01999	3.82302929	14.55983037	2.0004896	14.49	3784.75	3967.7159	73.3	72.8	72.4	72.7	0.000774
70.01999	3.82115348	14.55983037	2.00174048	14.49	3855.25	3984.6009	73.3	72.8	72.4	72.7	0.000786
75.01999	3.81552605	14.55908075	2.00174048	14.48925	3925	4003.9689	73.3	72.8	72.3	72.8	0.000794
80.01999	3.80864808	14.55908075	2.00174048	14.49	3974.5	3996.5197	73.2	72.8	72.3	72.8	0.000802
85.01999	3.81740186	14.56058	2.00174048	14.49	4005.5	4009.9283	73.2	72.8	72.3	72.7	0.000809
90.01999	3.80864808	14.55983037	2.00111504	14.49	4060.25	4013.1563	73.2	72.8	72.4	72.7	0.000813
95.01999	3.8186524	14.55983037	2.00174048	14.48925	4085.25	4036.4972	73.3	72.8	72.4	72.7	0.000818
100.02	3.83178307	14.55983037	2.00174048	14.48925	4115.25	4034.0142	73.3	72.8	72.5	72.7	0.000822
105.02	3.82115348	14.55983037	2.00111504	14.48925	4135.25	4045.933	73.3	72.8	72.4	72.7	0.000825
110.02	3.8186524	14.56058	2.0036168	14.4885	4155	4057.3551	73.4	72.9	72.3	72.8	0.000828
115.02	3.81927767	14.56058	2.0036168	14.48925	4175.5	4068.2807	73.3	72.8	72.4	72.8	0.000829
120.02	3.81052389	14.56207924	2.00442224	14.49	4195.25	4067.2874	73.4	72.8	72.3	72.7	0.000831
125.02	3.81427551	14.55983037	2.00442224	14.49	4205.5	4068.2807	73.3	72.8	72.3	72.8	0.000833
130.02	3.81677659	14.55833113	2.00486768	14.48925	4215.25	4081.6893	73.3	72.8	72.3	72.7	0.000836
135.02	3.8186524	14.55833113	2.00236592	14.49	4225.75	4080.6961	73.3	72.8	72.3	72.7	0.000837
140.02	3.81677659	14.55908075	2.00442224	14.48925	4245.5	4078.7096	73.2	72.9	72.3	72.7	0.000838
145.02	3.80802281	14.55983037	2.0036168	14.49	4255.75	4084.1724	73.2	72.9	72.3	72.7	0.00084
150.02	3.83178307	14.55983037	2.00299136	14.49	4255.25	4087.897	73.1	72.8	72.3	72.7	0.000841
155.02	3.83178307	14.56132962	2.0036168	14.49	4265.75	4095.3462	73.1	72.9	72.3	72.7	0.000842
160.02	3.82678091	14.55983037	2.00442224	14.48925	4275.5	4102.0506	73.1	72.9	72.3	72.7	0.000843
165.02	3.81052389	14.56058	2.00299136	14.4885	4285.5	4102.2989	73.2	72.9	72.2	72.7	0.000844
170.02	3.80802281	14.56058	2.00442224	14.48925	4285.75	4108.5066	73.2	72.9	72.2	72.8	0.000846
175.02	3.80989862	14.55983037	2.0036168	14.48925	4295.75	4107.0167	73.2	72.8	72.2	72.8	0.000846
180.02	3.83490942	14.55983037	2.00299136	14.48925	4305.75	4116.2041	73.2	72.9	72.3	72.8	0.000847
185.02	3.8123997	14.55608226	2.00442224	14.48925	4306	4105.7752	73.2	72.9	72.2	72.8	0.000848

Flammable Gas Interlock Spoolpiece Testing

EX202257.XLS

SECOND	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
190.02	3.81615132	14.56058	2.00424224	14.4885	4306	4113.9693	73.3	72.9	72.3	72.8	0.000848
195.02	3.82240402	14.56207924	2.0036168	14.4885	4315.75	4108.2583	73.3	72.9	72.2	72.8	0.00085
200.02	3.8186524	14.55983037	2.0036168	14.48925	4315.75	4099.5675	73.2	72.9	72.2	72.8	0.00085
205.02	3.82365456	14.56058	2.00424224	14.49	4325.5	4107.265	73.2	72.9	72.1	72.8	0.00085
210.03	3.81114916	14.55683189	2.00424224	14.49	4326	4101.8023	73.2	72.9	72.1	72.8	0.00085
215.02	3.81490078	14.55683189	2.0036168	14.48925	4325.75	4113.721	73.2	72.9	72.1	72.8	0.000851
220.02	3.81365024	14.55758151	2.00299136	14.49	4336	4112.2312	73.2	72.9	72.1	72.8	0.000851
225.06	3.82553037	14.55908075	2.0036168	14.49	4336	4109.2515	73.2	72.9	72.1	72.8	0.00085
230.02	3.81490078	14.55608226	2.0036168	14.49	4336	4119.4321	73.2	72.9	72.2	72.8	0.000851
235.02	3.806147	14.55758151	2.0036168	14.49	4335.75	4122.4118	73.2	72.9	72.1	72.8	0.000853
240.02	3.8186524	14.55608226	2.0036168	14.48925	4345.25	4124.15	73.2	72.9	72.2	72.8	0.000853
245.02	3.84303793	14.55683189	2.0036168	14.49	4345.75	4123.9017	73.1	72.9	72.2	72.8	0.000853
250.02	3.81740186	14.55608226	2.0036168	14.48925	4345.75	4126.3847	73.2	72.9	72.2	72.8	0.000853
255.02	3.82365456	14.55683189	2.00424224	14.49	4345.75	4121.6669	73.1	73	72.1	72.8	0.000852
260.02	3.85179171	14.55608226	2.0036168	14.48925	4346	4129.1161	73.2	72.9	72.2	72.8	0.000854
265.02	3.8249051	14.55683189	2.00424224	14.48925	4345.75	4118.4389	73.1	72.9	72.2	72.8	0.000853
270.02	3.81927767	14.55608226	2.0036168	14.48925	4355.75	4126.6331	73.1	72.9	72.1	72.8	0.000854
275.02	3.81052389	14.55683189	2.00424224	14.49075	4355.75	4119.9287	73.1	72.9	72.1	72.8	0.000854
280.02	3.81615132	14.55683189	2.00424224	14.48925	4356	4130.606	73.2	72.9	72.2	72.8	0.000854
285.02	3.83615966	14.55608226	2.00424224	14.49	4356	4148.4842	73.3	72.9	72.1	72.8	0.000855
290.02	3.81552605	14.55683189	2.00424224	14.49	4366	4138.8001	73.3	73	72.2	72.8	0.000855
295.02	3.83178307	14.55533264	2.00299136	14.48925	4365.75	4127.8746	73.3	72.9	72.1	72.8	0.000856
300.02	3.82928199	14.55533264	2.0036168	14.49	4366	4131.3509	73.3	73	72.2	72.7	0.000856
305.02	3.82115348	14.55683189	2.00424224	14.49	4365.75	4119.4321	73.3	73	72.2	72.7	0.000856
310.03	3.81927767	14.55683189	2.0036168	14.48925	4366.25	4120.922	73.2	73	72.2	72.7	0.000855
315.02	3.82990726	14.55683189	2.0036168	14.48925	4366	4124.3983	73.1	73	72.2	72.8	0.000857
320.02	3.80802281	14.55683189	2.00424224	14.49	4366.25	4126.6331	73.1	73	72.2	72.7	0.000856
325.02	3.82052821	14.55758151	2.0036168	14.49	4376	4131.8475	73.1	73	72.1	72.7	0.000857
330.02	3.8374105	14.55533264	2.00424224	14.48925	4375.75	4137.8069	73	73	72.1	72.7	0.000857
335.02	3.82553037	14.55608226	2.0036168	14.49075	4376.25	4138.5518	73	73	72.1	72.7	0.000858
340.02	3.81052389	14.55608226	2.0036168	14.48925	4375.75	4136.8137	73.1	73	72.2	72.7	0.000858
345.02	3.81427551	14.55608226	2.00236592	14.48925	4376.25	4138.3035	73.1	73	72.3	72.7	0.000857
350.02	3.80927335	14.55608226	2.0036168	14.49	4386	4138.0552	73.1	73	72.2	72.8	0.000858
355.02	3.8186524	14.55683189	2.00299136	14.49	4385.75	4137.8069	73.1	73	72.1	72.7	0.000858
360.02	3.8311578	14.55608226	2.00424224	14.48925	4386	4120.922	73.1	73	72.1	72.7	0.000858
365.02	3.84678955	14.55458302	2.00424224	14.48925	4386	4128.3712	73.2	73	72.2	72.7	0.000859
370.02	3.81677659	14.55533264	2.0036168	14.49	4385.75	4136.8137	73.1	73	72.2	72.8	0.000858
375.02	3.83240834	14.55458302	2.00299136	14.48925	4386	4138.5518	73.2	73	72.3	72.7	0.000858
380.02	3.82115348	14.55533264	2.00424224	14.49	4386.25	4130.1094	73.2	73.1	72.3	72.7	0.000859
385.02	3.83490942	14.55608226	2.00299136	14.49075	4385.5	4131.8475	73.2	73	72.3	72.7	0.000859
390.02	3.8123997	14.55683189	2.00236592	14.49	4386.25	4134.8272	73.3	73.1	72.3	72.7	0.000858
395.02	3.84678955	14.55608226	2.00111504	14.48925	4386.25	4120.6737	73.3	73.1	72.4	72.7	0.000859

Flammable Gas Interlock Spoolpiece Testing

EX202257.XLS

SECOND	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
400.02	3.8311578	14.55683189	2.0036168	14.49	4385.25	4120.922	73.3	73.1	72.3	72.7	0.000858
405.02	3.85679387	14.55683189	2.00174048	14.49075	4386.25	4135.5721	73.4	73.1	72.3	72.7	0.000858
410.02	3.81927767	14.55683189	2.00111504	14.49	4386	4141.2632	73.3	73.1	72.3	72.7	0.000859
415.02	3.8186524	14.55683189	2.00111504	14.48925	4386	4131.1026	73.4	73.1	72.2	72.7	0.000859
420.02	3.82740618	14.55683189	2.0004896	14.49	4386	4132.0958	73.3	73.1	72.3	72.7	0.000859
425.02	3.81615132	14.5568226	2.0004896	14.49	4385.75	4125.8881	73.3	73.1	72.4	72.7	0.000859
430.02	3.82052821	14.55683189	2.00174048	14.48925	4395.75	4134.8272	73.3	73.1	72.3	72.7	0.000859
435.02	3.83553469	14.55758151	2.00111504	14.48925	4395.75	4127.378	73.3	73.1	72.3	72.7	0.000861
440.02	3.83178307	14.5568226	2.00111504	14.48925	4396.25	4118.4389	73.3	73.2	72.2	72.7	0.00086
445.02	3.81802713	14.55683189	2.00174048	14.48925	4395.75	4124.3983	73.3	73.1	72.3	72.7	0.000861
450.02	3.81552605	14.55758151	2.00174048	14.49	4396.25	4142.2765	73.4	73.1	72.3	72.8	0.00086
455.07	3.8123997	14.55683189	2.00111504	14.48925	4406	4132.8408	73.3	73.2	72.2	72.7	0.000861
460.02	3.80664808	14.5568226	2.00111504	14.48925	4406.25	4129.1161	73.3	73.1	72.2	72.7	0.00086
465.05	3.82553037	14.55758151	2.00174048	14.48925	4396	4128.6195	73.3	73.2	72.2	72.8	0.000861
470.02	3.81490078	14.55758151	2.00236592	14.49	4405.5	4130.8543	73.3	73.2	72.2	72.7	0.000862
475.04	3.81677659	14.55533264	2.00174048	14.49	4405.75	4133.3374	73.4	73.1	72.3	72.8	0.000862
480.02	3.84178739	14.55833113	2.00174048	14.49	4406	4136.0688	73.3	73.1	72.2	72.8	0.000862
485.02	3.8186524	14.55683189	2.00111504	14.48925	4406.25	4134.0823	73.3	73.2	72.1	72.8	0.000862
490.02	3.82615564	14.55908075	2.00174048	14.48925	4406.25	4130.1094	73.3	73.2	72.1	72.8	0.000862
495.1	3.81302497	14.55683189	2.00174048	14.49	4406.25	4127.378	73.4	73.2	72.2	72.8	0.000862
500.02	3.81740186	14.55683189	2.00111504	14.48925	4406.25	4135.8204	73.3	73.1	72.1	72.7	0.000861
505.02	3.80664808	14.55683189	2.00111504	14.4885	4405.75	4126.8814	73.3	73.1	72.2	72.7	0.000863
510.02	3.81802713	14.5568226	2.00111504	14.4885	4416.25	4144.7595	73.3	73.2	72.1	72.7	0.000863
515.02	3.82553037	14.55683189	2.00174048	14.48925	4416	4143.0214	73.3	73.2	72.1	72.7	0.000862
520.02	3.84178739	14.5568226	2.00174048	14.4885	4416	4129.8611	73.3	73.2	72.2	72.7	0.000863
525.02	3.81740186	14.5568226	2.00174048	14.48925	4416	4130.1094	73.3	73.2	72.1	72.7	0.000863
530.04	3.81427551	14.5568226	2.00174048	14.48925	4416.25	4139.0485	73.3	73.2	72.1	72.7	0.000862
535.02	3.81927767	14.55533264	2.00236592	14.48925	4416	4129.3644	73.3	73.2	72.1	72.8	0.000863
540.02	3.82553037	14.5568226	2.00111504	14.4885	4415.75	4115.4592	73.3	73.2	72.2	72.8	0.000863
545.02	3.8311578	14.55533264	2.00174048	14.48925	4415.75	4136.0688	73.3	73.2	72.2	72.8	0.000863
550.02	3.8186524	14.5568226	2.00174048	14.48925	4415.75	4149.974	73.3	73.2	72.2	72.8	0.000863
555.02	3.83178307	14.55533264	2.00174048	14.49	4416	4143.2697	73.3	73.2	72.2	72.8	0.000863
560.04	3.8311578	14.55683189	2.00174048	14.49	4416.25	4133.3374	73.3	73.2	72.2	72.7	0.000862
565.02	3.8249051	14.55533264	2.00111504	14.48925	4415.75	4129.3644	73.3	73.2	72.3	72.7	0.000861
570.02	3.8374105	14.5568226	2.00111504	14.48925	4416	4122.9084	73.3	73.2	72.2	72.7	0.000861
575.03	3.81990294	14.5568226	2.0004896	14.49	4415.75	4121.4186	73.3	73.2	72.2	72.7	0.000862
580.02	3.83991158	14.55533264	2.00111504	14.48925	4416.25	4125.1432	73.3	73.2	72.3	72.7	0.000862
585.02	3.84241266	14.55683189	2.00174048	14.49075	4416	4133.834	73.3	73.2	72.3	72.8	0.000863
590.07	3.80927335	14.5568226	2.0004896	14.49075	4416.25	4129.1161	73.3	73.3	72.3	72.7	0.000863
595.05	3.82865672	14.5568226	2.00111504	14.48925	4416	4126.8814	73.4	73.3	72.3	72.7	0.000863
600.02	3.83303361	14.55533264	2.00174048	14.49	4415.75	4134.8272	73.3	73.3	72.3	72.8	0.000864
605.02	3.81490078	14.55758151	2.00111504	14.49	4416.25	4124.3983	73.4	73.3	72.4	72.8	0.000862

Flammable Gas Interlock Spoolpiece Testing

EX202257.XLS

SECOND	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
610.02	3.83053253	14.55608226	2.00111504	14.4885	4415.75	4135.8204	73.5	73.3	72.4	72.7	0.000863
615.02	3.83178307	14.55683189	2.00111504	14.48925	4416.25	4128.1229	73.5	73.3	72.4	72.7	0.000863
620.06	3.84241266	14.55608226	2.00111504	14.48925	4416.25	4130.8543	73.5	73.3	72.4	72.8	0.000864
625.02	3.82928199	14.55683189	2.00236592	14.48925	4416	4125.1432	73.5	73.3	72.4	72.7	0.000864
630.07	3.81927767	14.55533264	2.00111504	14.48925	4416	4128.3712	73.5	73.3	72.4	72.7	0.000864
635.02	3.83490942	14.55458302	2.00174048	14.49	4416	4138.5518	73.5	73.3	72.4	72.7	0.000863
640.02	3.81365024	14.55458302	2.00174048	14.48925	4416.25	4143.7663	73.4	73.3	72.5	72.7	0.000864
645.02	3.83053253	14.55608226	2.00111504	14.49	4415.75	4133.834	73.4	73.3	72.5	72.8	0.000864
650.02	3.84241266	14.55608226	2.00111504	14.48925	4416.25	4123.1567	73.4	73.3	72.5	72.8	0.000864
655.02	3.81677659	14.55533264	2.00111504	14.49	4416	4133.3374	73.5	73.3	72.5	72.7	0.000865
660.07	3.80864808	14.55683189	2.0004896	14.49	4416	4139.7934	73.5	73.3	72.5	72.7	0.000865
665.02	3.81427551	14.55608226	2.00111504	14.49	4416	4135.8204	73.5	73.3	72.4	72.7	0.000864
670.02	3.83240834	14.55608226	2.00174048	14.49	4425.75	4141.0349	73.5	73.3	72.5	72.7	0.000865
675.04	3.81365024	14.55608226	2.00236592	14.49	4426.25	4139.0485	73.6	73.3	72.5	72.8	0.000865
680.02	3.81177443	14.55608226	2.00174048	14.49075	4426	4130.806	73.6	73.3	72.5	72.7	0.000865
685.02	3.81427551	14.55233415	2.00174048	14.49075	4426.25	4123.6534	73.6	73.4	72.4	72.7	0.000864
690.04	3.81990294	14.55608226	2.00174048	14.49075	4426.25	4124.3983	73.5	73.3	72.5	72.7	0.000865
695.09	3.82678091	14.55683189	2.00111504	14.49	4426.25	4124.6466	73.6	73.3	72.5	72.8	0.000865
700.02	3.8186524	14.55533264	2.00174048	14.49	4426.25	4122.1635	73.7	73.4	72.5	72.7	0.000864
705.07	3.81677659	14.55758151	2.00111504	14.49	4426	4125.8881	73.6	73.4	72.5	72.7	0.000864
710.02	3.8248051	14.5538334	1.9996416	14.49075	4426	4129.1161	73.6	73.4	72.4	72.7	0.000865
715.02	3.81927767	14.55683189	2.0004896	14.49	4426	4136.5654	73.5	73.4	72.4	72.8	0.000866
720.02	3.83178307	14.55683189	2.0004896	14.49	4426.25	4126.6331	73.3	73.4	72.3	72.7	0.000865
725.02	3.82678091	14.55608226	2.00174048	14.49	4426.25	4132.8408	73.4	73.4	72.3	72.7	0.000865
730.02	3.80989662	14.55308378	2.00111504	14.49	4426.25	4130.606	73.4	73.4	72.3	72.7	0.000865
735.03	3.82177875	14.55608226	2.00111504	14.49075	4426.25	4144.2629	73.4	73.4	72.4	72.8	0.000865
740.05	3.84053685	14.55608226	2.00174048	14.48925	4426	4137.3103	73.3	73.4	72.3	72.7	0.000865
745.02	3.8186524	14.55308378	2.00111504	14.49	4426.25	4134.3306	73.3	73.4	72.4	72.7	0.000865
750.02	3.80864808	14.55158453	2.00111504	14.49075	4426.25	4142.0281	73.3	73.4	72.4	72.7	0.000865
755.02	3.81927767	14.55308378	2.00174048	14.4915	4426.25	4146.0011	73.3	73.4	72.4	72.7	0.000866
760.02	3.82553037	14.5538334	2.00236592	14.49	4426.25	4133.3374	73.2	73.4	72.3	72.7	0.000865
765.06	3.81490078	14.55308378	2.00174048	14.49	4426.25	4137.062	73.3	73.4	72.3	72.7	0.000865
770.02	3.8186524	14.55308378	2.0004896	14.4885	4426.25	4125.6398	73.2	73.4	72.3	72.7	0.000865
775.02	3.81427551	14.5538334	2.00111504	14.487	4425.75	4128.3712	73.2	73.4	72.3	72.7	0.000865
780.03	3.81990294	14.5538334	2.00174048	14.487	4429.5	4133.5857	73.3	73.4	72.3	72.7	0.000865
785.02	3.81740186	14.55533264	2.00111504	14.49	4436.25	4121.4186	73.2	73.4	72.3	72.7	0.000866
790.02	3.82302929	14.55533264	2.0004896	14.48925	4436.25	4122.4118	73.2	73.4	72.3	72.7	0.000865
795.06	3.81677659	14.55608226	2.00111504	14.4885	4426.25	4131.5992	73.2	73.4	72.3	72.7	0.000866
800.02	3.83178307	14.55533264	2.00174048	14.48925	4425.75	4138.3035	73.2	73.4	72.3	72.7	0.000865
805.02	3.81927767	14.55233415	2.00111504	14.48925	4426.25	4141.0349	73.1	73.4	72.3	72.7	0.000865
810.07	3.84741482	14.55533264	2.00174048	14.49075	4426.25	4140.29	73.2	73.5	72.4	72.8	0.000864
815.02	3.82115348	14.55683189	2.00111504	14.4885	4426.25	4124.3983	73.2	73.5	72.3	72.7	0.000865

Flammable Gas Interlock Spoolpiece Testing

EX202257.XLS

SECOND	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
820.02	3.81677659	14.5538334	2.00111504	14.48775	4426.25	4122.4118	73.2	73.5	72.3	72.7	0.000864
825.06	3.80114484	14.55683189	2.00111504	14.49	4426	4123.9017	73.2	73.5	72.2	72.8	0.000864
830.02	3.82302929	14.55683189	2.0004896	14.48925	4426	4127.6263	73.3	73.5	72.3	72.7	0.000864
835.02	3.84303793	14.55308378	2.00111504	14.49	4426.25	4129.1161	73.2	73.5	72.2	72.8	0.000865
840.04	3.8186524	14.55608226	2.00174048	14.48625	4426.25	4140.29	73.2	73.5	72.2	72.8	0.000865
845.03	3.81802713	14.55308378	2.00111504	14.48625	4425.75	4131.5992	73.2	73.5	72.2	72.8	0.000866
850.02	3.82865672	14.55683189	2.00174048	14.48625	4426.25	4122.6601	73.2	73.5	72.3	72.8	0.000867
855.03	3.81365024	14.55308378	2.00174048	14.48625	4436	4124.3983	73.4	73.5	72.2	72.7	0.000867
860.02	3.81552605	14.5538334	2.00111504	14.49	4436.5	4124.15	73.4	73.5	72.3	72.7	0.000866
865.02	3.8311578	14.5538334	2.00236592	14.487	4436.25	4118.4389	73.4	73.5	72.3	72.7	0.000867
870.02	3.82553037	14.5538334	2.00111504	14.487	4436	4120.4254	73.4	73.5	72.4	72.7	0.000867
875.02	3.84866536	14.55458302	2.00174048	14.48925	4436.5	4120.4254	73.3	73.5	72.4	72.7	0.000866
880.02	3.83053253	14.55458302	2.00174048	14.487	4436.25	4117.9423	73.4	73.6	72.4	72.7	0.000866
885.03	3.83615996	14.5538334	2.00111504	14.487	4436	4121.6669	73.4	73.5	72.4	72.7	0.000867
890.02	3.81052389	14.5538334	2.00174048	14.487	4436.25	4127.6263	73.3	73.5	72.3	72.8	0.000867
895.02	3.8123997	14.55458302	2.00174048	14.487	4436.25	4138.3035	73.3	73.6	72.3	72.8	0.000867
900.05	3.80989862	14.55308378	2.00111504	14.487	4436.25	4137.062	73.4	73.5	72.4	72.8	0.000868
905.02	3.81677659	14.55458302	2.00236592	14.48775	4436.25	4129.1161	73.4	73.6	72.4	72.7	0.000867
910.02	3.88242994	14.55533264	2.00174048	14.487	4436	4127.6263	73.4	73.6	72.4	72.8	0.000866
915.04	3.84553901	14.55608226	2.00174048	14.48925	4436.5	4134.3306	73.4	73.5	72.3	72.7	0.000866
920.02	3.81552605	14.5538334	2.00174048	14.48625	4436.25	4132.8408	73.3	73.6	72.3	72.8	0.000867
925.02	3.81427551	14.5538334	2.00111504	14.48625	4435.75	4122.6601	73.2	73.6	72.3	72.8	0.000866

TEST: EX302257 25 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 4210ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.0100098	3.82240402	14.5500853	0.55478504	14.4555	71.3	-0.370062	72.5	72.5	71.5	72.6	0.000217
5.0200195	3.81927767	14.5508349	1.99923872	14.484	71.275	107.966718	72.6	72.6	71.6	72.7	0.000022
10.02002	3.85366752	14.5515845	1.99923872	14.484	231.575	1924.3894	72.5	72.5	71.6	72.6	0.000266
15.02002	3.82553037	14.5523342	1.99986416	14.48475	732.5	3127.44166	72.5	72.6	71.6	72.6	0.000349
20.02002	3.81052389	14.5523342	2.0004896	14.48475	1390	3602.45486	72.6	72.5	71.6	72.6	0.000439
25.02002	3.81802713	14.5515845	2.00236592	14.484	1904.75	3765.84153	72.6	72.6	71.5	72.6	0.000518
30.02002	3.82865672	14.5508349	2.00111504	14.48475	2391.75	3845.05178	72.6	72.6	71.5	72.6	0.000582
35.02002	3.8186524	14.5515845	2.00111504	14.4855	2763.75	3873.6072	72.7	72.5	71.5	72.6	0.000631
40.02002	3.81615132	14.5523342	2.0036168	14.48475	3045.25	3893.96846	72.7	72.5	71.5	72.6	0.000673
45.02002	3.86992454	14.5508349	2.00299136	14.48475	3284	3923.2688	72.6	72.6	71.5	72.6	0.000706
50.02002	3.82115348	14.5515845	2.00424224	14.48475	3454.5	3940.65036	72.6	72.5	71.5	72.6	0.00073
55.02002	3.81490078	14.5508349	2.0036168	14.48475	3614.5	3943.63006	72.6	72.5	71.5	72.6	0.00075
60.02002	3.81114916	14.5508349	2.00424224	14.484	3712.75	3944.62329	72.6	72.6	71.6	72.6	0.000768
65.02002	3.80802281	14.5508349	2.00611856	14.48475	3805	3963.4947	72.6	72.6	71.6	72.6	0.000779
70.02002	3.82990726	14.5515845	2.00549312	14.4855	3875.25	3975.66179	72.6	72.5	71.6	72.6	0.000789
75.02002	3.8123997	14.5515845	2.00549312	14.4855	3945.5	3995.52643	72.6	72.6	71.6	72.6	0.000798
80.02002	3.82302929	14.5508349	2.00549312	14.4855	4015	4000.9892	72.7	72.6	71.7	72.6	0.000806
85.02002	3.82865672	14.5508349	2.00549312	14.4855	4045.25	3998.25782	72.8	72.6	71.6	72.6	0.000813
90.02002	3.8311578	14.5515845	2.00611856	14.4825	4085.5	4007.1969	72.8	72.6	71.6	72.6	0.000818
95.02002	3.82928199	14.5508349	2.006744	14.4855	4125.25	4008.68675	73	72.5	71.7	72.6	0.000822
100.02002	3.81740186	14.5515845	2.00549312	14.4855	4135.5	4018.37076	72.9	72.6	71.7	72.6	0.000826
105.02002	3.80864908	14.5515845	2.00611856	14.4855	4165.5	4027.30985	72.8	72.6	71.7	72.6	0.000829
110.02002	3.81552605	14.5515845	2.00549312	14.4855	4185.25	4048.16772	72.8	72.6	71.6	72.6	0.000832
115.02002	3.83803577	14.5523342	2.00549312	14.484	4205	4051.89234	72.9	72.6	71.6	72.6	0.000834
120.02002	3.8186524	14.5523342	2.00486768	14.48475	4235.75	4054.37542	72.8	72.6	71.7	72.6	0.000837
125.02002	3.84241266	14.5515845	2.00549312	14.48475	4255.75	4056.11358	72.8	72.6	71.7	72.6	0.000839
130.02002	3.8186524	14.5500853	2.00486768	14.4855	4255.25	4062.8179	72.8	72.6	71.7	72.6	0.000841
135.02002	3.83178307	14.5523342	2.00611856	14.48475	4266	4063.81113	72.7	72.6	71.7	72.6	0.000843
140.02002	3.83240834	14.5508349	2.00486768	14.48475	4275	4065.79759	72.7	72.6	71.6	72.6	0.000846
145.02002	3.82990726	14.5515845	2.00736944	14.4855	4285.5	4069.0256	72.8	72.6	71.6	72.6	0.000846
150.02002	3.81052389	14.5515845	2.00549312	14.484	4296	4073.24683	72.9	72.6	71.7	72.6	0.000848
155.02002	3.8123997	14.5508349	2.00611856	14.48475	4305.75	4076.72314	72.9	72.6	71.7	72.6	0.000848
160.02002	3.8123997	14.5493357	2.00611856	14.48475	4316	4088.64193	72.9	72.6	71.8	72.6	0.00085
165.06	3.81615132	14.5508349	2.00611856	14.4855	4315.25	4074.73668	72.9	72.6	71.8	72.6	0.000851
170.02002	3.8186524	14.5508349	2.00736944	14.48475	4325.5	4076.72314	73	72.6	71.7	72.6	0.000852
175.02002	3.83303361	14.5515845	2.00486768	14.4855	4335.5	4087.40039	73	72.7	71.7	72.6	0.000852
180.02002	3.8249051	14.5508349	2.00611856	14.48625	4335.75	4094.84963	73	72.7	71.7	72.6	0.000852
185.02002	3.82052821	14.5508349	2.00611856	14.48625	4345.75	4108.00995	72.9	72.7	71.8	72.5	0.000853

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
190.02002	3.82115348	14.5515845	2.00549312	14.4855	4345.75	4115.7075	72.8	72.7	71.8	72.6	0.000855
195.02002	3.81427551	14.5515845	2.00549312	14.4855	4355.75	4108.00995	72.8	72.7	71.8	72.6	0.000854
200.02002	3.82302929	14.5523342	2.00486768	14.4855	4355.5	4103.54041	72.8	72.7	71.7	72.5	0.000854
205.02002	3.83803577	14.5515845	2.00549312	14.4855	4355.75	4101.30564	72.7	72.7	71.6	72.5	0.000854
210.02002	3.8186524	14.5508349	2.00549312	14.4855	4366	4100.0641	72.6	72.7	71.6	72.6	0.000856
215.02002	3.81052389	14.5515845	2.00549312	14.4855	4366	4107.76164	72.6	72.7	71.6	72.5	0.000855
220.02002	3.81052389	14.5508349	2.00549312	14.4855	4366	4108.00995	72.7	72.7	71.6	72.5	0.000857
225.02002	3.80927335	14.5523342	2.00549312	14.4855	4375.75	4101.30564	72.7	72.7	71.7	72.5	0.000857
230.02002	3.8123997	14.5508349	2.00486768	14.4855	4375.75	4097.0844	72.8	72.7	71.6	72.6	0.00086
235.02002	3.81990294	14.5515845	2.00549312	14.48475	4375.75	4097.33271	72.8	72.7	71.6	72.5	0.000859
240.02002	3.83178307	14.5523342	2.00549312	14.48475	4386.25	4103.2921	72.8	72.8	71.6	72.5	0.000859
245.02002	3.81677659	14.5508349	2.00549312	14.48475	4385.5	4113.22442	72.8	72.8	71.7	72.5	0.000861
250.02002	3.82553037	14.5515845	2.00611856	14.484	4393.5	4124.64659	72.8	72.7	71.7	72.6	0.00086
255.02002	3.82115348	14.5515845	2.00486768	14.4855	4395.75	4118.6872	72.8	72.8	71.7	72.5	0.00086
260.02002	3.82302929	14.5515845	2.00549312	14.4855	4395	4115.7075	72.9	72.8	71.8	72.5	0.00086
265.02002	3.82052821	14.5523342	2.00611856	14.48475	4396	4116.45242	72.8	72.8	71.7	72.5	0.00086
270.02002	3.8186524	14.5515845	2.00611856	14.48475	4395.75	4114.96258	72.8	72.8	71.7	72.5	0.00086
275.02002	3.81552605	14.5515845	2.00486768	14.48475	4396	4125.88813	72.8	72.8	71.7	72.5	0.000861
280.02002	3.81365024	14.5515845	2.00611856	14.48475	4396	4123.90166	72.9	72.8	71.7	72.5	0.000861
285.02002	3.82365456	14.5508349	2.00549312	14.484	4395.75	4124.64659	73	72.8	71.7	72.5	0.000861
290.02002	3.81615132	14.5530838	2.006744	14.484	4406	4129.61275	72.9	72.8	71.7	72.5	0.000861
295.02002	3.82240402	14.5515845	2.00611856	14.48475	4405.75	4127.87459	72.9	72.8	71.7	72.5	0.000862
300.02002	3.8186524	14.5508349	2.00611856	14.4855	4406.25	4129.86106	72.8	72.8	71.7	72.5	0.000863
305.02002	3.81427551	14.5523342	2.00549312	14.48475	4405.75	4126.38474	72.8	72.8	71.7	72.5	0.000862
310.02002	3.81427551	14.5515845	2.00549312	14.48625	4406	4128.37121	72.8	72.8	71.8	72.6	0.000863
315.02002	3.81302497	14.5515845	2.00549312	14.48475	4406	4129.36444	72.7	72.8	71.7	72.6	0.000863
320.02002	3.82240402	14.5515845	2.00549312	14.48475	4415.5	4128.86782	72.7	72.8	71.7	72.5	0.000864
325.02002	3.8123997	14.5515845	2.00486768	14.48475	4416.25	4120.42535	72.7	72.8	71.7	72.6	0.000864
330.02002	3.82928199	14.5515845	2.006744	14.48475	4415.75	4130.60598	72.7	72.8	71.7	72.5	0.000864
335.02002	3.8374105	14.5515845	2.00549312	14.4855	4416	4122.66012	72.7	72.8	71.7	72.5	0.000865
340.02002	3.8249051	14.5523342	2.00549312	14.484	4416	4126.63305	72.7	72.9	71.8	72.6	0.000865
345.02002	3.81365024	14.5508349	2.00611856	14.4855	4425.75	4125.63982	72.7	72.8	71.8	72.5	0.000864
350.02002	3.82052821	14.5508349	2.00611856	14.4855	4426	4120.67366	72.7	72.9	71.8	72.5	0.000865
355.02002	3.82865672	14.5515845	2.00549312	14.4855	4425.5	4123.90166	72.7	72.9	71.8	72.6	0.000865
360.02002	3.8311578	14.5515845	2.00549312	14.4855	4425.75	4133.83398	72.8	72.9	71.8	72.5	0.000865
365.02002	3.82302929	14.5538334	2.00549312	14.48475	4425.5	4132.59244	72.9	72.9	71.9	72.6	0.000865
370.02002	3.8186524	14.5523342	2.00549312	14.4855	4426.25	4125.39151	72.9	72.9	72	72.5	0.000865
375.02002	3.81615132	14.5508349	2.00611856	14.4855	4425.75	4135.82045	72.7	72.9	71.9	72.5	0.000865
380.02002	3.81490078	14.5523342	2.00611856	14.48625	4426.25	4131.84752	72.7	72.9	71.9	72.5	0.000865
385.02002	3.82740618	14.5523342	2.00611856	14.4855	4426.25	4121.17028	72.7	72.9	71.9	72.5	0.000865
390.02002	3.85679387	14.5515845	2.00611856	14.4855	4425.25	4136.31706	72.7	72.9	71.9	72.6	0.000866
395.02002	3.8186524	14.5508349	2.00549312	14.48475	4426.25	4138.05522	72.6	72.9	71.8	72.5	0.000866

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
400.02002	3.8249051	14.5530838	2.006744	14.48475	4436.25	4130.85429	72.6	72.9	71.7	72.5	0.000868
405.02002	3.83803577	14.5515845	2.00486768	14.4855	4436	4111.48626	72.4	73	71.6	72.5	0.000865
410.02002	3.81365024	14.5508349	2.00549312	14.484	4436.25	4104.03702	72.5	72.9	71.6	72.5	0.000866
415.03	3.81802713	14.5515845	2.00486768	14.48475	4436.25	4115.95581	72.5	73	71.5	72.5	0.000867
420.02002	3.83490942	14.5515845	2.00549312	14.484	4436.25	4131.84752	72.4	73	71.6	72.5	0.000867
425.02002	3.81302497	14.5523342	2.00486768	14.48475	4436.25	4124.8949	72.4	73	71.6	72.5	0.000866
430.02002	3.82553037	14.5508349	2.00549312	14.48475	4436.25	4132.84075	72.4	73	71.6	72.5	0.000867
435.09003	3.82803145	14.5508349	2.006744	14.4855	4436	4124.14997	72.5	73	71.7	72.5	0.000868
440.02002	3.82177875	14.5500853	2.00611856	14.4855	4436.25	4125.1432	72.6	73	71.7	72.5	0.000867
445.04001	3.82115348	14.5508349	2.00549312	14.4855	4436.25	4114.21765	72.6	73	71.8	72.5	0.000866
450.02002	3.83490942	14.5508349	2.00549312	14.48475	4445.75	4106.76841	72.6	73	71.7	72.5	0.000867
455.02002	3.81490078	14.5508349	2.00611856	14.4855	4446.25	4114.96258	72.6	73	71.7	72.5	0.000868
460.02002	3.81615132	14.5508349	2.00486768	14.48475	4446	4126.13644	72.6	73	71.6	72.5	0.000868
465.09003	3.83303361	14.5523342	2.00549312	14.4855	4446	4115.95581	72.6	73	71.6	72.5	0.000867
470.02002	3.8436632	14.5515845	2.00549312	14.4855	4446.25	4122.41182	72.5	73	71.6	72.5	0.000867
475.08002	3.82052821	14.5523342	2.00549312	14.4855	4446.25	4120.17704	72.5	73	71.6	72.5	0.000867
480.02002	3.82928199	14.5515845	2.00611856	14.48475	4446	4120.67366	72.5	73	71.6	72.5	0.000867
485.02002	3.81177443	14.5508349	2.00611856	14.48475	4446.25	4120.42535	72.5	73	71.4	72.5	0.000867
490.02002	3.8374105	14.5500853	2.00549312	14.4855	4446	4121.9152	72.5	73	71.4	72.5	0.000867
495.02002	3.81990294	14.5515845	2.00549312	14.4855	4445.75	4123.40505	72.5	73	71.4	72.5	0.000867
500.02002	3.81615132	14.5508349	2.00611856	14.4855	4446.25	4122.69012	72.5	73	71.3	72.5	0.000868
505.02002	3.82052821	14.5508349	2.00549312	14.48475	4446	4122.69012	72.5	73.1	71.4	72.5	0.000868
510.02002	3.81677659	14.5515845	2.00611856	14.4855	4446	4119.18381	72.5	73	71.5	72.5	0.000868
515.03	3.81052389	14.5500853	2.00486768	14.48475	4446.25	4116.94904	72.5	73.1	71.5	72.5	0.000869
520.02002	3.81927767	14.5508349	2.00549312	14.48475	4446	4142.27646	72.5	73	71.5	72.4	0.000868
525.02002	3.8249051	14.5508349	2.00611856	14.4855	4446	4135.32383	72.5	73.1	71.5	72.4	0.00087
530.04001	3.81677659	14.5508349	2.00549312	14.4855	4456.25	4131.3509	72.5	73.1	71.6	72.4	0.00087
535.02002	3.81552605	14.5508349	2.00549312	14.484	4455.75	4115.95581	72.5	73.1	71.6	72.4	0.00087
540.02002	3.81552605	14.5508349	2.00424224	14.48475	4456	4111.48626	72.5	73.1	71.6	72.5	0.00087
545.05002	3.82052821	14.5508349	2.00549312	14.4855	4456	4107.01672	72.6	73.1	71.7	72.5	0.00087
550.03	3.81677659	14.5508349	2.00611856	14.4855	4456	4105.77518	72.7	73.1	71.7	72.5	0.000871
555.02002	3.8123997	14.5523342	2.00611856	14.4855	4456.25	4110.74134	72.6	73.1	71.7	72.4	0.00087
560.06	3.8186524	14.5508349	2.00611856	14.48475	4456.25	4121.17028	72.6	73.1	71.6	72.4	0.00087
565.04001	3.82553037	14.5515845	2.00549312	14.4855	4466.25	4114.21765	72.5	73.1	71.5	72.5	0.00087
570.02002	3.84428847	14.5508349	2.00611856	14.48475	4466	4110.24472	72.5	73.1	71.5	72.5	0.000871
575.04001	3.84741482	14.5508349	2.00611856	14.48475	4466.25	4116.94904	72.5	73.1	71.5	72.5	0.000871
580.02002	3.80864808	14.5530838	2.00611856	14.4855	4466	4106.76841	72.6	73	71.5	72.5	0.000871
585.02002	3.80864808	14.5515845	2.00611856	14.4855	4466	4125.39151	72.6	73.1	71.4	72.5	0.000871
590.03	3.82302929	14.5515845	2.00549312	14.4855	4466.25	4127.37798	72.6	73.1	71.6	72.4	0.000871
595.02002	3.81427551	14.5515845	2.00549312	14.4855	4466.25	4122.90843	72.6	73.1	71.6	72.5	0.000871
600.02002	3.82365456	14.5515845	2.00611856	14.48475	4466.25	4107.51334	72.6	73.1	71.5	72.5	0.00087
605.02002	3.8249051	14.5508349	2.00611856	14.48475	4466.25	4115.7075	72.6	73.1	71.6	72.5	0.00087

Flammable Gas Interlock Spoolpiece Testing

EX302257.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
610.04001	3.8186524	14.5515845	2.00549312	14.4855	4456.25	4117.44566	72.6	73.1	71.6	72.5	0.00087
615.02002	3.8249051	14.5508349	2.00486768	14.4855	4456.25	4119.43212	72.6	73.1	71.7	72.4	0.000867
620.05002	3.82115348	14.5515845	2.00611856	14.48475	4456.25	4119.92874	72.6	73.1	71.6	72.4	0.000868
625.02002	3.82365456	14.5523342	2.00611856	14.48475	4446	4110.98965	72.6	73.1	71.7	72.5	0.000857
630.02002	3.83991158	14.5493357	2.00549312	14.48475	4164.75	4118.19058	72.7	73.1	71.6	72.4	0.000818
635.02002	3.81740186	14.5515845	2.00549312	14.48475	4086	4123.90186	72.7	73.1	71.7	72.5	0.00081
640.09003	3.82115348	14.5508349	2.00549312	14.4855	4074.75	4130.85429	72.7	73.1	71.6	72.4	0.000815
645.02002	3.8186524	14.5515845	2.006744	14.48475	4102.75	4127.87459	72.8	73.1	71.7	72.5	0.000822
650.05002	3.81990294	14.5508349	2.00549312	14.484	4156	4124.39828	72.7	73.1	71.6	72.5	0.000832
655.02002	3.81427551	14.5515845	2.00611856	14.4855	4215.75	4123.40505	72.7	73.1	71.5	72.4	0.000839
660.02002	3.83615996	14.5515845	2.00611856	14.4855	4256	4108.25826	72.7	73.2	71.6	72.5	0.000844
665.02002	3.81427551	14.5500853	2.00549312	14.484	4296.5	4110.24472	72.8	73.2	71.7	72.5	0.000849
670.05002	3.82365456	14.5515845	2.00611856	14.48475	4316.25	4116.70073	72.8	73.1	71.8	72.5	0.000853
675.02002	3.84616428	14.5508349	2.00611856	14.4855	4346	4119.43212	72.8	73.1	71.8	72.5	0.000857
680.04001	3.83240834	14.5508349	2.00611856	14.4855	4366.5	4133.58568	72.8	73.2	71.8	72.5	0.000859
685.02002	3.81677659	14.5515845	2.00549312	14.48475	4375.5	4123.40505	72.8	73.2	71.8	72.5	0.00086
690.02002	3.81740186	14.5515845	2.00611856	14.4855	4396.5	4127.37798	72.9	73.2	71.9	72.4	0.000861
695.02002	3.8186524	14.5508349	2.00611856	14.48475	4405.25	4129.61275	72.7	73.2	71.9	72.4	0.000863
700.04001	3.83803577	14.5508349	2.00611856	14.48475	4416	4136.06876	72.4	73.2	71.9	72.5	0.000865
705.02002	3.81990294	14.5508349	2.00611856	14.48325	4416.25	4125.63982	72.3	73.2	71.8	72.5	0.000865
710.02002	3.83991158	14.5508349	2.00549312	14.4855	4426	4123.15674	72.2	73.2	71.7	72.4	0.000866
715.04001	3.81615132	14.5515845	2.00549312	14.48475	4425.75	4122.16351	72.2	73.2	71.7	72.4	0.000867
720.02002	3.8123997	14.5515845	2.00611856	14.48475	4436.25	4112.7278	72.3	73.2	71.6	72.4	0.000867
725.05002	3.8311578	14.5508349	2.006744	14.4855	4436.25	4130.10936	72.3	73.2	71.6	72.4	0.000867
730.02002	3.84616428	14.5515845	2.00486768	14.48325	4446.25	4136.31706	72.3	73.2	71.6	72.4	0.000868
735.02002	3.81427551	14.5523342	2.00486768	14.48475	4446.25	4135.32383	72.3	73.2	71.6	72.4	0.000868
740.02002	3.83803577	14.5508349	2.00486768	14.48475	4446.25	4126.63305	72.3	73.2	71.7	72.4	0.000869
745.10001	3.84491374	14.5523342	2.00424224	14.48475	4446.5	4116.45242	72.3	73.2	71.7	72.4	0.000869
750.02002	3.81490078	14.5508349	2.00361168	14.484	4456.25	4108.75488	72.4	73.2	71.8	72.4	0.000868
755.04001	3.8123997	14.5508349	2.00549312	14.4825	4456.25	4129.61275	72.6	73.2	71.7	72.4	0.000868
760.02002	3.81427551	14.5500853	2.00486768	14.48325	4456.25	4124.8949	72.6	73.2	71.8	72.4	0.000869
765.02002	3.82740618	14.5508349	2.00549312	14.48475	4446.5	4128.37121	72.7	73.2	71.8	72.5	0.000869
770.02002	3.82240402	14.5508349	2.00611856	14.4855	4456	4128.37121	72.7	73.2	71.9	72.4	0.00087
775.02002	3.82365456	14.5515845	2.00611856	14.48475	4456.25	4127.37798	72.8	73.2	71.9	72.4	0.00087
780.02002	3.81427551	14.5515845	2.00549312	14.48175	4456.25	4115.7075	72.8	73.3	71.8	72.5	0.00087
785.02002	3.82553037	14.5500853	2.00549312	14.4825	4456	4119.92874	72.8	73.3	71.7	72.4	0.000869
790.02002	3.83803577	14.5508349	2.00424224	14.4825	4456.25	4129.11613	72.8	73.2	71.7	72.5	0.00087
795.02002	3.8186524	14.5515845	2.00486768	14.4825	4456.25	4112.97611	72.8	73.3	71.7	72.4	0.00087
800.02002	3.81615132	14.5515845	2.00611856	14.4825	4456	4118.9355	72.8	73.3	71.7	72.4	0.00087
805.02002	3.83866104	14.5530838	2.00549312	14.48325	4456.25	4124.39828	72.8	73.3	71.7	72.5	0.00087
810.02002	3.8374105	14.5515845	2.00611856	14.4825	4466.25	4125.1432	72.8	73.3	71.8	72.5	0.000871
815.06	3.84241266	14.5508349	2.00424224	14.48175	4456.25	4127.12967	72.9	73.3	71.8	72.4	0.000869

Flammable Gas Interlock Spoolpiece Testing

EX302257.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
820.03	3.84866536	14.5515845	2.00486768	14.481	4465.75	4134.82722	72.9	73.3	71.9	72.5	0.000871
825.02002	3.82740618	14.5508349	2.00611856	14.4825	4466.25	4124.64659	72.9	73.3	71.9	72.5	0.000871
830.06	3.81552605	14.5515845	2.0036168	14.48175	4466.25	4138.80014	72.9	73.3	71.9	72.5	0.000872
835.02002	3.81802713	14.5508349	2.00549312	14.48325	4466.25	4128.1229	72.9	73.2	71.8	72.5	0.000871
840.02002	3.82928199	14.5508349	2.00549312	14.4825	4466.25	4121.41858	72.9	73.3	71.9	72.4	0.000871
845.03	3.82678091	14.5508349	2.00424224	14.4825	4466	4120.42535	72.9	73.3	72.1	72.5	0.000871
850.02002	3.82427983	14.5500853	2.0036168	14.4825	4466.25	4119.18381	73	73.3	72	72.5	0.000872
855.02002	3.81740186	14.5523342	2.0036168	14.4825	4466.25	4121.41858	72.9	73.3	71.9	72.5	0.000872
860.06	3.8249051	14.5500853	2.00549312	14.48175	4466.25	4127.37798	72.8	73.3	71.9	72.4	0.000869
865.02002	3.81927767	14.5515845	2.00549312	14.48325	4466.25	4122.41182	72.7	73.3	71.8	72.4	0.00087
870.02002	3.8311578	14.5515845	2.00549312	14.4825	4466	4134.57891	72.7	73.3	71.8	72.4	0.000871
875.06	3.83053253	14.5500853	2.00549312	14.4825	4466.25	4130.35767	72.8	73.3	71.7	72.4	0.000872
880.02002	3.81052389	14.5515845	2.00486768	14.4825	4466.25	4132.09583	72.7	73.3	71.8	72.4	0.000871
885.02002	3.81490078	14.5500853	2.00486768	14.48325	4466.25	4134.57891	72.7	73.3	71.8	72.4	0.00087
890.03	3.81490078	14.5500853	2.00424224	14.48325	4466	4131.84752	72.7	73.3	71.8	72.4	0.00087
895.02002	3.83303361	14.5500853	2.00549312	14.484	4466.25	4137.3103	72.7	73.3	71.7	72.4	0.000872
900.02002	3.81052389	14.5493357	2.00611856	14.4825	4466	4127.62628	72.7	73.3	71.7	72.4	0.000872
905.02002	3.81615132	14.5500853	2.00486768	14.4825	4465.75	4109.4998	72.7	73.3	71.8	72.4	0.000872
910.05002	3.82740618	14.5508349	2.00611856	14.4825	4466.25	4109.00318	72.8	73.3	71.9	72.4	0.000872
915.02002	3.82678091	14.5515845	2.00549312	14.484	4476	4121.17028	72.8	73.3	71.9	72.4	0.000874
920.02002	3.82177875	14.5523342	2.0036168	14.48325	4476	4124.39828	72.8	73.4	71.9	72.4	0.000872
925.03	3.83365888	14.5493357	2.00486768	14.48325	4476	4121.41858	72.8	73.3	71.8	72.4	0.000873
930.02002	3.82553037	14.5515845	2.006744	14.484	4475.75	4117.44566	72.7	73.3	71.9	72.4	0.000874
935.02002	3.81490078	14.548586	2.00611856	14.48325	4475.75	4121.66689	72.7	73.3	71.9	72.5	0.000872
940.02002	3.82740618	14.5515845	2.00549312	14.48325	4476	4128.61952	72.7	73.3	71.9	72.4	0.000872
945.02002	3.84303793	14.5515845	2.00549312	14.48325	4475.75	4134.57891	72.8	73.3	71.9	72.4	0.000872
950.02002	3.82115348	14.5508349	2.006744	14.4825	4475.75	4120.42535	72.8	73.3	71.9	72.4	0.000873
955.02002	3.82990726	14.5508349	2.00549312	14.4825	4476	4129.61275	72.9	73.3	71.9	72.4	0.000873
960.02002	3.81490078	14.5508349	2.00549312	14.4825	4476	4132.34414	72.8	73.3	71.9	72.5	0.000873

TEST: EX402257 25 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 4210ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CEL TEMP. (F)	WEC CELL (VOLTS)
0.0099792	3.84678955	14.5463372	0.7902632	14.46525	81.025	-0.61837	73.5	72.8	72.7	72.5	0.000218
5.019989	3.83490942	14.5478364	1.99986416	14.4825	81.15	173.19723	73.5	72.9	72.6	72.5	0.000221
10.209991	3.8249051	14.5478364	1.98861328	14.4825	247.475	2111.117	73.4	72.8	72.6	72.5	0.000271
15.019989	3.82553037	14.5478364	1.99986416	14.48325	780.25	3166.6743	73.4	72.8	72.6	72.5	0.000352
20.019989	3.83178307	14.548586	1.99986416	14.4825	1382.75	3609.6558	73.4	72.8	72.6	72.5	0.00044
25.019989	3.84428847	14.548586	2.00174048	14.48325	1903	3770.8077	73.4	72.8	72.6	72.5	0.000517
30.179993	3.84303793	14.548586	2.00174048	14.4825	2393.5	3861.4401	73.4	72.9	72.6	72.5	0.000583
35.019989	3.84053685	14.5483357	2.00424224	14.4825	2736	3898.9346	73.5	72.8	72.6	72.4	0.000632
40.019989	3.82740618	14.5478364	2.0036168	14.4825	3043.5	3919.0476	73.5	72.8	72.8	72.5	0.000672
45.189972	3.85491806	14.5463372	2.00424224	14.4825	3263.25	3929.2282	73.5	72.9	72.8	72.4	0.000705
50.039978	3.83178307	14.5478364	2.00611856	14.48325	3485.25	3938.4156	73.5	72.8	72.7	72.5	0.000728
55.029999	3.81740186	14.548586	2.00611856	14.48325	3584.25	3948.3479	73.5	72.8	72.6	72.5	0.00075
60.019989	3.83240834	14.5493357	2.00549312	14.48325	3714.75	3949.0928	73.5	72.8	72.6	72.5	0.000766
65.089996	3.82365456	14.5478364	2.00549312	14.4825	3804.75	3968.2125	73.5	72.8	72.6	72.5	0.000779
70.019989	3.8311578	14.548586	2.00611856	14.4825	3895	3978.6415	73.4	72.9	72.6	72.5	0.00079
75.029999	3.87367618	14.5478364	2.00611856	14.4825	3955.25	3996.023	73.5	72.9	72.6	72.5	0.0008
80.029999	3.82990726	14.5478364	2.00549312	14.4825	4005.25	4001.2375	73.4	72.9	72.6	72.5	0.000807
85.019989	3.82740618	14.548586	2.00549312	14.48175	4045	4000.7409	73.4	72.9	72.6	72.5	0.000812
90.019989	3.84929063	14.548586	2.00549312	14.4825	4095.25	4006.452	73.5	72.9	72.6	72.5	0.000819
95.089996	3.82427983	14.5478364	2.00611856	14.4825	4125	4025.82	73.5	72.9	72.6	72.5	0.000823
100.01999	3.84116212	14.548586	2.00736944	14.4825	4145.5	4031.0345	73.5	72.9	72.7	72.5	0.000827
105.01999	3.83803577	14.548586	2.00799488	14.48175	4165.5	4037.4905	73.5	72.9	72.7	72.5	0.00083
110.20999	3.8249051	14.548586	2.00862032	14.4825	4195.25	4052.389	73.5	73	72.7	72.5	0.000833
115.15997	3.82177875	14.5478364	2.006744	14.48325	4215.5	4045.188	73.6	72.9	72.7	72.5	0.000835
120.01999	3.8311578	14.548586	2.00799488	14.48325	4225.5	4046.9262	73.6	72.9	72.7	72.5	0.000837
125.34	3.8249051	14.548586	2.00862032	14.4825	4246	4056.1136	73.7	73	72.7	72.5	0.00084
130.01999	3.82740618	14.5470668	2.00736944	14.4825	4255.25	4071.757	73.7	73	72.6	72.5	0.000842
135.01999	3.82177875	14.5478364	2.0098712	14.4825	4273.25	4073.4951	73.7	73	72.6	72.5	0.000843
140.01999	3.82678091	14.5455876	2.00799488	14.48325	4285.75	4074.4884	73.7	73	72.6	72.5	0.000845
145.01999	3.84741482	14.5493357	2.00924576	14.4825	4285.25	4076.7231	73.7	73	72.6	72.5	0.000846
150.06998	3.83803577	14.5455876	2.00799488	14.48325	4295.25	4091.8699	73.7	73	72.6	72.5	0.000846
155.20999	3.83178307	14.5455876	2.0098712	14.48175	4306	4104.2853	73.6	73	72.6	72.5	0.000848
160.01999	3.82615564	14.5463372	2.00799488	14.484	4316	4100.809	73.7	73	72.6	72.5	0.000849
165.01999	3.84241266	14.5463372	2.00799488	14.48325	4326	4100.809	73.8	73	72.6	72.5	0.00085
170.01999	3.84678955	14.5455876	2.00862032	14.4825	4325.75	4096.0912	73.8	73	72.7	72.5	0.000852
175.01999	3.85241698	14.5470868	2.0098712	14.48325	4335.5	4085.6622	73.8	73	72.7	72.5	0.000853
180.01999	3.84491374	14.5448379	2.01049664	14.4825	4345.5	4083.4275	73.8	73	72.7	72.5	0.000854
185.01999	3.83803577	14.5478364	2.00799488	14.48325	4345.25	4083.4275	73.8	73	72.7	72.6	0.000855

Flammable Gas Interlock Spoolpiece Testing

EX402257.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CEL TEMP. (F)	WEC CELL (VOLTS)
190.01999	3.83178307	14.5463372	2.00799488	14.4825	4355.75	4087.897	73.8	73.1	72.6	72.6	0.000855
195.01999	3.82052821	14.5463372	2.0098712	14.4825	4356	4094.6013	73.7	73.1	72.8	72.6	0.000855
200.01999	3.82740618	14.5463372	2.00862032	14.4825	4365.75	4096.3259	73.7	73.1	72.6	72.6	0.000855
205.01999	3.83615966	14.5455876	2.01049664	14.4825	4366.25	4107.0167	73.6	73.1	72.6	72.5	0.000856
210.01999	3.82115348	14.5463372	2.00924576	14.4825	4366.25	4125.8881	73.6	73.1	72.7	72.6	0.000856
215.01999	3.8249051	14.5463372	2.0098712	14.48325	4365.5	4120.922	73.7	73.1	72.7	72.5	0.000857
220.01999	3.83803577	14.5448379	2.00799488	14.48325	4366.25	4113.721	73.6	73.1	72.7	72.5	0.000857
225.01999	3.83803577	14.5463372	2.00862032	14.48325	4375.5	4116.2041	73.7	73.1	72.7	72.5	0.000858
230.01999	3.82302929	14.5448379	2.00924576	14.48175	4375.5	4104.5336	73.6	73.1	72.7	72.6	0.000859
235.01999	3.83365888	14.5455876	2.00862032	14.48325	4376.25	4104.7819	73.6	73.1	72.7	72.6	0.00086
240.01999	3.83178307	14.5455876	2.00862032	14.48325	4385.75	4105.0303	73.7	73.2	72.7	72.6	0.00086
245.01999	3.8249051	14.5455876	2.00799488	14.48325	4386	4115.9558	73.7	73.2	72.8	72.5	0.00086
250.01999	3.83490942	14.5455876	2.00736944	14.4825	4395.75	4114.2177	73.6	73.2	72.8	72.5	0.000861
255.01999	3.84178739	14.5448379	2.0098712	14.4825	4396	4110.7413	73.6	73.2	72.8	72.6	0.000861
260.01999	3.82615564	14.5463372	2.00862032	14.4825	4405.75	4104.037	73.6	73.2	72.8	72.6	0.000862
265.01999	3.82740618	14.5455876	2.0098712	14.48325	4405.75	4107.7616	73.6	73.2	72.8	72.6	0.000862
270.01999	3.83803577	14.5455876	2.00799488	14.48325	4406	4114.2177	73.7	73.2	72.8	72.6	0.000863
275.01999	3.82365456	14.5463372	2.0098712	14.48325	4405.75	4104.037	73.6	73.2	72.8	72.6	0.000863
280.01999	3.83240834	14.5448379	2.00862032	14.4825	4416.25	4122.6601	73.7	73.2	72.8	72.6	0.000863
285.01999	3.83365888	14.5470868	2.00736944	14.4825	4416	4112.4795	73.6	73.3	72.7	72.6	0.000863
290.01999	3.84116212	14.5463372	2.00799488	14.4825	4416.25	4112.2312	73.6	73.3	72.7	72.5	0.000863
295.01999	3.84616428	14.5448379	2.00862032	14.48325	4416	4117.1973	73.6	73.3	72.7	72.5	0.000864
300.01999	3.8311578	14.5463372	2.00862032	14.4796	4415.75	4119.1838	73.6	73.3	72.7	72.5	0.000862
305.01999	3.83240834	14.5455876	2.00799488	14.4825	4416.25	4119.1838	73.5	73.3	72.7	72.5	0.000863
310.03	3.84553901	14.5455876	2.00799488	14.48175	4416	4124.8949	73.6	73.3	72.7	72.5	0.000863
315.01999	3.82740618	14.5440883	2.00611856	14.4825	4415.75	4108.01	73.4	73.3	72.6	72.6	0.000863
320.01999	3.83803577	14.5455876	2.00486768	14.4795	4415.75	4103.5404	73.4	73.3	72.7	72.6	0.000863
325.03	3.85054117	14.5463372	2.006744	14.48025	4420	4103.7887	73.5	73.3	72.7	72.6	0.000864
330.01999	3.83178307	14.5463372	2.00799488	14.4825	4425.5	4119.1838	73.5	73.3	72.7	72.6	0.000865
335.01999	3.83365888	14.5448379	2.00799488	14.481	4425.5	4107.265	73.5	73.3	72.6	72.6	0.000865
340.01999	3.87242562	14.5470868	2.00611856	14.481	4426	4112.9761	73.6	73.3	72.7	72.6	0.000865
345.01999	3.82740618	14.5463372	2.00549312	14.48025	4425.25	4125.8881	73.6	73.4	72.7	72.6	0.000865
350.01999	3.8436632	14.5448379	2.00611856	14.48025	4426.25	4118.6872	73.6	73.3	72.8	72.6	0.000866
355.03	3.82928199	14.5448379	2.00799488	14.48025	4426	4123.9017	73.6	73.3	72.7	72.6	0.000865
360.01999	3.83428415	14.5463372	2.00549312	14.48025	4425.75	4113.9693	73.7	73.3	72.7	72.5	0.000866
365.01999	3.83553469	14.5455876	2.006744	14.48025	4426	4114.7143	73.7	73.4	72.6	72.6	0.000865
370.01999	3.82427983	14.5463372	2.00862032	14.48025	4425.75	4123.9017	73.7	73.4	72.7	72.6	0.000866
375.01999	3.84116212	14.5463372	2.006744	14.48025	4425.75	4128.1229	73.6	73.3	72.7	72.6	0.000865
380.01999	3.83428415	14.5455876	2.00549312	14.481	4425.75	4145.0078	73.6	73.4	72.7	72.6	0.000866
385.01999	3.83803577	14.5455876	2.00799488	14.48025	4426.25	4140.29	73.6	73.4	72.7	72.6	0.000866
390.01999	3.82615564	14.5440883	2.00736944	14.48025	4425.75	4134.0823	73.6	73.4	72.8	72.6	0.000866
395.01999	3.86179603	14.5463372	2.00549312	14.48025	4426.25	4126.8814	73.6	73.4	72.7	72.6	0.000866

Flammable Gas Interlock Spoolpiece Testing

EX402257.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CEL TEMP. (F)	WEC CELL (VOLTS)
400.01999	3.8624213	14.5470868	2.00611856	14.4795	4426	4117.4457	73.6	73.4	72.8	72.6	0.000866
405.01999	3.82803145	14.5463372	2.00611856	14.48025	4436.25	4127.1297	73.6	73.4	72.8	72.6	0.000867
410.01999	3.82365456	14.5455876	2.006744	14.48025	4436.5	4117.9423	73.6	73.4	72.8	72.6	0.000868
415.01999	3.82803145	14.5463372	2.006744	14.481	4436.25	4126.6331	73.5	73.4	72.8	72.6	0.000868
420.03998	3.84428847	14.5455876	2.00549312	14.4795	4446.25	4129.8611	73.5	73.4	72.8	72.6	0.000868
425.01999	3.82365456	14.5440883	2.00549312	14.48025	4446.25	4131.1026	73.6	73.4	72.7	72.6	0.000868
430.01999	3.83178307	14.5448379	2.00611856	14.48025	4446.25	4112.9761	73.6	73.5	72.7	72.6	0.000867
435.01999	3.82803145	14.5448379	2.00611856	14.48025	4435.75	4121.6669	73.6	73.4	72.7	72.6	0.000867
440.01999	3.83240834	14.5455876	2.00611856	14.48025	4436.25	4120.177	73.6	73.5	72.7	72.6	0.000867
445.01999	3.8311578	14.5455876	2.00549312	14.48025	4445.5	4132.8408	73.6	73.5	72.7	72.6	0.000867
450.01999	3.84553901	14.5455876	2.00486768	14.48025	4446	4132.5924	73.6	73.5	72.6	72.6	0.000867
455.01999	3.82365456	14.5448379	2.00611856	14.4795	4446.25	4117.4457	73.7	73.5	72.6	72.6	0.000868
460.03998	3.85804441	14.5448379	2.00549312	14.48025	4446.25	4120.4254	73.7	73.5	72.6	72.6	0.000868
465.01999	3.83428415	14.5463372	2.00611856	14.48025	4446.25	4119.1838	73.6	73.5	72.6	72.6	0.000867
470.01999	3.82865672	14.5448379	2.00611856	14.48025	4446.25	4120.177	73.6	73.5	72.6	72.6	0.000867
475.01999	3.83803577	14.5448379	2.00611856	14.48025	4446.25	4134.3306	73.6	73.5	72.6	72.6	0.000868
480.06998	3.83428415	14.5455876	2.00549312	14.481	4446.25	4118.6872	73.6	73.5	72.5	72.6	0.000869
485.01999	3.83178307	14.5455876	2.00611856	14.48175	4446.25	4133.834	73.6	73.5	72.6	72.6	0.000868
490.01999	3.83991158	14.5455876	2.006744	14.48025	4446.25	4133.0891	73.6	73.5	72.6	72.6	0.000869
495.01999	3.83803577	14.5455876	2.00549312	14.481	4446	4134.3306	73.4	73.5	72.5	72.6	0.000868
500.10999	3.85116644	14.5448379	2.00611856	14.481	4446.25	4128.8678	73.5	73.5	72.6	72.6	0.000868
505.01999	3.82553037	14.5455876	2.00549312	14.481	4445.75	4121.6669	73.5	73.6	72.5	72.6	0.000868
510.06	3.85304225	14.5455876	2.00549312	14.48025	4446.25	4132.3441	73.5	73.5	72.5	72.6	0.000868
515.01999	3.82803145	14.5455876	2.00549312	14.48025	4446.25	4122.6601	73.5	73.5	72.6	72.6	0.000868
520.01999	3.83678523	14.5463372	2.00549312	14.481	4445.75	4117.9423	73.6	73.6	72.6	72.6	0.000869
525.03	3.84241266	14.5463372	2.00486768	14.481	4446.25	4106.5201	73.6	73.5	72.6	72.6	0.000869
530.01999	3.82427983	14.5455876	2.00611856	14.48025	4446.25	4116.2041	73.5	73.6	72.6	72.6	0.00087
535.01999	3.84116212	14.5470868	2.00611856	14.48025	4455	4120.922	73.6	73.6	72.6	72.6	0.00087
540.07999	3.84866536	14.5463372	2.00611856	14.481	4456	4122.6601	73.5	73.6	72.6	72.6	0.000869
545.01999	3.84428847	14.5470868	2.00549312	14.48025	4456.5	4120.177	73.5	73.5	72.6	72.6	0.000869
550.01999	3.83428415	14.5463372	2.00611856	14.48025	4456	4123.405	73.5	73.6	72.6	72.6	0.00087
555.04999	3.83803577	14.5463372	2.00549312	14.48025	4455.75	4122.6601	73.5	73.6	72.5	72.6	0.00087
560.01999	3.82990726	14.5440883	2.00486768	14.4795	4456	4127.1297	73.4	73.6	72.5	72.6	0.000871
565.01999	3.85679387	14.5455876	2.00549312	14.48025	4456.25	4126.6331	73.3	73.6	72.4	72.6	0.00087
570.01999	3.82740618	14.5448379	2.006744	14.48025	4456.25	4126.3847	73.3	73.6	72.5	72.6	0.000871
575.01999	3.8249051	14.5455876	2.00611856	14.4795	4456.25	4124.3983	73.3	73.6	72.5	72.6	0.00087
580.01999	3.82740618	14.5455876	2.00611856	14.481	4456	4128.6195	73.3	73.6	72.5	72.6	0.00087
585.04999	3.8311578	14.5448379	2.00611856	14.48025	4456	4130.1094	73.3	73.6	72.6	72.6	0.000871
590.06998	3.86617292	14.5455876	2.00486768	14.481	4456	4126.8814	73.3	73.6	72.5	72.6	0.000871
595.01999	3.83240834	14.5455876	2.00549312	14.481	4466	4127.378	73.3	73.6	72.5	72.6	0.000872
600.03998	3.83365888	14.5455876	2.00549312	14.481	4466	4122.6601	73.3	73.6	72.5	72.6	0.000871
605.01999	3.8374105	14.5440883	2.00611856	14.48025	4466.25	4127.378	73.3	73.6	72.6	72.6	0.000871

Flammable Gas Interlock Spoolpiece Testing

EX402257.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CEL TEMP. (F)	WEC CELL (VOLTS)
610.01999	3.85241698	14.5448379	2.00549312	14.48025	4466	4131.1026	73.3	73.6	72.6	72.7	0.000872
615.01999	3.85491806	14.5448379	2.00611856	14.48025	4466.25	4120.177	73.4	73.6	72.6	72.6	0.000872
620.01999	3.84616428	14.5440883	2.00611856	14.48025	4466.25	4131.8475	73.4	73.6	72.6	72.6	0.000871
625.01999	3.83428415	14.5448379	2.00611856	14.481	4466	4142.5248	73.5	73.6	72.6	72.6	0.000871
630.04999	3.8374105	14.5455876	2.00611856	14.47725	4456.75	4128.3712	73.5	73.7	72.6	72.6	0.00087
635.01999	3.83803577	14.5455876	2.00611856	14.478	4456.25	4129.8611	73.4	73.7	72.5	72.6	0.000869
640.01999	3.83991158	14.5455876	2.00611856	14.481	4456.25	4127.378	73.5	73.6	72.6	72.6	0.00087
645.01999	3.8249051	14.5448379	2.00611856	14.47725	4456.25	4125.6398	73.5	73.7	72.6	72.6	0.00087
650.01999	3.8374105	14.5448379	2.00549312	14.48025	4456.25	4125.8881	73.4	73.7	72.6	72.6	0.00087
655.01999	3.83803577	14.5455876	2.00611856	14.48025	4466.25	4128.8678	73.5	73.7	72.6	72.6	0.00087
660.04999	3.87117508	14.5455876	2.00549312	14.481	4465.75	4128.1229	73.5	73.7	72.6	72.6	0.00087
665.01999	3.81802713	14.5463372	2.00611856	14.48025	4466.25	4136.3171	73.5	73.7	72.6	72.7	0.00087
670.01999	3.84178739	14.5455876	2.00611856	14.48025	4465.75	4126.8814	73.5	73.7	72.6	72.7	0.00087
675.03998	3.83928631	14.5455876	2.00549312	14.48025	4466.25	4131.5992	73.5	73.7	72.6	72.6	0.00087
680.01999	3.8311578	14.5455876	2.006744	14.481	4466	4137.8069	73.5	73.7	72.6	72.7	0.00087
685.01999	3.82928199	14.5463372	2.00611856	14.48025	4466	4126.1364	73.4	73.7	72.5	72.7	0.000872
690.03998	3.8311578	14.5455876	2.00611856	14.481	4466.5	4115.9558	73.5	73.7	72.5	72.7	0.00087
695.01999	3.82740618	14.5470868	2.00611856	14.48025	4466	4118.1906	73.4	73.7	72.5	72.7	0.000871
700.01999	3.84178739	14.5448379	2.006744	14.478	4465.75	4118.1906	73.4	73.7	72.6	72.7	0.000871
705.01999	3.82928199	14.5463372	2.00611856	14.478	4466.25	4117.1973	73.4	73.7	72.6	72.7	0.00087
710.06998	3.82052821	14.5448379	2.00549312	14.48025	4465.75	4128.1229	73.4	73.7	72.6	72.7	0.00087
715.01999	3.82553037	14.5455876	2.00549312	14.478	4466.25	4122.4118	73.4	73.7	72.6	72.7	0.000871
720.06998	3.82865672	14.5448379	2.00611856	14.4795	4466.25	4123.9017	73.4	73.7	72.6	72.7	0.000871
725.01999	3.83303361	14.5455876	2.00611856	14.48025	4466.25	4114.2177	73.4	73.7	72.6	72.7	0.000871
730.01999	3.83053253	14.5455876	2.00611856	14.47725	4466.25	4114.466	73.4	73.7	72.5	72.7	0.000871
735.06998	3.82928199	14.5455876	2.00549312	14.47725	4466.25	4117.1973	73.4	73.7	72.5	72.7	0.000871
740.01999	3.82678091	14.5470868	2.00611856	14.478	4476.25	4126.8814	73.4	73.7	72.5	72.6	0.000871
745.01999	3.8249051	14.5448379	2.00611856	14.48025	4466.25	4128.1229	73.4	73.7	72.6	72.7	0.000871
750.04999	3.83240834	14.5455876	2.00549312	14.47875	4466.25	4132.0958	73.4	73.7	72.6	72.6	0.000871
755.01999	3.83178307	14.5463372	2.006744	14.48025	4466	4136.3171	73.5	73.8	72.7	72.6	0.000872
760.01999	3.82553037	14.5455876	2.00486768	14.4795	4466.25	4125.3915	73.5	73.8	72.6	72.7	0.000872
765.03998	3.83615966	14.5463372	2.00549312	14.47725	4476.25	4129.1161	73.5	73.8	72.6	72.6	0.000873
770.01999	3.8249051	14.5470868	2.00486768	14.48025	4476	4138.0552	73.5	73.7	72.6	72.7	0.000873
775.01999	3.8311578	14.5455876	2.00611856	14.47725	4476.25	4135.3238	73.4	73.7	72.5	72.6	0.000874
780.04999	3.83053253	14.5455876	2.00611856	14.478	4476.5	4129.8611	73.5	73.7	72.6	72.7	0.000873
785.01999	3.8290726	14.5463372	2.00549312	14.478	4476	4129.8611	73.5	73.8	72.6	72.7	0.000872
790.01999	3.84866536	14.5455876	2.00611856	14.478	4476.25	4119.9287	73.5	73.8	72.6	72.7	0.000872
795.01999	3.84303793	14.5448379	2.00549312	14.47725	4476	4117.4457	73.5	73.7	72.6	72.7	0.000872
800.01999	3.8311578	14.5440883	2.00549312	14.478	4476	4115.2109	73.4	73.8	72.6	72.7	0.000873
805.01999	3.84053685	14.5455876	2.00611856	14.478	4476.25	4122.4118	73.4	73.8	72.6	72.7	0.000873
810.03998	3.82240402	14.5448379	2.00611856	14.47725	4476.25	4118.4389	73.5	73.8	72.6	72.7	0.000872
815.04999	3.83490942	14.5463372	2.00611856	14.478	4476.25	4122.1635	73.5	73.8	72.6	72.7	0.000872

Flammable Gas Interlock Spoolpiece Testing

EX402257.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CEL TEMP. (F)	WEC CELL (VOLTS)
820.01999	3.82678091	14.5463372	2.00549312	14.4765	4486.25	4121.6669	73.5	73.8	72.6	72.7	0.000872
825.03	3.83053253	14.5455876	2.00611856	14.481	4486.25	4114.2177	73.5	73.8	72.6	72.7	0.000874
830.07999	3.82052821	14.5455876	2.00611856	14.47725	4486.25	4122.1635	73.5	73.8	72.6	72.7	0.000874
835.01999	3.83240834	14.5455876	2.00611856	14.4765	4486.25	4121.6669	73.5	73.8	72.6	72.7	0.000874
840.03	3.82865672	14.5455876	2.00611856	14.47725	4486.25	4125.1432	73.5	73.8	72.6	72.7	0.000874
845.01999	3.81427551	14.5433387	2.00549312	14.478	4486	4127.1297	73.5	73.8	72.6	72.7	0.000874
850.01999	3.82553037	14.5463372	2.00549312	14.47875	4486.25	4128.3712	73.5	73.8	72.6	72.7	0.000874
855.01999	3.82115348	14.5455876	2.00611856	14.478	4486.25	4130.1094	73.4	73.8	72.6	72.7	0.000874
860.07999	3.84116212	14.5463372	2.00549312	14.478	4486.25	4130.1094	73.5	73.8	72.6	72.7	0.000873
865.01999	3.82553037	14.5455876	2.00549312	14.478	4486.25	4127.8746	73.5	73.8	72.7	72.7	0.000874
870.04999	3.84178739	14.5463372	2.00611856	14.478	4486.25	4126.8814	73.4	73.8	72.6	72.7	0.000874
875.03998	3.84929063	14.5455876	2.00486768	14.4795	4486.25	4120.177	73.3	73.8	72.7	72.7	0.000874
880.01999	3.83178307	14.5470868	2.00611856	14.478	4486.25	4132.5924	73.3	73.8	72.6	72.7	0.000874
885.01999	3.83178307	14.5455876	2.00549312	14.478	4486.25	4118.6872	73.4	73.8	72.6	72.7	0.000874
890.01999	3.82115348	14.5455876	2.00486768	14.48025	4486	4114.466	73.4	73.8	72.6	72.7	0.000873
895.01999	3.83866104	14.5463372	2.00549312	14.478	4486.25	4121.1703	73.4	73.8	72.6	72.7	0.000873
900.04999	3.84428847	14.5463372	2.00549312	14.47725	4486.25	4135.5721	73.4	73.8	72.6	72.7	0.000874
905.01999	3.82803145	14.5463372	2.00549312	14.48025	4486.25	4139.5451	73.5	73.8	72.7	72.7	0.000873
910.01999	3.82803145	14.5470868	2.00611856	14.478	4476.25	4140.5383	73.5	73.8	72.6	72.7	0.000873
915.04999	3.83553469	14.5455876	2.00611856	14.478	4476.25	4141.7798	73.5	73.8	72.7	72.7	0.000872
920.01999	3.82177875	14.5455876	2.00549312	14.47725	4476.5	4141.2832	73.5	73.9	72.6	72.7	0.000873
925.01999	3.82803145	14.5455876	2.00486768	14.47875	4476.5	4130.1094	73.5	73.8	72.7	72.7	0.000872
930.03	3.8186524	14.5448379	2.00549312	14.47725	4476.5	4125.3915	73.6	73.8	72.7	72.7	0.000872
935.01999	3.84678955	14.5448379	2.00611856	14.478	4476.5	4134.0823	73.6	73.8	72.7	72.7	0.000873

TEST: FGI21311 13 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 237.8ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
0.01000977	3.78551309	14.8034575	0.79401584	15.0015	0.1725	3.6773584	70.6	70.4	78	74.5	0.000208
5.02999878	3.79114052	14.8012087	6.9383384	15.885	0.17	3.1807424	70.5	70.5	78	74.6	0.000208
10.0200195	3.77425823	14.8027079	6.95835248	15.8875	0.135	-0.2210772	70.6	70.5	78	74.6	0.000207
15.0200195	3.7686308	14.8034575	6.96585776	15.891	0.1675	32.4810864	70.5	70.6	78	74.5	0.000207
20.0200195	3.76925607	14.8042071	6.97461392	15.89175	0.1275	58.7769036	70.5	70.6	78	74.6	0.000208
25.0200195	3.76800553	14.8034575	6.97649024	15.891	0.16	72.260028	70.5	70.7	78	74.6	0.000209
30.0200195	3.75174851	14.8034575	6.97961744	15.894	0.125	77.5738192	70.6	70.7	78	74.5	0.000209
35.0200195	3.75987702	14.8049568	6.98066832	15.89325	0.1625	79.8582528	70.6	70.8	77.9	74.6	0.00021
40.0200195	3.76988134	14.8049568	6.98066832	15.89325	0.165	81.0501312	70.6	70.8	78	74.6	0.000211
45.0200195	3.76800553	14.8042071	6.98066832	15.894	0.12	81.1742852	70.6	70.9	77.9	74.6	0.000212
50.0200195	3.7748835	14.8042071	6.98024288	15.894	0.15	81.0997928	70.5	70.9	78	74.6	0.000212
55.0200195	3.77300789	14.8049568	6.98024288	15.8925	0.15	81.0997928	70.5	70.9	77.9	74.6	0.000213
60.0200195	3.77425823	14.8049568	6.98066832	15.89325	0.125	81.1246236	70.5	71	78	74.5	0.000214
65.0200195	3.77238242	14.8049568	6.98024288	15.894	0.175	81.2487776	70.5	71	78	74.5	0.000214
70.0200195	3.79551741	14.8049568	6.98066832	15.897	0.2	80.6776692	70.5	71	78	74.6	0.000217
75.0200195	3.79676795	14.8034575	6.98066832	15.8955	0.175	80.9011464	70.5	71	78	74.6	0.000217
80.0200195	3.79864376	14.8049568	6.97961744	15.89625	0.2	80.578346	70.5	71.1	78	74.5	0.000218
85.0200195	3.78488782	14.8034575	6.98066832	15.8955	0.175	80.3548688	70.5	71.1	78	74.6	0.000217
90.0200195	3.79614268	14.8042071	6.98149376	15.8955	0.2	80.4293612	70.5	71.1	78	74.6	0.000219
95.0200195	3.79676795	14.8034575	6.978992	15.8955	0.175	80.7025	70.5	71.1	77.9	74.6	0.000219
100.02002	3.79614268	14.8042071	6.978992	15.897	0.2	80.4790228	70.5	71.1	78	74.6	0.00022
105.02002	3.80864808	14.8042071	6.978992	15.89625	0.2	80.5038536	70.5	71.1	78	74.6	0.000221
110.02002	3.81490078	14.8049568	6.97649024	15.8955	0.15	80.5038536	70.5	71.1	78	74.6	0.000222
115.02002	3.78676363	14.8042071	6.97461392	15.89475	0.225	80.0568992	70.5	71.1	78	74.6	0.000222
120.02002	3.75862648	14.8012087	6.97461392	15.897	0.25	80.205884	70.5	71.1	78	74.6	0.000223
125.02002	3.76175283	14.8019583	6.97523936	15.897	0.175	80.6280076	70.5	71.1	78	74.6	0.000222
130.02002	3.7686308	14.7997094	6.97461392	15.89475	0.25	81.8695476	70.5	71.1	78	74.6	0.000223
135.02002	3.77738458	14.8042071	6.9727372	15.89325	0.125	82.2420096	70.5	71.1	78	74.6	0.000224
140.02002	3.79114052	14.8042071	6.97336304	15.89325	0.125	82.3413328	70.4	71.1	77.9	74.7	0.000225
145.02002	3.76988134	14.8034575	6.97211216	15.8955	0.275	81.7950552	70.4	71.1	77.9	74.6	0.000226
150.02002	3.76738026	14.8042071	6.9727372	15.89625	0.25	81.94404	70.2	71.1	77.8	74.7	0.000227
155.02002	3.76925607	14.8034575	6.97211216	15.89625	0.125	82.6641332	70.1	71.1	77.7	74.6	0.000228
160.02002	3.77425823	14.8049568	6.96961952	15.8955	0.225	82.4654868	70	71.2	77.7	74.7	0.000228
165.02002	3.75862648	14.8034575	6.96835952	15.89625	0.25	82.3681636	70	71.1	77.6	74.5	0.000227
170.02002	3.75487486	14.8042071	6.9688496	15.89625	0.25	81.2487776	70	71.2	77.6	74.6	0.000229
175.02002	3.77738458	14.8042071	6.96835952	15.89625	0.275	81.4722548	70	71.2	77.6	74.6	0.000228
180.02002	3.76487918	14.8049568	6.9664832	15.89625	0.275	81.2487776	70.1	71.2	77.6	74.7	0.000229
185.02002	3.77926039	14.8034575	6.9664832	15.8955	0.275	81.2984392	70.1	71.2	77.6	74.5	0.000229

Flammable Gas Interlock Spoolpiece Testing

FGI21311.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
190.179993	3.7748835	14.8027079	6.9664832	15.8955	140.25	81.199116	70.2	71.2	77.6	74.6	0.000229
195.02002	3.77050661	14.8042071	6.9664832	15.89625	150.3	81.5467472	70.3	71.2	77.6	74.5	0.00023
200.02002	3.76925607	14.8027079	6.96710864	15.8955	150.275	81.3481008	70.3	71.2	77.6	74.6	0.000231
205.02002	3.76612972	14.8027079	6.96460688	15.89625	150.275	80.9011464	70.2	71.2	77.6	74.5	0.000231
210.02002	3.78238674	14.8027079	6.96523232	15.89625	150.3	81.6212396	70.2	71.2	77.6	74.6	0.000232
215.149994	3.76988134	14.8034575	6.96210512	15.8955	160.275	80.7521616	70.2	71.2	77.6	74.6	0.000231
220.02002	3.77238242	14.8042071	6.96273056	15.897	160.275	80.8763156	70.2	71.2	77.6	74.6	0.000233
225.02002	3.7748835	14.8034575	6.96273056	15.89625	160.3	80.4293612	70.2	71.2	77.6	74.6	0.000232
230.02002	3.77300769	14.8042071	6.96273056	15.89625	160.275	80.7521616	70.2	71.2	77.6	74.6	0.000233
235.02002	3.76326864	14.8049568	6.96147968	15.89625	170.3	80.8763156	70.3	71.2	77.6	74.6	0.000232
240.02002	3.75862648	14.8042071	6.96210512	15.89625	170.35	81.32327	70.2	71.2	77.6	74.5	0.000233
245.02002	3.77050661	14.8019583	6.96273056	15.89625	170.3	81.2487776	70.3	71.2	77.7	74.6	0.000234
250.02002	3.77363296	14.8027079	6.96273056	15.897	170.325	81.447424	70.2	71.2	77.6	74.6	0.000234
255.02002	3.77926039	14.8012087	6.96273056	15.89775	170.275	81.3977624	70.2	71.2	77.6	74.5	0.000233
260.029999	3.78301201	14.8034575	6.96273056	15.89625	180.35	81.3977624	70.2	71.2	77.6	74.6	0.000234
265.02002	3.76612972	14.8019583	6.9602288	15.89625	180.325	80.6280076	70.2	71.2	77.6	74.5	0.000235
270.02002	3.77300769	14.8027079	6.9602288	15.897	180.325	80.6528384	70.2	71.2	77.6	74.5	0.000235
275.02002	3.75737594	14.8042071	6.95960336	15.89625	180.3	80.7273308	70.3	71.2	77.6	74.6	0.000235
280.029999	3.76300337	14.8012087	6.9602288	15.89625	180.325	80.6528384	70.2	71.2	77.6	74.6	0.000235
285.02002	3.77238242	14.8034575	6.95960336	15.89625	180.35	80.8514848	70.3	71.2	77.6	74.6	0.000237
290.02002	3.77238242	14.8019583	6.96147968	15.89625	190.325	80.8763156	70.4	71.2	77.6	74.5	0.000237
295.029999	3.77738458	14.8019583	6.95772704	15.89625	190.3	80.7273308	70.3	71.2	77.7	74.6	0.000236
300.02002	3.77613404	14.8042071	6.95835248	15.89625	190.35	80.7521616	70.3	71.2	77.6	74.5	0.000237
305.02002	3.77113188	14.8027079	6.95835248	15.8955	190.325	80.5535152	70.3	71.2	77.6	74.5	0.000237
310.02002	3.77050661	14.8027079	6.9585072	15.89625	190.3	80.7521616	70.3	71.2	77.7	74.6	0.000237
315.02002	3.77238242	14.8012087	6.95960336	15.897	200.3	81.32327	70.3	71.2	77.6	74.5	0.000235
320.02002	3.76425391	14.8027079	6.9602288	15.89625	200.325	80.7273308	70.3	71.2	77.6	74.6	0.000237
325.029999	3.77800985	14.8027079	6.95772704	15.89625	200.35	80.9011464	70.3	71.2	77.6	74.6	0.000237
330.02002	3.75362432	14.8012087	6.95772704	15.89625	200.325	81.2239468	70.3	71.3	77.7	74.5	0.000237
335.040009	3.77926039	14.8027079	6.9585072	15.8955	200.325	81.074962	70.3	71.3	77.7	74.6	0.000237
340.02002	3.76675499	14.8027079	6.95772704	15.89625	200.325	81.32327	70.3	71.2	77.7	74.5	0.000238
345.02002	3.77675931	14.8019583	6.95522528	15.897	200.325	81.2736084	70.3	71.3	77.6	74.5	0.000237
350.02002	3.77363296	14.8042071	6.9585072	15.89625	200.325	81.3481008	70.3	71.3	77.6	74.5	0.000238
355.02002	3.77300769	14.8027079	6.9571016	15.8985	200.325	80.7273308	70.3	71.3	77.6	74.5	0.000238
360.02002	3.78176147	14.8019583	6.9585072	15.89625	210.275	81.7205628	70.3	71.2	77.6	74.5	0.000238
365.070007	3.77175715	14.8019583	6.95522528	15.89625	210.325	81.9937016	70.3	71.2	77.6	74.6	0.000238
370.02002	3.7811362	14.800459	6.9571016	15.897	210.35	81.3729316	70.3	71.3	77.6	74.5	0.000238
375.070007	3.77926039	14.8049568	6.9585072	15.89625	210.35	81.8695476	70.3	71.3	77.7	74.6	0.000239
380.02002	3.7561254	14.8019583	6.95647616	15.89925	210.35	81.6212396	70.4	71.2	77.6	74.5	0.000239
385.070007	3.77113188	14.8042071	6.9585072	15.8985	210.325	81.32327	70.4	71.2	77.7	74.6	0.000239
390.02002	3.7561254	14.8034575	6.9585072	15.8985	210.3	81.2487776	70.4	71.2	77.7	74.5	0.000239
395.050018	3.7686308	14.7989598	6.95522528	15.89775	210.35	81.2984392	70.3	71.2	77.6	74.6	0.00024

Flammable Gas Interlock Spoolpiece Testing

FGI21311.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
400.02002	3.76550445	14.7997094	6.95522528	15.89775	219.525	81.94404	70.3	71.2	77.6	74.5	0.000239
405.02002	3.77300769	14.8034575	6.95647616	15.89925	220.35	81.2487776	70.3	71.3	77.7	74.6	0.000241
410.02002	3.76925607	14.8034575	6.95647616	15.8985	220.35	81.6460704	70.4	71.3	77.7	74.6	0.00024
415.02002	3.78363728	14.8034575	6.95585072	15.89775	220.35	81.8447168	70.3	71.3	77.7	74.6	0.000241
420.02002	3.77113188	14.8027079	6.9539744	15.8985	220.375	81.1742852	70.4	71.2	77.6	74.6	0.00024
425.02002	3.77926039	14.8019583	6.95459984	15.9	220.325	80.4045304	70.4	71.3	77.7	74.6	0.00024
430.02002	3.76988134	14.8034575	6.95459984	15.8985	220.35	81.0004696	70.4	71.3	77.7	74.6	0.00024
435.02002	3.7686308	14.8027079	6.95585072	15.89775	220.35	80.6280076	70.4	71.2	77.7	74.6	0.000241
440.02002	3.76800553	14.7997094	6.95647616	15.8985	220.35	80.5535152	70.4	71.3	77.6	74.5	0.000241
445.02002	3.80489646	14.8019583	6.95647616	15.9	220.35	80.4790228	70.4	71.2	77.7	74.6	0.00024
450.02002	3.77113188	14.8027079	6.9539744	15.8985	220.35	80.3052072	70.3	71.2	77.6	74.5	0.000241
455.02002	3.76925607	14.8042071	6.95272352	15.9	220.35	80.1810532	70.3	71.2	77.7	74.6	0.00024
460.02002	3.78988998	14.8027079	6.95334896	15.89775	220.35	80.1810532	70.3	71.2	77.6	74.6	0.000241
465.02002	3.76050229	14.8034575	6.9539744	15.897	230.375	80.7769924	70.4	71.3	77.7	74.6	0.00024
470.02002	3.77738458	14.8034575	6.95209808	15.90075	220.375	80.6776692	70.4	71.2	77.7	74.6	0.000241
475.02002	3.7748835	14.8049568	6.9508472	15.89775	230.325	80.578346	70.4	71.2	77.6	74.5	0.00024
480.02002	3.77738458	14.8049568	6.95334896	15.8985	230.4	80.3796996	70.3	71.2	77.7	74.6	0.000241
485.02002	3.75550013	14.8034575	6.95209808	15.90075	220.675	80.2307148	70.4	71.2	77.7	74.5	0.00024
490.02002	3.77926039	14.8027079	6.95147264	15.90075	230.35	80.6031768	70.3	71.2	77.7	74.6	0.000241
495.02002	3.76487918	14.8027079	6.95147264	15.90075	230.35	80.578346	70.3	71.2	77.7	74.5	0.000242
500.02002	3.77113188	14.8034575	6.95147264	15.90075	230.35	80.4045304	70.4	71.3	77.8	74.6	0.000241
505.02002	3.76800553	14.8034575	6.95209808	15.90075	230.35	80.3052072	70.4	71.2	77.7	74.5	0.000242
510.02002	3.77425823	14.8034575	6.95209808	15.9	230.35	80.8018232	70.4	71.2	77.8	74.6	0.000241
515.029999	3.75800121	14.8027079	6.95209808	15.90075	230.375	80.330038	70.4	71.3	77.7	74.6	0.000241
520.02002	3.75987702	14.8019583	6.95147264	15.90075	230.35	80.3052072	70.4	71.2	77.8	74.6	0.000242
525.02002	3.76550445	14.8019583	6.95272352	15.90075	230.4	79.833422	70.4	71.2	77.7	74.5	0.000243
530.070007	3.75237378	14.8034575	6.95209808	15.90075	230.375	80.1562224	70.4	71.2	77.7	74.6	0.000242
535.02002	3.7686308	14.8027079	6.95209808	15.9	230.35	80.4045304	70.4	71.2	77.7	74.6	0.000243
540.02002	3.7623781	14.8027079	6.95209808	15.90075	230.35	80.3548688	70.4	71.2	77.8	74.6	0.000242
545.02002	3.7748835	14.8034575	6.95147264	15.9	230.35	80.1562224	70.4	71.2	77.7	74.7	0.000242
550.02002	3.7623781	14.8027079	6.95147264	15.90075	230.4	79.9079144	70.4	71.2	77.7	74.5	0.000241
555.02002	3.76925607	14.8042071	6.95147264	15.90075	230.3	80.2555456	70.4	71.2	77.7	74.7	0.000243
560.059998	3.75550013	14.8034575	6.95209808	15.90075	230.3	80.4293612	70.4	71.2	77.8	74.6	0.000242
565.02002	3.77675931	14.8049568	6.9508472	15.90075	230.325	80.6776692	70.4	71.2	77.8	74.6	0.000242
570.02002	3.7686308	14.8034575	6.95147264	15.9015	230.325	81.0253004	70.4	71.2	77.7	74.5	0.000242
575.029999	3.7686308	14.8027079	6.9508472	15.90075	230.375	80.5286844	70.4	71.2	77.7	74.5	0.000243
580.02002	3.7811362	14.8042071	6.95022176	15.9015	230.35	80.6776692	70.5	71.2	77.7	74.5	0.000242
585.02002	3.77926039	14.8019583	6.9508472	15.90075	230.4	80.6526384	70.5	71.2	77.8	74.7	0.000242
590.02002	3.77863512	14.8042071	6.95209808	15.90075	240.15	80.8514848	70.4	71.2	77.7	74.5	0.000242
595.02002	3.78363728	14.8034575	6.94897088	15.90075	239.25	80.9259772	70.4	71.2	77.8	74.7	0.000243
600.02002	3.77300769	14.8042071	6.94959632	15.903	240.4	81.2239468	70.5	71.2	77.7	74.5	0.000242
605.070007	3.77926039	14.8034575	6.95147264	15.9015	240.375	81.074962	70.5	71.2	77.8	74.7	0.000243

Flammable Gas Interlock Spoolpiece Testing

FGI21311.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
610.02002	3.76738026	14.8042071	6.94959632	15.9015	240.325	80.330038	70.5	71.2	77.7	74.5	0.000243
615.02002	3.77550877	14.8027079	6.95147264	15.9045	240.35	79.9327452	70.5	71.2	77.7	74.6	0.000243
620.040009	3.7623781	14.8034575	6.9508472	15.9045	240.375	80.2307148	70.5	71.2	77.8	74.7	0.000243
625.059998	3.77675931	14.8027079	6.94897088	15.90375	240.375	80.2307148	70.5	71.2	77.8	74.5	0.000243
630.02002	3.76800553	14.8027079	6.94959632	15.90375	240.375	80.2803764	70.6	71.2	77.7	74.6	0.000243
635.059998	3.76300337	14.8019583	6.94897088	15.90375	240.375	80.5268844	70.5	71.2	77.7	74.6	0.000243
640.02002	3.77550877	14.8019583	6.95022176	15.903	240.35	80.6776692	70.6	71.2	77.8	74.6	0.000243
645.02002	3.76112756	14.8042071	6.9508472	15.90375	240.35	80.6031768	70.6	71.2	77.7	74.5	0.000243
650.040009	3.77363296	14.8049568	6.95022176	15.90375	240.4	80.4293612	70.7	71.2	77.7	74.5	0.000243
655.02002	3.7686308	14.8042071	6.94959632	15.90375	240.4	80.0568992	70.7	71.2	77.7	74.5	0.000243
660.02002	3.79114052	14.8042071	6.94709456	15.90375	240.35	79.9327452	70.7	71.2	77.8	74.6	0.000243
665.059998	3.76925607	14.8049568	6.94959632	15.90375	240.375	80.3052072	70.6	71.2	77.8	74.6	0.000243
670.02002	3.76675499	14.8034575	6.94772	15.903	240.4	79.8334222	70.6	71.2	77.8	74.6	0.000243
675.02002	3.77238242	14.8042071	6.94646912	15.903	240.35	80.1313916	70.6	71.2	77.7	74.5	0.000242
680.02002	3.76876363	14.8042071	6.94959632	15.903	240.4	80.6031768	70.6	71.2	77.8	74.6	0.000243
685.070007	3.77113188	14.8042071	6.94709456	15.903	240.425	80.5268844	70.5	71.2	77.7	74.6	0.000243
690.02002	3.75550013	14.8034575	6.94897088	15.903	240.4	80.7025	70.5	71.2	77.7	74.4	0.000242
695.050018	3.77050661	14.8027079	6.94646912	15.90225	240.4	80.454192	70.5	71.2	77.7	74.5	0.000243
700.02002	3.77926039	14.8034575	6.94396736	15.90375	240.375	79.8582528	70.5	71.2	77.8	74.5	0.000242
705.02002	3.76925607	14.8034575	6.94897088	15.90375	240.4	80.1562224	70.5	71.2	77.8	74.6	0.000244
710.02002	3.77050661	14.8027079	6.94521824	15.90375	240.325	80.3548688	70.5	71.2	77.8	74.5	0.000243
715.02002	3.77300769	14.8027079	6.94521824	15.903	240.4	80.08173	70.4	71.2	77.8	74.6	0.000244
720.02002	3.76425391	14.8019583	6.9445828	15.90375	240.4	80.2307148	70.4	71.2	77.9	74.6	0.000243
725.02002	3.76425391	14.8027079	6.94521824	15.903	240.35	80.3548688	70.5	71.2	77.8	74.6	0.000243
730.02002	3.76800553	14.8034575	6.95022176	15.9045	240.4	80.5535152	70.5	71.2	77.7	74.5	0.000243
735.02002	3.7748835	14.8034575	6.94521824	15.90375	240.325	80.7769624	70.4	71.2	77.8	74.6	0.000244
740.050018	3.77926039	14.8034575	6.94521824	15.903	240.375	80.5268844	70.4	71.2	77.8	74.6	0.000243
745.02002	3.77613404	14.8027079	6.94584368	15.9045	240.375	80.2555456	70.5	71.1	77.8	74.5	0.000243
750.02002	3.7686308	14.8027079	6.94521824	15.903	240.375	79.7837604	70.4	71.2	77.8	74.6	0.000243
755.029999	3.76675499	14.8019583	6.94521824	15.90375	240.375	80.1810532	70.4	71.2	77.8	74.6	0.000244
760.02002	3.77300769	14.8034575	6.94521824	15.90375	240.35	80.1562224	70.4	71.2	77.9	74.6	0.000244
765.02002	3.75800121	14.8034575	6.94521824	15.90375	240.425	80.1313916	70.4	71.2	77.8	74.5	0.000243
770.050018	3.77300769	14.8027079	6.94521824	15.9045	240.375	80.205884	70.4	71.2	77.8	74.5	0.000243
775.02002	3.76988134	14.8027079	6.94521824	15.90375	240.375	80.0568992	70.4	71.2	77.9	74.5	0.000243
780.02002	3.7611362	14.8049568	6.94271648	15.90375	240.375	79.8085912	70.4	71.2	77.8	74.5	0.000244
785.02002	3.75925175	14.8027079	6.94209104	15.90375	240.4	80.0568992	70.5	71.1	77.8	74.6	0.000244
790.02002	3.76800553	14.8042071	6.9445828	15.903	240.375	80.0320684	70.4	71.2	77.8	74.5	0.000242
795.02002	3.75967702	14.8034575	6.94459628	15.90375	240.35	79.8085912	70.4	71.2	77.8	74.6	0.000244
800.070007	3.78551309	14.8042071	6.94334192	15.90375	240.35	79.957576	70.4	71.2	77.8	74.5	0.000244
805.110016	3.7748835	14.8049568	6.94334192	15.903	240.375	80.3548688	70.4	71.1	77.8	74.5	0.000244
810.02002	3.77238242	14.8042071	6.94334192	15.90375	240.425	80.578346	70.4	71.1	77.8	74.5	0.000244
815.040009	3.76675499	14.8034575	6.94271648	15.90375	240.4	80.2803764	70.4	71.1	77.8	74.5	0.000245

Flammable Gas Interlock Spoolpiece Testing

FGI21311.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
820.02002	3.7686308	14.8034575	6.94271648	15.903	240.375	80.08173	70.3	71.1	77.8	74.5	0.000244
825.02002	3.77238242	14.8027079	6.94334192	15.90225	240.4	79.4361292	70.4	71.1	77.9	74.6	0.000244
830.040009	3.77238242	14.8034575	6.94271648	15.903	240.4	80.1313916	70.4	71.1	77.8	74.5	0.000243
835.02002	3.76362864	14.8034575	6.94021472	15.903	240.4	79.6844372	70.6	71.1	77.8	74.6	0.000244
840.02002	3.76925607	14.8027079	6.9414656	15.9045	240.375	80.3796996	70.5	71.1	77.9	74.6	0.000245
845.029999	3.77050661	14.8034575	6.94334192	15.90375	240.4	80.4293612	70.5	71.1	77.8	74.6	0.000244
850.02002	3.76800553	14.8034575	6.9414656	15.9045	240.4	80.454192	70.5	71.1	77.9	74.6	0.000244
855.02002	3.7686308	14.8034575	6.9414656	15.9045	240.325	80.0072376	70.5	71.1	77.8	74.5	0.000244
860.059998	3.77988566	14.8042071	6.9414656	15.90375	240.35	80.8018232	70.5	71.1	77.9	74.5	0.000244
865.02002	3.76800553	14.8019583	6.94209104	15.90375	240.375	79.9327452	70.5	71.1	77.8	74.5	0.000244
870.02002	3.76800553	14.8027079	6.94084016	15.9045	240.375	79.336806	70.6	71.1	77.9	74.6	0.000244
875.059998	3.77613404	14.8027079	6.94021472	15.903	240.375	79.7837604	70.5	71.1	77.9	74.6	0.000244
880.02002	3.7686308	14.8034575	6.93896384	15.90375	240.325	79.709268	70.5	71.1	77.9	74.5	0.000245
885.02002	3.77050661	14.8027079	6.9414656	15.903	240.4	79.585114	70.5	71.1	77.9	74.5	0.000243
890.050018	3.76175283	14.8034575	6.9414656	15.903	240.4	79.709268	70.5	71.1	77.9	74.5	0.000243
895.02002	3.76112756	14.8042071	6.94209104	15.903	240.4	79.6347756	70.5	71.1	77.9	74.5	0.000243
900.02002	3.76738026	14.8027079	6.93958928	15.90375	240.4	79.6844372	70.5	71.1	77.9	74.6	0.000244
905.059998	3.76800553	14.8034575	6.9383384	15.90375	240.375	79.4112984	70.4	71.1	78	74.6	0.000245
910.02002	3.77300769	14.8034575	6.94084016	15.90375	250.4	79.9079144	70.5	71.1	77.9	74.5	0.000244

TEST: FGI21312 13 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 236ppm

SECONDS	MAIN DUCT DIFF(IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF(IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CEL (VOLTS)
0.019989	3.76925607	14.8102041	0.604069712	15.03	0.1525	12.7406	70.5	70.4	78	74.7	0.000206
5.019989	3.76175283	14.8094545	6.90519008	15.8835	0.1475	11.921184	70.6	70.4	78	74.7	0.000206
10.160004	3.76362864	14.8087049	6.92582296	15.88725	0.135	8.9911496	70.5	70.4	77.9	74.7	0.000206
15.019989	3.77050661	14.8102041	6.93708752	15.89025	0.135	37.397585	70.6	70.5	77.9	74.8	0.000207
20.049988	3.7686308	14.8079553	6.94209104	15.89025	0.1475	64.785957	70.7	70.6	77.9	74.7	0.000207
25.019989	3.7811362	14.8087049	6.9445928	15.888	0.1125	77.747635	70.7	70.6	77.9	74.7	0.000208
30.019989	3.76800553	14.8079553	6.94709456	15.89025	0.1575	81.993702	70.6	70.7	77.9	74.7	0.000207
35.380005	3.76612972	14.8087049	6.94709456	15.8865	0.14	84.42712	70.6	70.7	77.9	74.8	0.000209
40.019989	3.77300769	14.8094545	6.9506472	15.8865	0.16	84.923736	70.6	70.7	77.9	74.7	0.000209
45.019989	3.7811362	14.8094545	6.94897088	15.8875	0.1225	84.625766	70.6	70.7	77.9	74.7	0.000211
50.029999	3.75800121	14.8102041	6.9508472	15.891	20.115	88.573864	70.6	70.8	77.9	74.7	0.000211
55.109985	3.7561254	14.8087049	6.95022176	15.8895	20.15	87.381985	70.7	70.8	77.9	74.7	0.000212
60.040009	3.76612972	14.8079553	6.94897088	15.89025	30.15	85.246536	70.6	70.9	78	74.7	0.000213
65.070007	3.7623781	14.8087049	6.94959632	15.89025	40.15	84.799582	70.6	70.9	78	74.7	0.000214
70.019989	3.75362432	14.8087049	6.95147264	15.89025	40.125	86.339092	70.6	70.9	78	74.7	0.000215
75.029999	3.77863512	14.806456	6.95147264	15.8895	50.175	88.424879	70.6	70.9	77.9	74.6	0.000214
80.019989	3.7686308	14.8087049	6.94897088	15.8895	50.2	85.172044	70.6	70.9	77.9	74.7	0.000216
85.119995	3.77300769	14.8072056	6.9508472	15.89325	60.2	86.463246	70.7	71	78	74.6	0.000216
90.169983	3.75967702	14.8087049	6.95147264	15.89325	60.2	86.935031	70.6	71	77.9	74.7	0.000217
95.019989	3.75487486	14.8057064	6.94959632	15.89025	70.175	87.332324	70.6	71	77.9	74.6	0.000217
100.22	3.7811362	14.8094545	6.94772	15.8925	70.2	87.108846	70.6	71	77.9	74.7	0.000218
105.04001	3.77113188	14.8072056	6.94396736	15.89025	80.225	87.183339	70.6	71	78	74.7	0.00022
110.01999	3.77863512	14.8079553	6.94834544	15.8925	80.2	86.786046	70.6	71	77.9	74.7	0.00022
115.03	3.78301201	14.8087049	6.94897088	15.89175	90.2	88.573864	70.6	71	77.9	74.7	0.000221
120.01999	3.76425391	14.8072056	6.9445928	15.89175	90.2	88.275894	70.5	71	78	74.7	0.00022
125.01999	3.77238242	14.8079553	6.9445928	15.8925	90.225	88.549033	70.6	71	77.9	74.7	0.000223
130.01999	3.75925175	14.806456	6.94396736	15.89175	100.2	84.501612	70.6	71	78	74.6	0.000222
135.01999	3.76800553	14.8072056	6.94396736	15.8925	100.225	86.363922	70.6	71.1	78	74.7	0.000223
140.01999	3.77238242	14.8094545	6.94271648	15.8925	110.225	86.736384	70.6	71	78	74.7	0.000224
145.07001	3.77238242	14.8094545	6.94271648	15.89325	110.25	86.28943	70.6	71	78	74.8	0.000225
150.01999	3.76800553	14.8094545	6.94334192	15.89175	110.2	88.052417	70.6	71	78	74.7	0.000226
155.01999	3.76988134	14.8087049	6.94021472	15.89325	120.275	88.77251	70.6	71.1	77.9	74.6	0.000226
160.01999	3.77800985	14.8094545	6.94021472	15.8925	120.225	87.729616	70.7	71.1	77.9	74.8	0.000226
165.06	3.77050661	14.8087049	6.94021472	15.89325	130.275	88.275894	70.7	71.1	77.9	74.6	0.000226
170.01999	3.77300769	14.8102041	6.93833384	15.89325	130.3	86.363922	70.7	71.1	77.9	74.7	0.000228
175.10999	3.76800553	14.8057064	6.93896384	15.89175	130.275	87.158508	70.7	71.1	77.9	74.6	0.000227
180.01999	3.7686308	14.8087049	6.93896384	15.89475	130.275	86.661892	70.8	71.1	77.9	74.6	0.000227
185.10999	3.75737594	14.8072056	6.93833384	15.89325	140.25	87.630293	70.7	71.1	78	74.7	0.000228

SECONDS	MAIN DUCT DIFF(IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF(IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CEL (VOLTS)
190.01999	3.7623781	14.8072056	6.93771296	15.89475	140.25	86.363922	70.7	71.1	78	74.7	0.000229
195.10999	3.78488782	14.8102041	6.93866384	15.89475	140.275	85.470014	70.7	71.1	78	74.7	0.00023
200.01999	3.78488782	14.8087049	6.9383384	15.89475	140.225	86.835708	70.7	71.1	77.9	74.6	0.000229
205.23001	3.7623781	14.8079553	6.93771296	15.8955	150.3	87.133677	70.7	71.1	77.9	74.6	0.00023
210.01999	3.77863512	14.8072056	6.93583664	15.8955	150.3	87.481308	70.6	71.1	78	74.7	0.00023
215.01999	3.7873889	14.8087049	6.9352112	15.89475	150.225	86.736384	70.7	71.2	77.9	74.7	0.00023
220.01999	3.77675931	14.8079553	6.93396032	15.8955	150.275	86.363922	70.6	71.1	78	74.8	0.000231
225.26001	3.79239106	14.8072056	6.93396032	15.89625	155.625	85.817645	70.7	71.1	78	74.8	0.000231
230.01999	3.76925607	14.8072056	6.9352112	15.8955	160.3	85.594168	70.8	71.2	78	74.8	0.000232
235.01999	3.75800121	14.8079553	6.93396032	15.8955	160.275	86.935031	70.9	71.1	78	74.8	0.000232
240.01999	3.77863512	14.8087049	6.93145856	15.8955	160.225	87.282662	70.9	71.1	77.9	74.7	0.000232
245.01999	3.7686308	14.8057064	6.932084	15.89475	160.3	86.090784	70.9	71.1	78	74.8	0.000232
250.01999	3.77926039	14.8079553	6.932084	15.89475	160.275	86.885369	71	71.2	77.9	74.8	0.000232
255.01999	3.78488782	14.8072056	6.93083312	15.8955	170.35	87.481308	71	71.1	77.9	74.7	0.000232
260.01999	3.75987702	14.8094545	6.93145856	15.89475	170.275	86.090784	71	71.2	78	74.7	0.000234
265.01999	3.76988134	14.806456	6.93145856	15.89625	170.3	86.537738	71	71.2	78	74.7	0.000233
270.01999	3.76988134	14.806456	6.932084	15.8955	170.35	86.388753	71	71.1	78	74.8	0.000234
275.01999	3.77238242	14.8087049	6.93083312	15.8955	180.3	86.016291	71	71.2	78	74.7	0.000234
280.01999	3.7686308	14.8079553	6.93145856	15.89475	180.25	85.892137	70.9	71.2	78	74.7	0.000235
285.01999	3.78426255	14.8079553	6.93083312	15.89625	180.275	86.463246	70.9	71.2	78	74.6	0.000234
290.01999	3.76925607	14.8087049	6.932084	15.8955	180.325	84.501612	70.9	71.2	78	74.7	0.000235
295.04001	3.76050229	14.8072056	6.92958224	15.89475	180.3	84.029827	70.9	71.2	78	74.7	0.000235
300.01999	3.76175283	14.8072056	6.92958224	15.8955	180.325	83.731858	70.9	71.2	77.9	74.7	0.000235
305.01999	3.77050661	14.8079553	6.93020768	15.89475	180.25	82.862778	70.9	71.2	78	74.8	0.000236
310.01999	3.78176147	14.8079553	6.93020768	15.8955	190.325	85.544506	71	71.2	78	74.7	0.000235
315.01999	3.78926471	14.8087049	6.93083312	15.89475	190.325	85.420352	70.9	71.2	78	74.7	0.000237
320.01999	3.75550013	14.8079553	6.92770592	15.89475	190.325	84.774751	71	71.2	77.9	74.7	0.000236
325.01999	3.75800121	14.8079553	6.93020768	15.8955	190.35	84.625766	71	71.2	78	74.8	0.000237
330.01999	3.77050661	14.8087049	6.93020768	15.89475	190.325	85.867306	70.9	71.2	78	74.7	0.000236
335.01999	3.77926039	14.8094545	6.92770592	15.8955	190.325	85.34586	71	71.3	78	74.8	0.000236
340.01999	3.7811362	14.8087049	6.9289568	15.8955	200.35	85.916968	70.9	71.2	77.9	74.7	0.000236
345.01999	3.77738458	14.8072056	6.93145856	15.89625	190.4	86.214938	70.9	71.2	77.9	74.7	0.000237
350.01999	3.7873889	14.8087049	6.9283136	15.8955	200.325	86.661892	70.9	71.3	78	74.8	0.000237
355.01999	3.77300769	14.8087049	6.9283136	15.89475	200.275	86.090784	70.8	71.2	77.9	74.7	0.000237
360.01999	3.78051093	14.8087049	6.9289568	15.8955	200.325	85.172044	70.8	71.3	78	74.7	0.000237
365.01999	3.7811362	14.8079553	6.92645504	15.8955	200.35	85.420352	70.8	71.2	77.9	74.7	0.000238
370.01999	3.76675499	14.8087049	6.9283136	15.8955	200.3	85.99146	70.7	71.3	78	74.8	0.000237
375.01999	3.7561254	14.8087049	6.9258296	15.89475	200.375	84.352628	70.8	71.3	77.9	74.6	0.000237
380.01999	3.76300337	14.8087049	6.9283136	15.8955	200.3	84.10432	70.9	71.2	78	74.8	0.000238
385.01999	3.77113188	14.8087049	6.9258296	15.89475	208.65	84.302966	70.9	71.2	78	74.7	0.000238
390.01999	3.76487918	14.8079553	6.92770592	15.89775	200.375	84.576105	70.9	71.3	78	74.8	0.000238
395.01999	3.78051093	14.8102041	6.9289568	15.897	200.3	84.625766	70.9	71.2	78	74.7	0.000238

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CEL (VOLTS)
400.01999	3.79426687	14.8087049	6.92645504	15.89475	210.325	85.122382	70.9	71.3	78.1	74.8	0.000239
405.01999	3.7686308	14.8102041	6.92645504	15.897	210.3	84.625766	70.9	71.3	78	74.7	0.000238
410.01999	3.77863512	14.8094545	6.92833136	15.897	210.325	84.451951	70.9	71.3	78	74.8	0.000239
415.01999	3.77613404	14.8102041	6.92645504	15.89775	210.35	84.203643	70.8	71.2	78	74.8	0.000239
420.01999	3.77613404	14.8079553	6.9258296	15.897	210.3	84.178812	70.8	71.3	78	74.8	0.000238
425.01999	3.76675499	14.8102041	6.92708048	15.89775	210.325	83.781519	70.8	71.3	78	74.8	0.000239
430.01999	3.7686308	14.8094545	6.9258296	15.8975	210.325	84.799582	70.7	71.3	78	74.8	0.00024
435.01999	3.77988566	14.8102041	6.9258296	15.897	210.3	84.675428	70.8	71.3	78	74.8	0.000239
440.01999	3.76112756	14.8087049	6.92708048	15.8985	210.35	84.874074	70.8	71.3	78	74.7	0.000239
445.01999	3.76925607	14.8087049	6.92645504	15.89225	210.325	84.253304	70.8	71.3	78	74.8	0.00024
450.01999	3.77926039	14.8079553	6.92645504	15.89625	210.3	84.551274	70.8	71.3	78	74.7	0.000239
455.01999	3.77613404	14.8087049	6.92395328	15.897	210.325	84.029827	70.7	71.3	78	74.8	0.000239
460.01999	3.77613404	14.8094545	6.92645504	15.897	220.325	84.576105	70.7	71.3	78	74.7	0.000241
465.01999	3.76675499	14.8087049	6.92457872	15.89775	220.35	84.774751	70.7	71.3	78	74.8	0.00024
470.01999	3.77738458	14.8079553	6.92457872	15.89775	220.35	84.352628	70.7	71.3	78	74.7	0.00024
475.01999	3.77863512	14.8072056	6.92457872	15.897	220.35	84.476782	70.7	71.3	78	74.8	0.00024
480.01999	3.77363296	14.8087049	6.92457872	15.89775	220.375	84.625766	70.7	71.3	78	74.7	0.000241
485.01999	3.7686308	14.8087049	6.92395328	15.89775	220.325	84.675428	70.6	71.3	78	74.8	0.000241
490.01999	3.76925607	14.8094545	6.92395328	15.89775	220.35	84.551274	70.6	71.3	78	74.7	0.000242
495.01999	3.78988968	14.8094545	6.92457872	15.89775	220.35	84.501612	70.6	71.3	78	74.8	0.000241
500.01999	3.76300337	14.8087049	6.92395328	15.89775	220.325	83.905673	70.6	71.3	78	74.7	0.00024
505.01999	3.77300769	14.8079553	6.92457872	15.89775	220.375	84.576105	70.5	71.3	78	74.8	0.000241
510.01999	3.77675931	14.8087049	6.92395328	15.8985	220.375	84.42712	70.5	71.3	78	74.7	0.000241
515.01999	3.76175283	14.8079553	6.92395328	15.89625	220.35	84.153981	70.5	71.3	77.9	74.8	0.000241
520.01999	3.7811362	14.8087049	6.92332784	15.89775	220.375	84.029827	70.5	71.3	77.9	74.7	0.000241
525.01999	3.78488782	14.8094545	6.92332784	15.89775	220.325	84.451951	70.5	71.3	78	74.8	0.000241
530.06	3.77300769	14.8102041	6.92520416	15.89775	220.35	84.526443	70.5	71.3	78	74.7	0.000241
535.01999	3.77238242	14.8094545	6.92332784	15.8985	230.35	84.476782	70.6	71.3	78	74.7	0.000241
540.01999	3.78801417	14.8087049	6.92332784	15.897	230.325	84.625766	70.6	71.3	78	74.7	0.000242
545.06	3.76487918	14.8087049	6.92332784	15.897	230.325	84.476782	70.6	71.3	77.9	74.8	0.000242
550.01999	3.77113188	14.8094545	6.92145152	15.89775	230.35	84.402289	70.6	71.3	78	74.7	0.000243
555.01999	3.76800553	14.8087049	6.92332784	15.89775	230.4	86.5874	70.6	71.3	78	74.7	0.000241
560.01999	3.77050661	14.8079553	6.92457872	15.897	230.325	87.282662	70.5	71.3	78	74.6	0.000241
565.01999	3.77675931	14.8102041	6.92395328	15.89775	230.325	84.898905	70.5	71.3	77.9	74.7	0.00024
570.01999	3.77675931	14.8087049	6.92207696	15.8985	230.35	85.34586	70.5	71.3	77.9	74.6	0.00024
575.01999	3.7673889	14.8094545	6.92145152	15.8985	230.35	85.792814	70.5	71.3	78	74.7	0.000243
580.01999	3.76487918	14.8079553	6.92395328	15.89775	230.4	85.96663	70.5	71.3	78	74.7	0.000241
585.01999	3.77050661	14.8087049	6.92457872	15.8985	230.35	85.04789	70.5	71.3	78	74.7	0.000242
590.03	3.7673889	14.8102041	6.92395328	15.8985	230.35	85.37069	70.5	71.3	78	74.8	0.000242
595.01999	3.77926039	14.8079553	6.92207696	15.8985	230.35	84.302966	70.5	71.3	78	74.7	0.000242
600.01999	3.7686308	14.8087049	6.92145152	15.89775	230.375	84.700259	70.5	71.3	78	74.7	0.000241
605.07001	3.77300769	14.8094545	6.92207696	15.89775	230.35	84.302966	70.5	71.3	78	74.8	0.000242

Flammable Gas Interlock Spoolpiece Testing

FGI21312.XLS

SECONDS	MAIN DUCT DIFF(IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF(IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CEL (VOLTS)
610.01999	3.78551309	14.8094545	6.92082608	15.89775	230.35	84.451951	70.6	71.3	77.9	74.7	0.000242
615.01999	3.77738458	14.8072056	6.92082608	15.89775	230.375	83.80635	70.5	71.3	77.9	74.7	0.000241
620.01999	3.76988134	14.8079553	6.92145152	15.89775	230.35	83.756688	70.6	71.3	77.9	74.6	0.000242
625.01999	3.7686308	14.8087049	6.92145152	15.89775	230.35	84.302966	70.5	71.3	78	74.8	0.000242
630.01999	3.7686308	14.8094545	6.92082608	15.89775	230.325	84.476782	70.5	71.3	77.9	74.7	0.000242
635.06	3.77675931	14.8094545	6.92145152	15.8985	230.375	84.551274	70.6	71.3	78	74.8	0.000243
640.01999	3.77113188	14.8079553	6.92145152	15.89775	230.375	83.781519	70.6	71.2	77.9	74.7	0.000243
645.01999	3.78301201	14.8094545	6.92145152	15.89775	230.325	83.80635	70.6	71.3	78	74.8	0.000242
650.04999	3.76675499	14.8094545	6.92145152	15.89775	230.3	84.029827	70.6	71.3	78	74.8	0.000241
655.01999	3.76925607	14.8087049	6.92145152	15.89775	230.3	84.526443	70.6	71.3	78	74.8	0.000243
660.01999	3.77238242	14.8079553	6.92145152	15.8985	230.35	84.501612	70.6	71.3	77.9	74.7	0.000242
665.06	3.76925607	14.8079553	6.92145152	15.89775	230.375	84.352628	70.6	71.3	77.9	74.8	0.000241
670.01999	3.76675499	14.8087049	6.92020064	15.8985	230.325	84.650597	70.6	71.3	77.9	74.8	0.000241
675.01999	3.79176579	14.8079553	6.91894976	15.89775	230.375	84.153981	70.6	71.3	77.9	74.7	0.000243
680.04001	3.79426887	14.8079553	6.9195752	15.89775	230.35	84.402289	70.5	71.3	78	74.7	0.000241
685.01999	3.77300769	14.8087049	6.9195752	15.89775	230.35	84.72509	70.5	71.3	78	74.7	0.000242
690.01999	3.76988134	14.8079553	6.92020064	15.89775	230.35	84.377458	70.5	71.2	78	74.8	0.000242
695.04001	3.77425823	14.8087049	6.92082608	15.89775	230.35	84.178812	70.5	71.3	77.9	74.8	0.000243
700.01999	3.76738026	14.8087049	6.91894976	15.89775	240.4	83.657365	70.5	71.3	78	74.8	0.000243
705.01999	3.77113188	14.8094545	6.9195752	15.89775	240.35	83.334565	70.6	71.3	77.9	74.7	0.000243
710.04999	3.77300769	14.8087049	6.91769888	15.89775	236.075	83.334565	70.4	71.3	77.9	74.7	0.000242
715.01999	3.76425391	14.8079553	6.91894976	15.89775	240.375	83.48355	70.4	71.3	78	74.8	0.000243
720.01999	3.77988566	14.8087049	6.91832432	15.89775	240.375	83.111088	70.4	71.3	77.9	74.7	0.000243
725.01999	3.77675931	14.8087049	6.9195752	15.89775	240.4	83.458719	70.5	71.3	77.9	74.8	0.000243
730.01999	3.76925607	14.8087049	6.9195752	15.89775	230.375	83.856012	70.5	71.2	77.9	74.7	0.000242
735.01999	3.7623781	14.8072056	6.9195752	15.89775	240.15	83.284903	70.6	71.3	77.9	74.8	0.000243
740.01999	3.77800985	14.8072056	6.91832432	15.89775	240.35	84.973398	70.6	71.3	77.9	74.7	0.000242
745.01999	3.77363296	14.8079553	6.92020064	15.89775	240.4	84.998228	70.6	71.3	77.9	74.8	0.000242
750.01999	3.78426255	14.8094545	6.9195752	15.8985	240.4	85.147213	70.6	71.3	77.9	74.7	0.000242
755.06	3.77300769	14.8079553	6.916448	15.89775	230.925	84.526443	70.6	71.3	77.9	74.8	0.000243
760.01999	3.76988134	14.8087049	6.91769888	15.8985	240.375	84.650597	70.6	71.3	77.9	74.7	0.000243
765.01999	3.77300769	14.8087049	6.9195752	15.89775	240.375	83.905673	70.7	71.3	77.9	74.8	0.000242
770.07001	3.77988566	14.8087049	6.91707344	15.89775	230.9	83.358396	70.7	71.3	77.9	74.7	0.000242
775.01999	3.78613836	14.806456	6.91707344	15.8985	240.375	83.930504	70.7	71.2	78	74.8	0.000243
780.01999	3.7686308	14.8079553	6.91894976	15.89775	240.375	83.930504	70.7	71.2	77.9	74.7	0.000243
785.03	3.77300769	14.8087049	6.91769888	15.89775	240.4	83.260072	70.7	71.2	77.9	74.7	0.000242
790.01999	3.77425823	14.8087049	6.916448	15.89775	240.325	82.763456	70.7	71.2	77.9	74.7	0.000243
795.01999	3.77238242	14.8087049	6.91769888	15.89775	240.4	82.614472	70.7	71.2	77.9	74.8	0.000242
800.07001	3.77300769	14.8079553	6.91769888	15.89775	230.475	83.036595	70.8	71.2	77.9	74.7	0.000242
805.01999	3.78551309	14.8094545	6.91769888	15.89775	240.4	83.682196	70.8	71.2	78	74.8	0.000243
810.01999	3.77363296	14.8094545	6.91894976	15.89775	240.375	83.235242	70.7	71.2	78	74.7	0.000243
815.04999	3.77363296	14.8087049	6.91707344	15.89775	240.4	83.856012	70.7	71.2	77.9	74.7	0.000243

Flammable Gas Interlock Spoolpiece Testing

FGI21312.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CEL (VOLTS)
820.01999	3.76050229	14.8079553	6.91707344	15.89775	240.4	83.731858	70.7	71.3	77.9	74.7	0.000243
825.01999	3.76550445	14.8079553	6.91707344	15.897	231.125	84.849244	70.6	71.2	77.9	74.8	0.000242
830.04999	3.77550877	14.8049568	6.91769888	15.89775	239.575	85.221706	70.8	71.3	77.9	74.8	0.000243
835.01999	3.7686308	14.8079553	6.91707344	15.89775	236.675	82.713795	70.7	71.2	77.9	74.7	0.000242
840.01999	3.78176147	14.8057064	6.91582256	15.89775	230.375	85.867306	70.7	71.3	77.9	74.8	0.000242
845.03	3.77550877	14.8087049	6.91519712	15.8985	230.4	83.582873	70.7	71.3	77.9	74.7	0.000242
850.01999	3.77613404	14.8087049	6.91519712	15.89775	240.35	83.965335	70.6	71.2	77.9	74.7	0.000242
855.01999	3.75800121	14.8049568	6.91582256	15.89775	240.375	83.48355	70.8	71.2	77.9	74.7	0.000242
860.04001	3.77550877	14.8087049	6.91519712	15.897	240.4	83.756688	70.8	71.2	78	74.8	0.000243
865.01999	3.77113188	14.8057064	6.91519712	15.8985	240.4	83.731858	70.7	71.2	77.9	74.8	0.000242
870.01999	3.75987702	14.8079553	6.91457168	15.89775	240.4	84.079489	70.8	71.2	77.9	74.7	0.000242
875.04001	3.77363296	14.8057064	6.91519712	15.897	240.35	83.50836	70.7	71.2	77.9	74.7	0.000242
880.01999	3.75362432	14.8057064	6.9133208	15.89775	240.375	83.657365	70.7	71.2	77.9	74.8	0.000243
885.03	3.77113188	14.8087049	6.91519712	15.89775	240.4	83.682196	70.7	71.2	77.9	74.7	0.000243
890.07999	3.78613836	14.8057064	6.91519712	15.89775	240.35	83.80635	70.7	71.2	78	74.8	0.000243
895.01999	3.78176147	14.8087049	6.9133208	15.8985	240.375	83.607704	70.6	71.2	78	74.8	0.000243
900.01999	3.76425391	14.8072056	6.91582256	15.89775	240.4	84.377458	70.7	71.2	77.9	74.8	0.000243
905.04001	3.76675499	14.8094545	6.91457168	15.8985	240.375	83.80635	70.6	71.2	77.9	74.7	0.000243
910.01999	3.75800121	14.8072056	6.91394624	15.8955	240.375	83.781519	70.6	71.2	77.9	74.8	0.000243
915.01999	3.78301201	14.8057064	6.9133208	15.89625	240.4	84.278135	70.6	71.2	77.9	74.8	0.000243

TEST: FGI21313 13 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 235ppm

SECOND	MAIN DUCT DIFF (IN H2)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUC TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
0.01001	3.77863512	14.8072056	-0.002294368	14.763	0.16	17.930238	70.5	70.7	78	74.8	0.000206
5.02002	3.7686308	14.806456	6.89956112	15.8805	0.09	15.372665	70.5	70.8	78	74.7	0.000205
10.03	3.77238242	14.8072056	6.90769184	15.8805	0.125	6.8557008	70.4	70.8	78	74.7	0.000205
15.02002	3.76738026	14.8087049	6.91519712	15.88275	0.155	37.54657	70.5	70.9	77.9	74.7	0.000205
20.15002	3.77675931	14.8057064	6.91582256	15.8805	0.115	64.413495	70.4	70.9	77.9	74.8	0.000206
25.12003	3.77300769	14.8072056	6.91394624	15.88125	0.1325	77.59865	70.5	71	77.9	74.7	0.000206
30.12003	3.77238242	14.8072056	6.90956816	15.8775	0.1175	83.632534	70.4	71	78	74.8	0.000207
35.02002	3.78613836	14.8079553	6.9070664	15.87825	0.1325	85.594168	70.4	71.1	78	74.9	0.000207
40.02002	3.77926039	14.8072056	6.90018656	15.87375	0.175	86.61223	70.4	71.1	77.9	74.7	0.000209
45.02002	3.77238242	14.8087049	6.89205584	15.87375	10.0825	86.413584	70.5	71.1	77.9	74.8	0.00021
50.20001	3.76988134	14.8072056	6.89080496	15.87375	10.1225	86.413584	70.6	71.1	77.9	74.7	0.00021
55.16	3.77926039	14.806456	6.88580144	15.87075	20.15	86.512907	70.5	71.2	77.9	74.8	0.000211
60.06003	3.76800553	14.806456	6.88455056	15.87	20.125	86.363922	70.5	71.2	77.9	74.7	0.000211
65.03	3.76800553	14.806456	6.88017248	15.86775	30.125	85.842476	70.5	71.2	77.9	74.8	0.000213
70.13	3.77863512	14.8072056	6.87829616	15.86775	30.2	85.892137	70.5	71.2	77.9	74.7	0.000214
75.36002	3.77926039	14.8079553	6.87829616	15.86775	40.1	86.463246	70.5	71.2	78	74.7	0.000214
80.02002	3.77863512	14.8057064	6.87329264	15.8685	40.2	85.817645	70.5	71.2	77.9	74.7	0.000215
85.02002	3.77238242	14.806456	6.87329264	15.86775	50.2	85.817645	70.6	71.2	77.9	74.8	0.000217
90.02002	3.78301201	14.806456	6.87391806	15.86925	50.175	86.065953	70.6	71.3	77.9	74.7	0.000217
95.02002	3.77113188	14.8087049	6.86954	15.8685	60.2	85.842476	70.6	71.2	77.9	74.8	0.000218
100.02	3.77425823	14.8057064	6.86891456	15.8685	60.175	86.488076	70.6	71.2	78	74.8	0.000217
105.19	3.7686308	14.8072056	6.86766368	15.8685	70.2	86.214938	70.6	71.3	78	74.9	0.00022
110.35	3.78801417	14.8079553	6.86703824	15.8685	70.15	86.339092	70.6	71.3	78	74.8	0.000219
115.02	3.77613404	14.8072056	6.86766368	15.8685	80.175	86.090784	70.6	71.3	78	74.8	0.00022
120.02	3.77550877	14.8072056	6.86766368	15.8685	80.225	86.140445	70.6	71.3	77.9	74.8	0.00022
125.05	3.77926039	14.8057064	6.86578736	15.86775	90.225	86.214938	70.6	71.3	77.9	74.8	0.000221
130.02	3.76800553	14.806456	6.86578736	15.86775	90.175	86.413584	70.6	71.3	77.9	74.7	0.000221
135.02	3.77926039	14.806456	6.86516192	15.86775	90.175	86.512907	70.6	71.3	78	74.8	0.000223
140.02	3.77988566	14.8057064	6.86260016	15.867	100.225	86.61223	70.6	71.3	77.9	74.8	0.000222
145.02	3.77926039	14.806456	6.8632856	15.86775	100.25	86.413584	70.6	71.3	77.9	74.8	0.000224
150.02	3.77550877	14.806456	6.86391104	15.86925	110.225	86.28943	70.6	71.3	77.9	74.7	0.000223
155.02	3.77300769	14.806456	6.8601584	15.8685	110.225	86.264599	70.7	71.3	77.9	74.7	0.000224
160.07	3.77926039	14.806456	6.86078384	15.86775	110.225	86.488076	70.7	71.4	78	74.8	0.000224
165.02	3.77113188	14.8057064	6.86078384	15.8685	120.25	86.214938	70.8	71.3	77.9	74.7	0.000225
170.02	3.77238242	14.806456	6.85890752	15.8685	120.25	86.562569	70.7	71.4	78	74.8	0.000225
175.02	3.76175283	14.806456	6.8570312	15.86775	120.25	86.264599	70.7	71.4	78	74.8	0.000226
180.02	3.7686308	14.806456	6.85953296	15.867	129.75	86.959862	70.7	71.3	78.1	74.8	0.000225
185.02	3.77738458	14.8072056	6.85640576	15.86775	130.2	86.090784	70.8	71.4	78	74.8	0.000227

SECOND	MAIN DUCT DIFF (IN H2)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUC TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
190.02	3.78613836	14.8057064	6.8570312	15.867	130.275	86.165276	70.7	71.4	78	74.8	0.000226
195.02	3.79051525	14.8079553	6.85640576	15.8685	130.25	86.388753	70.8	71.4	78	74.8	0.000227
200.02	3.78551309	14.8072056	6.85640576	15.867	140.25	86.761215	70.7	71.4	78	74.8	0.000228
205.02	3.78238674	14.8072056	6.85640576	15.8685	140.225	85.867306	70.7	71.4	78	74.8	0.000229
210.02	3.77863512	14.8072056	6.85640576	15.867	140.275	85.618998	70.7	71.4	77.9	74.8	0.000229
215.02	3.77675931	14.8079553	6.8570312	15.867	140.25	85.941799	70.8	71.4	78	74.8	0.000229
220.02	3.77863512	14.806456	6.85452944	15.8685	141.075	87.381985	70.9	71.4	77.9	74.7	0.000229
225.02	3.76988134	14.8057064	6.85452944	15.86775	150.275	88.251063	70.9	71.4	78	74.8	0.00023
230.02	3.77675931	14.8087049	6.85515488	15.86775	150.275	87.977924	70.9	71.4	77.9	74.8	0.000229
235.02	3.77300769	14.8072056	6.85327856	15.86775	150.275	86.463246	70.9	71.4	77.9	74.8	0.00023
240.02	3.76988134	14.806456	6.85265312	15.86775	150.275	86.090784	71	71.4	78	74.7	0.000231
245.04	3.7811362	14.8079553	6.853904	15.86775	150.3	86.388753	71	71.4	78	74.9	0.000232
250.09	3.78551309	14.8079553	6.84952592	15.867	160.275	86.239768	70.9	71.4	77.9	74.7	0.000231
255.02	3.78863944	14.8079553	6.85202768	15.867	160.275	86.090784	70.8	71.4	77.9	74.8	0.000231
260.02	3.77613404	14.8072056	6.85140224	15.8685	160.275	86.090784	70.9	71.4	78	74.8	0.000232
265.02	3.77863512	14.8087049	6.8507768	15.8685	160.3	88.524202	70.8	71.4	78	74.8	0.000232
270.02	3.7748835	14.8072056	6.85015136	15.86775	160.2	88.596694	70.8	71.4	78	74.8	0.000233
275.02	3.76112756	14.806456	6.8507768	15.86775	170.3	88.400048	70.9	71.4	77.9	74.8	0.000233
280.02	3.77988566	14.806456	6.85015136	15.86775	170.275	85.693491	70.9	71.5	78	74.8	0.000233
285.03	3.7748835	14.8079553	6.85202768	15.8685	170.25	85.867306	70.8	71.5	78	74.8	0.000233
290.02	3.77863512	14.8087049	6.85015136	15.86775	170.275	85.867306	70.8	71.5	78	74.8	0.000233
295.02	3.78488782	14.8049568	6.85327856	15.86625	170.275	86.810877	70.8	71.4	77.9	74.7	0.000233
300.02	3.78051093	14.806456	6.8507768	15.86775	170.35	86.562569	70.8	71.5	77.9	74.8	0.000234
305.02	3.77300769	14.8087049	6.8507768	15.86775	170.275	86.761215	70.8	71.5	77.9	74.8	0.000233
310.02	3.7811362	14.8049568	6.85015136	15.867	180.3	85.941799	70.8	71.4	78	74.8	0.000234
315.02	3.78488782	14.8072056	6.85015136	15.86775	180.325	85.99146	70.9	71.5	77.9	74.8	0.000233
320.02	3.77926039	14.8057064	6.8507768	15.86775	180.275	86.860538	70.8	71.5	78	74.8	0.000235
325.02	3.77926039	14.806456	6.84890048	15.86775	180.3	86.686723	70.9	71.5	78	74.7	0.000234
330.02	3.78613836	14.8057064	6.84890048	15.8685	180.3	85.96663	71	71.5	78	74.8	0.000235
335.02	3.7811362	14.8057064	6.8476496	15.86775	180.25	86.041122	71.1	71.5	78	74.8	0.000235
340.02	3.76425391	14.8057064	6.84827504	15.8685	180.325	86.165276	71	71.5	77.9	74.8	0.000236
345.02	3.77800985	14.806456	6.84890048	15.86775	180.325	86.339092	71	71.5	78	74.8	0.000235
350.02	3.77300769	14.806456	6.85202768	15.86775	190.275	86.314261	71	71.5	78	74.8	0.000235
355.02	3.77863512	14.8072056	6.85140224	15.8685	190.325	86.016291	71	71.5	77.9	74.8	0.000235
360.02	3.77175715	14.806456	6.84890048	15.8685	190.325	86.190107	71	71.5	78	74.8	0.000236
365.02	3.7811362	14.806456	6.84827504	15.8685	190.3	86.190107	71	71.5	78	74.8	0.000236
370.03	3.77988566	14.8049568	6.84952592	15.86775	190.325	86.935031	70.9	71.5	78	74.8	0.000236
375.02	3.77863512	14.8049568	6.84890048	15.867	190.3	86.363922	71	71.5	78	74.8	0.000235
380.02	3.7873889	14.8072056	6.84827504	15.86775	190.325	85.96663	71	71.5	78	74.8	0.000236
385.02	3.77175715	14.8057064	6.84952592	15.86775	190.325	86.810877	71.1	71.5	78	74.8	0.000236
390.02	3.78176147	14.8057064	6.84827504	15.867	190.325	86.5874	71.2	71.5	78	74.8	0.000236
395.02	3.7811362	14.8079553	6.84952592	15.867	190.325	86.438415	71.1	71.5	78.1	74.9	0.000237

Flammable Gas Interlock Spoolpiece Testing

FGI21313.XLS

SECOND	MAIN DUCT DIFF (IN H2)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUC TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
400.07	3.77425823	14.8057064	6.84952592	15.867	200.25	86.5874	71.1	71.5	78	74.8	0.000237
405.02	3.78488782	14.8072056	6.84702416	15.867	200.3	86.5874	71.1	71.5	78	74.8	0.000237
410.08	3.77926039	14.8079553	6.84890048	15.86775	200.3	86.140445	71.1	71.5	78	75.6	0.000237
415.02	3.77238242	14.8072056	6.84952592	15.867	200.275	85.68686	71	71.5	78	75.4	0.000237
420.02	3.79051525	14.8079553	6.84639872	15.867	200.325	86.463246	71	71.5	78	75.2	0.000238
425.02	3.7811362	14.8072056	6.84702416	15.8685	200.3	86.115614	71.1	71.5	78	75	0.000237
430.02	3.7748835	14.806456	6.84639872	15.86775	200.325	85.941799	71.1	71.5	78	75	0.000238
435.02	3.78551309	14.8049568	6.84639872	15.86775	200.35	86.041122	71.2	71.5	78	74.9	0.000238
440.02	3.77675931	14.8072056	6.84952592	15.86775	200.275	86.140445	71.2	71.5	78	74.9	0.000238
445.02	3.77050661	14.8072056	6.8476496	15.8685	200.35	86.041122	71.2	71.5	78	74.9	0.000238
450.02	3.76112756	14.8057064	6.84827504	15.8685	200.325	85.817645	71.2	71.5	78	74.8	0.000238
455.02	3.78551309	14.8057064	6.84639872	15.8685	200.3	86.214938	71.2	71.5	78.1	74.8	0.000238
460.02	3.78551309	14.806456	6.8476496	15.86775	200.3	86.661892	71.1	71.5	77.9	74.7	0.000238
465.02	3.7748835	14.8072056	6.84639872	15.86775	200.3	85.892137	71.1	71.5	78.1	74.9	0.000238
470.02	3.77613404	14.8072056	6.84639872	15.867	210.3	86.686723	71.2	71.5	78	74.8	0.000238
475.02	3.7811362	14.806456	6.84702416	15.8685	210.325	86.786046	71.3	71.5	78.1	74.9	0.000238
480.02	3.77300769	14.8087049	6.84639872	15.86775	210.3	86.637061	71.5	71.5	78	74.8	0.000238
485.02	3.76301201	14.8079553	6.84890048	15.86775	210.35	86.736384	71.4	71.5	78	74.8	0.000238
490.02	3.7748835	14.8072056	6.84827504	15.86775	210.35	86.835708	71.4	71.5	78.1	74.8	0.000239
495.02	3.77050661	14.8072056	6.8507768	15.86775	210.275	86.711554	71.3	71.5	78	74.8	0.000238
500.02	3.77675931	14.806456	6.84702416	15.86775	210.3	86.239768	71.3	71.5	78.1	74.9	0.000239
505.02	3.77926039	14.806456	6.8507768	15.86775	210.35	86.214938	71.3	71.5	78	74.9	0.000238
510.05	3.78238674	14.8109537	6.84639872	15.86775	210.3	86.214938	71.2	71.5	78	74.9	0.00024
515.02	3.77238242	14.8072056	6.84890048	15.867	210.325	86.065953	71.2	71.5	78.1	74.8	0.00024
520.02	3.77300769	14.8079553	6.84827504	15.87	210.275	85.792814	71.2	71.5	78	74.8	0.000238
525.02	3.7748835	14.8057064	6.84827504	15.87	210.325	85.96663	71.2	71.5	78.1	74.9	0.000239
530.02	3.77738458	14.8094545	6.84827504	15.87	210.325	86.438415	71.2	71.5	78	74.8	0.000238
535.02	3.7811362	14.8079553	6.84827504	15.87075	210.3	86.140445	71.3	71.5	78	74.8	0.000239
540.05	3.77800985	14.8087049	6.84827504	15.87075	210.325	85.99146	71.2	71.6	78	74.9	0.00024
545.02	3.77300769	14.8057064	6.85015136	15.87	210.3	86.065953	71.1	71.5	78	74.8	0.00024
550.02	3.77050661	14.8072056	6.84890048	15.87	210.35	86.28943	71.1	71.5	78	74.8	0.000239
555.03	3.77425823	14.8087049	6.8507768	15.87075	210.3	85.817645	71.2	71.5	78.1	74.9	0.000239
560.2	3.76425391	14.8079553	6.8507768	15.87075	210.35	86.140445	71.3	71.5	78	74.8	0.000239
565.02	3.77675931	14.8079553	6.8507768	15.8715	210.325	86.140445	71.4	71.5	78.1	74.9	0.000239
570.02	3.79051525	14.8087049	6.8507768	15.87	210.3	88.77251	71.3	71.5	78.1	74.8	0.00024
575.06	3.78676363	14.8087049	6.85140224	15.87075	210.35	88.722648	71.2	71.5	78	74.8	0.00024
580.02	3.77738458	14.8079553	6.85015136	15.87	210.35	88.499371	71.1	71.5	78.1	74.9	0.00024
585.02	3.77050661	14.8057064	6.85327856	15.87075	220.3	88.226232	71.1	71.5	78	74.9	0.000239
590.05	3.77050661	14.8072056	6.85140224	15.87075	220.325	85.817645	71.1	71.5	78	74.9	0.000239
595.02	3.7686308	14.806456	6.85202768	15.87075	210.325	86.28943	71.1	71.5	78	74.8	0.000239
600.02	3.7748835	14.8072056	6.8507768	15.87375	210.325	86.314261	71	71.5	78	74.8	0.00024
605.02	3.77926039	14.8072056	6.85140224	15.873	220.35	86.562569	71.1	71.5	78.1	74.9	0.000239

Flammable Gas Interlock Spoolpiece Testing

FGI21313.XLS

SECOND	MAIN DUCT	MAIN DUCT	GAS INJECT	GAS INJECT	NEWPORT	SMC	AMBIENT	GAS INJECT	MAIN DUC	WEC CELL	WEC CELL
	DIFF (IN H2)	ABS (PSIA)	DIFF (IN H2O)	ABS (PSIA)	(PPM)	(PPM)	TEMP.(F)	TEMP.(F)	TEMP.(F)	TEMP.(F)	(VOLTS)
610.02	3.79114052	14.806456	6.85202768	15.873	211.9	86.363922	71.1	71.5	78	74.8	0.00024
615.02	3.77238242	14.8087049	6.85265312	15.873	220.35	86.5874	71.1	71.5	77.9	74.8	0.00024
620.02	3.78488782	14.8087049	6.85452944	15.873	220.35	86.61223	71	71.5	78	74.8	0.00024
625.02	3.77175715	14.8087049	6.85265312	15.873	220.35	85.96663	71	71.5	77.9	74.8	0.00024
630.02	3.77238242	14.8072056	6.85515488	15.87375	220.35	85.916968	70.9	71.5	78	74.8	0.000239
635.02	3.77675931	14.8079553	6.85515488	15.87375	220.3	86.041122	71	71.5	77.9	74.8	0.00024
640.02	3.78551309	14.8087049	6.85452944	15.873	220.35	86.115614	70.9	71.5	78	74.8	0.000239
645.02	3.77363296	14.806456	6.85578032	15.873	220.35	86.016291	70.9	71.5	78	74.9	0.000241
650.04	3.79051525	14.8102041	6.85515488	15.87225	220.35	85.494844	71	71.5	77.9	74.8	0.00024
655.02	3.77550877	14.8094545	6.85640576	15.87375	220.35	85.693491	71	71.5	78.1	74.9	0.000239
660.02	3.77238242	14.8094545	6.85640576	15.873	220.35	86.041122	71	71.5	78	74.9	0.000241
665.05	3.77238242	14.8102041	6.85640576	15.873	220.35	86.041122	70.9	71.5	78	74.8	0.00024
670.02	3.77926039	14.8102041	6.85765664	15.8745	220.35	86.165276	70.9	71.5	78	74.8	0.000241
675.02	3.77926039	14.8087049	6.85765664	15.873	220.325	86.28943	70.9	71.5	78	74.8	0.00024
680.11	3.77238242	14.8087049	6.85890752	15.873	220.325	86.264599	71	71.5	78.1	74.9	0.000239
685.02	3.76675499	14.8057064	6.85890752	15.873	220.35	86.339092	71	71.5	78	74.8	0.000241
690.02	3.77863512	14.806456	6.85890752	15.87375	220.35	86.363922	71	71.5	78	74.9	0.00024
695.03	3.76800553	14.8087049	6.86140928	15.873	220.35	86.264599	71	71.5	78	74.8	0.00024
700.02	3.77300769	14.8094545	6.86078384	15.876	220.325	86.438415	71	71.5	78	74.8	0.000241
705.02	3.78176147	14.8094545	6.86266016	15.87525	220.35	86.686723	71	71.5	78	74.8	0.000239
710.05	3.7748835	14.8087049	6.86266016	15.876	220.325	86.5874	71	71.5	78	74.9	0.00024
715.02	3.77863512	14.8087049	6.8632856	15.87525	220.325	86.438415	71	71.5	77.9	74.8	0.00024
720.02	3.76487918	14.8087049	6.86516192	15.876	220.35	86.339092	71	71.5	78.1	74.9	0.000241
725.02	3.7748835	14.8087049	6.86578736	15.87525	220.35	86.61223	71.2	71.5	78	74.8	0.000241
730.02	3.7686308	14.8087049	6.86703824	15.87525	220.325	86.512907	71.2	71.5	78.1	74.9	0.00024
735.02	3.78926471	14.8087049	6.86766368	15.879	220.35	86.28943	71.1	71.5	78	74.8	0.000241
740.02	3.77050661	14.8087049	6.86766368	15.876	220.325	86.214938	71.1	71.5	78.1	74.9	0.000241
745.02	3.76487918	14.8087049	6.86954	15.879	220.35	86.339092	71.1	71.5	78	74.8	0.00024
750.02	3.77926039	14.8094545	6.86954	15.879	220.35	86.339092	71.1	71.5	78	74.9	0.00024
755.06	3.76800553	14.8087049	6.87079088	15.87825	220.35	86.761215	71.1	71.5	78	74.8	0.00024
760.02	3.77550877	14.8087049	6.87329264	15.87825	220.35	86.28943	71	71.5	78	74.8	0.000241
765.02	3.78426255	14.8094545	6.87329264	15.8805	220.35	86.463246	71	71.5	78	74.9	0.000241
770.22	3.7873889	14.8102041	6.8757944	15.8805	220.35	86.860538	71	71.5	78	74.9	0.000241
775.06	3.78863944	14.806456	6.87767072	15.8805	220.35	87.307493	70.9	71.5	78	74.9	0.00024
780.02	3.78613836	14.8094545	6.87954704	15.8805	220.325	86.835708	70.9	71.5	78	74.8	0.000241
785.02	3.77600985	14.8087049	6.87954704	15.88125	220.375	86.562569	70.8	71.5	78	74.9	0.00024
790.02	3.78176147	14.8094545	6.8820488	15.8805	220.35	86.463246	70.8	71.5	78	74.8	0.000242
795.02	3.77738458	14.8094545	6.88392512	15.8835	220.35	86.835708	70.8	71.5	78	74.9	0.00024
800.02	3.77926039	14.8094545	6.88455056	15.8835	220.35	86.935031	70.8	71.5	78	74.8	0.000242
805.02	3.77863512	14.8087049	6.88642688	15.8835	220.35	87.059185	70.8	71.5	78.1	74.8	0.000241
810.02	3.77675931	14.8094545	6.88767776	15.88275	220.35	89.641588	70.8	71.5	78	74.8	0.000242
815.02	3.77926039	14.8109537	6.889205584	15.88575	230.375	86.512907	70.8	71.6	78.1	74.9	0.000242

Flammable Gas Interlock Spoolpiece Testing

FGI21313.XLS

SECOND	MAIN DUCT DIFF (IN H2)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUC TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
820.02	3.79239106	14.8094545	6.8914304	15.88575	230.35	86.637061	70.8	71.5	78	74.9	0.00024
825.02	3.78551309	14.8094545	6.89643392	15.88875	230.35	86.885369	70.8	71.5	78.1	74.9	0.000241
830.02	3.79176579	14.8102041	6.89693568	15.888	230.4	86.388753	70.8	71.5	78	74.8	0.000242
835.03	3.80864808	14.8087049	6.90331376	15.888	230.3	88.300725	70.8	71.5	78.1	74.8	0.00024
840.02	3.80302065	14.8102041	6.90268832	15.88875	230.375	86.264599	70.7	71.5	78	74.9	0.000241
845.02	3.79239106	14.8094545	6.9070664	15.89025	230.35	86.239768	70.7	71.5	78	74.8	0.000241
850.03	3.77926039	14.8094545	6.90694272	15.891	230.325	86.314281	70.7	71.5	78.1	74.9	0.000242
855.02	3.79676795	14.8087049	6.91144448	15.89325	230.4	86.810877	70.7	71.5	78	74.8	0.000241
860.02	3.78926471	14.8109537	6.916448	15.89325	230.35	86.959862	70.6	71.5	78	74.8	0.000241
865.02	3.78551309	14.8094545	6.916448	15.89475	230.375	86.562569	70.6	71.5	78.1	74.8	0.000241
870.02	3.80364592	14.8094545	6.92145152	15.8955	230.3	86.935031	70.7	71.5	78	74.8	0.000241
875.02	3.79489214	14.8087049	6.92207696	15.8955	230.35	86.661892	70.6	71.5	78	74.8	0.000241
880.04	3.79176579	14.8094545	6.9258296	15.89475	230.4	86.711554	70.6	71.5	78	74.8	0.000242
885.02	3.79239106	14.8087049	6.92833136	15.8985	230.325	86.512907	70.6	71.5	78	74.8	0.000242
890.02	3.80302065	14.8087049	6.932084	15.90075	230.375	86.537738	70.5	71.5	78	74.9	0.000242
895.02	3.77926039	14.8094545	6.9352112	15.90375	230.325	87.456478	70.5	71.5	77.9	74.8	0.000242
900.02	3.78613836	14.8094545	6.9383384	15.9045	230.35	87.804109	70.4	71.5	77.8	74.9	0.000242
905.02	3.78176147	14.8094545	6.9445928	15.9045	230.35	87.903432	70.3	71.5	77.8	74.8	0.000241
910.07	3.7748835	14.8087049	6.9445928	15.903	230.35	87.754447	70.3	71.5	77.7	74.9	0.000241
915.02	3.78801417	14.8102041	6.9508472	15.906	230.4	87.704786	70.2	71.5	77.7	74.9	0.000242

TEST: FGI21324 13 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 4054ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT PPM	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
0.0100098	3.7811362	14.8154515	-0.00285726	14.70075	41.175	-1.2143092	70.9	70.6	77.9	74.7	0.000213
5.0400085	3.77675931	14.8162011	1.77970928	14.7375	41.4	-1.2888016	70.9	70.4	77.9	74.6	0.000213
10.02002	3.76988134	14.8147019	1.76407328	14.7375	41.225	929.17094	70.8	70.6	77.9	74.7	0.000215
15.02002	3.77926039	14.8169507	1.7628224	14.7375	41.45	2296.8514	70.7	70.7	77.9	74.7	0.000215
20.02002	3.78488782	14.8162011	1.76157152	14.7375	51.125	3055.929	70.9	70.6	77.9	74.7	0.00022
25.02002	3.7811362	14.8162011	1.76219696	14.7375	136.15	3425.9079	70.9	70.6	77.9	74.7	0.000228
30.02002	3.77675931	14.8162011	1.76219696	14.7375	161.525	3601.2133	70.8	70.6	77.9	74.6	0.000237
35.02002	3.77738458	14.8162011	1.76344784	14.73675	241.525	3697.8051	70.8	70.6	77.9	74.6	0.000251
40.02002	3.77550877	14.8162011	1.76219696	14.7375	321.5	3745.4803	70.8	70.6	77.8	74.6	0.000263
45.02002	3.76675499	14.8154515	1.76219696	14.7375	414	3779.7468	70.8	70.7	77.9	74.6	0.000276
50.02002	3.77050661	14.8177003	1.7628224	14.7375	530.75	3805.0742	70.8	70.7	77.9	74.7	0.000291
55.02002	3.7811362	14.8162011	1.7628224	14.7375	611.75	3823.6973	70.8	70.6	78	74.7	0.000305
60.02002	3.77300769	14.8154515	1.7628224	14.7375	712	3833.8779	70.8	70.6	77.9	74.7	0.000319
65.02002	3.77113188	14.8162011	1.76344784	14.73675	812	3847.7832	70.8	70.7	77.9	74.7	0.000334
70.02002	3.78488782	14.8169507	1.76219696	14.7375	902.25	3864.4198	70.8	70.7	77.9	74.7	0.000348
75.02002	3.76362864	14.8169507	1.7628224	14.7375	991.25	3869.8826	70.8	70.7	77.9	74.7	0.000361
80.02002	3.78551309	14.8177003	1.76219696	14.7375	1082.5	3879.8149	70.7	70.7	77.9	74.7	0.000375
85.02002	3.78176147	14.8169507	1.7628224	14.7375	1172.75	3892.4786	70.7	70.7	77.9	74.7	0.000388
90.02002	3.77550877	14.8139522	1.76094608	14.73825	1262	3901.1694	70.7	70.7	77.9	74.7	0.000401
95.02002	3.77926039	14.8162011	1.7628224	14.739	1343	3905.6389	70.7	70.7	77.9	74.6	0.000413
100.02002	3.76863308	14.8154515	1.7628224	14.7375	1422.25	3911.1017	70.7	70.7	77.9	74.6	0.000426
105.02002	3.78988998	14.8162011	1.7628224	14.7375	1503	3906.8805	70.7	70.7	77.9	74.7	0.000436
110.02002	3.78238674	14.8162011	1.76219696	14.73675	1583	3918.0543	70.7	70.7	77.9	74.7	0.000448
115.02002	3.76863308	14.8139522	1.76344784	14.73825	1652.5	3923.2688	70.7	70.7	77.9	74.7	0.000458
120.05002	3.77425823	14.8139522	1.7628224	14.7375	1732.75	3927.7383	70.7	70.7	77.9	74.7	0.000469
125.02002	3.77863512	14.8162011	1.76032064	14.7375	1803.25	3936.1808	70.7	70.7	77.9	74.6	0.000479
130.02002	3.77988566	14.8132026	1.76094608	14.7375	1863	3944.6233	70.7	70.7	77.9	74.6	0.00049
135.02002	3.77800985	14.8139522	1.76094608	14.7375	1923.25	3948.5962	70.6	70.7	77.9	74.7	0.0005
140.02002	3.78551309	14.8177003	1.76219696	14.7375	1993	3957.0387	70.5	70.7	77.9	74.7	0.000509
145.02002	3.78801417	14.8169507	1.76094608	14.7375	2063	3958.2802	70.5	70.7	77.9	74.7	0.000518
150.02002	3.76988134	14.8162011	1.76032064	14.7375	2113	3965.9778	70.6	70.7	77.9	74.7	0.000528
155.02002	3.78551309	14.8177003	1.75906976	14.73675	2193.25	3967.4676	70.5	70.7	77.8	74.6	0.000535
160.04001	3.77238242	14.8169507	1.76094608	14.7375	2243.25	3965.9778	70.5	70.7	77.9	74.7	0.000545
165.02002	3.7748835	14.8169507	1.76094608	14.73825	2293.5	3967.4676	70.5	70.7	77.9	74.7	0.000554
170.02002	3.77800985	14.8162011	1.76032064	14.73825	2333.5	3964.2396	70.5	70.7	77.9	74.7	0.000561
175.02002	3.78551309	14.8162011	1.76032064	14.7375	2403.5	3972.1855	70.5	70.7	77.9	74.7	0.000568
180.02002	3.78613836	14.8162011	1.75906976	14.73825	2497.25	3976.1584	70.5	70.7	77.8	74.6	0.000576
185.02002	3.77675931	14.8162011	1.75844432	14.7375	2503.25	3975.1652	70.5	70.7	77.9	74.6	0.000584

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT PPM	SMC (PPM)	AMBIENT TEMP (F)	GAS INJECT TEMP (F)	MAIN DUCT TEMP (F)	WEC CELL TEMP (F)	WEC CELL (VOLTS)
190.02002	3.78551309	14.8177003	1.75844432	14.739	2544	3970.6956	70.5	70.7	77.9	74.6	0.00059
195.02002	3.7811362	14.8162011	1.75844432	14.7375	2583	3970.9439	70.5	70.7	77.8	74.7	0.000598
200.02002	3.79176579	14.8169507	1.76032064	14.7375	2633.5	3973.6753	70.5	70.7	77.8	74.7	0.000604
205.02002	3.77363296	14.8162011	1.75906976	14.7375	2673.75	3975.9101	70.5	70.7	77.8	74.7	0.000611
210.02002	3.77738458	14.8154515	1.75781888	14.73825	2743.75	3976.9033	70.5	70.7	77.8	74.7	0.000617
215.02002	3.7798566	14.8162011	1.75844432	14.73825	2783.75	3982.6144	70.5	70.7	77.9	74.6	0.000623
220.02002	3.77238242	14.8147019	1.75781888	14.73825	2814	3974.9169	70.5	70.7	77.9	74.6	0.000629
225.02002	3.77926039	14.8162011	1.75844432	14.73825	2843.75	3977.6483	70.6	70.7	77.9	74.7	0.000635
230.02002	3.78488782	14.8154515	1.75844432	14.73825	2894.25	3980.3796	70.5	70.7	77.9	74.8	0.000641
235.02002	3.78801417	14.8169507	1.75906976	14.73825	2924	3969.9507	70.5	70.7	77.9	74.7	0.000646
240.02002	3.7748835	14.8169507	1.75594256	14.73825	2953.5	3976.4067	70.5	70.7	77.9	74.6	0.00065
245.02002	3.77425823	14.8169507	1.75906976	14.7375	2993.75	3972.1855	70.5	70.7	77.8	74.7	0.000655
250.02002	3.77800985	14.8139522	1.75594256	14.73825	3024.25	3982.1178	70.4	70.7	77.8	74.7	0.000661
255.02002	3.77300769	14.8162011	1.756568	14.7375	3063.75	3981.1246	70.4	70.7	77.9	74.7	0.000666
260.02002	3.78551309	14.8169507	1.75719344	14.73825	3094.25	3981.3729	70.4	70.7	77.9	74.7	0.00067
265.02002	3.77238242	14.8177003	1.75594256	14.73825	3124.25	3983.3593	70.4	70.7	77.9	74.7	0.000675
270.02002	3.78551309	14.8169507	1.756568	14.7375	3153.75	3981.8895	70.4	70.7	77.9	74.7	0.00068
275.02002	3.77550877	14.8169507	1.756568	14.7375	3184.5	3976.9033	70.5	70.8	77.9	74.7	0.000682
280.02002	3.77863512	14.8177003	1.756568	14.73825	3214.25	3980.6279	70.5	70.7	77.9	74.7	0.000688
285.02002	3.77238242	14.8177003	1.75594256	14.7375	3234.75	3988.5738	70.6	70.7	77.9	74.7	0.000692
290.02002	3.77175715	14.8169507	1.756568	14.7375	3264.5	3992.5467	70.7	70.7	77.9	74.7	0.000695
295.02002	3.77113188	14.81845	1.756568	14.7375	3293.75	3983.6076	70.6	70.8	77.9	74.7	0.0007
300.02002	3.76925607	14.8162011	1.75719344	14.7375	3314.5	3989.8153	70.6	70.7	77.9	74.7	0.000702
305.02002	3.7748835	14.8177003	1.75594256	14.736	3344.5	3994.5332	70.6	70.8	77.9	74.7	0.000706
310.02002	3.7686308	14.8147019	1.75781888	14.7375	3364.25	3999.996	70.6	70.8	77.9	74.7	0.00071
315.02002	3.77425823	14.8169507	1.756568	14.73675	3384.5	3990.5603	70.7	70.8	77.9	74.7	0.000713
320.02002	3.77675931	14.8162011	1.75594256	14.73675	3416.75	3984.6009	70.7	70.7	77.9	74.7	0.000717
325.02002	3.77050661	14.8147019	1.756568	14.7345	3434.75	3978.8898	70.7	70.8	77.9	74.7	0.00072
330.02002	3.79239106	14.8139522	1.75531712	14.73375	3454.5	3981.6212	70.7	70.7	77.9	74.7	0.000723
335.02002	3.77613404	14.8147019	1.75469168	14.73675	3474.75	3979.1381	70.8	70.8	77.9	74.7	0.000726
340.02002	3.77113188	14.8132026	1.75594256	14.73675	3494.75	3977.6483	70.7	70.8	77.9	74.7	0.000729
345.02002	3.78176147	14.8169507	1.756568	14.73825	3514.75	3981.6212	70.6	70.8	77.9	74.7	0.000733
350.02002	3.77238242	14.8154515	1.756568	14.7375	3535	3976.1584	70.6	70.8	77.9	74.7	0.000736
355.02002	3.77238242	14.8139522	1.75594256	14.73825	3553.25	3980.1313	70.6	70.8	77.9	74.7	0.000738
360.02002	3.77550877	14.8169507	1.75594256	14.73675	3574.75	3981.3729	70.6	70.8	77.9	74.7	0.00074
365.05002	3.78551309	14.8154515	1.75594256	14.73675	3584.75	3988.5738	70.5	70.8	77.9	74.7	0.000743
370.02002	3.77675931	14.8132026	1.756568	14.73375	3605	3986.5873	70.5	70.8	77.9	74.7	0.000746
375.04001	3.77863512	14.8147019	1.75594256	14.736	3614.75	3986.339	70.6	70.8	77.9	74.7	0.000747
380.02002	3.78551309	14.8154515	1.75531712	14.736	3635	3988.5738	70.6	70.8	77.9	74.7	0.000751
385.06	3.77926039	14.8169507	1.75531712	14.7375	3655	3990.8086	70.6	70.8	77.9	74.7	0.000753
390.02002	3.77863512	14.8177003	1.756568	14.7375	3665	3983.3593	70.5	70.8	77.9	74.7	0.000755
395.05002	3.77550877	14.8169507	1.756568	14.7375	3685	3981.1246	70.5	70.8	77.9	74.7	0.000757

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT PPM	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
400.02002	3.78551309	14.81845	1.756568	14.7375	3694.75	3980.8763	70.5	70.8	77.9	74.7	0.00076
405.02002	3.76425391	14.8162011	1.75719344	14.7375	3715	3982.8627	70.5	70.8	77.9	74.7	0.000762
410.02002	3.77425823	14.8154515	1.756568	14.7345	3724.75	3982.8627	70.5	70.8	77.9	74.7	0.000763
415.02002	3.77425823	14.8169507	1.75531712	14.73525	3735	3991.0569	70.5	70.8	77.9	74.7	0.000765
420.02002	3.77800985	14.8169507	1.7534408	14.7375	3755	3996.2714	70.5	70.8	77.9	74.7	0.000766
425.02002	3.77675931	14.8169507	1.75406624	14.736	3764.75	3989.3187	70.5	70.8	77.9	74.7	0.000769
430.02002	3.78551309	14.8162011	1.75594256	14.73525	3775	3990.8086	70.5	70.8	77.9	74.7	0.000771
435.02002	3.78826471	14.8169507	1.7534408	14.7375	3795	3993.0433	70.5	70.8	77.9	74.7	0.000773
440.02002	3.78426255	14.8162011	1.75406624	14.736	3804.5	3988.0772	70.5	70.8	77.9	74.7	0.000773
445.06	3.78551309	14.8177003	1.75531712	14.736	3814.75	3983.111	70.5	70.8	77.9	74.7	0.000776
450.02002	3.77675931	14.8147019	1.7534408	14.73675	3824.75	3981.8695	70.5	70.8	77.9	74.7	0.000778
455.02002	3.78926471	14.8162011	1.75469168	14.7375	3835	3977.3999	70.5	70.9	77.9	74.7	0.000779
460.02002	3.7748835	14.8162011	1.75406624	14.7375	3845	3976.9033	70.5	70.8	77.9	74.6	0.00078
465.02002	3.78426255	14.8154515	1.75469168	14.73825	3855.25	3978.8898	70.5	70.8	77.9	74.7	0.000781
470.02002	3.7748835	14.8169507	1.7534408	14.7375	3865	3978.1449	70.5	70.8	77.9	74.7	0.000783
475.02002	3.78051093	14.8169507	1.75406624	14.73675	3875.25	3981.6212	70.5	70.8	77.8	74.7	0.000784
480.02002	3.77550877	14.8169507	1.75406624	14.73825	3885.25	3984.8492	70.5	70.8	77.8	74.7	0.000785
485.02002	3.77613404	14.8191996	1.75406624	14.73825	3895.25	3973.427	70.5	70.9	77.8	74.7	0.000788
490.02002	3.78488782	14.8177003	1.75406624	14.73525	3905.25	3971.6889	70.5	70.9	77.8	74.7	0.000789
495.02002	3.77550877	14.8177003	1.7534408	14.7375	3915	3976.4067	70.5	70.8	77.9	74.7	0.00079
500.02002	3.77863512	14.8177003	1.75406624	14.73525	3915.25	3978.3932	70.5	70.9	77.9	74.7	0.000791
505.02002	3.77863512	14.8154515	1.75469168	14.7345	3925.25	3987.3323	70.5	70.9	77.9	74.7	0.000792
510.02002	3.78301201	14.8147019	1.7534408	14.7345	3935.25	3986.5873	70.5	70.9	77.8	74.7	0.000794
515.03	3.78363728	14.8169507	1.75281536	14.7345	3945.75	3979.3864	70.6	70.9	77.8	74.7	0.000794
520.02002	3.77238242	14.8147019	1.75156448	14.73525	3955.5	3981.1246	70.6	70.9	77.8	74.7	0.000796
525.02002	3.7811362	14.8139522	1.75156448	14.7345	3955.5	3975.9101	70.6	70.9	77.8	74.7	0.000797
530.04001	3.7748835	14.8117034	1.75093904	14.73525	3965.25	3975.4135	70.8	70.9	77.8	74.6	0.000798
535.02002	3.77800985	14.8139522	1.75156448	14.73525	3975.25	3985.3458	70.9	70.9	77.8	74.7	0.000799
540.02002	3.78176147	14.8139522	1.75406624	14.733	3985	3987.084	71	70.9	77.8	74.7	0.0008
545.04001	3.77238242	14.812453	1.75469168	14.733	3985	3985.8424	71	71	77.8	74.6	0.0008
550.02002	3.7748835	14.8154515	1.75156448	14.736	3995.5	3984.1043	71	71	77.8	74.7	0.000802
555.02002	3.77863512	14.8139522	1.75156448	14.733	4004.75	3976.1584	71	70.9	77.8	74.7	0.000803
560.04001	3.78051093	14.8162011	1.75156448	14.733	4005	3978.6415	71	70.9	77.9	74.7	0.000802
565.02002	3.78051093	14.8139522	1.75156448	14.73525	4015.25	3980.1313	70.9	70.9	77.8	74.7	0.000805
570.02002	3.78426255	14.8147019	1.75156448	14.7345	4025	3979.6347	70.8	70.9	77.9	74.8	0.000805
575.02002	3.77926039	14.8109537	1.75156448	14.733	4025.5	3979.883	70.8	70.9	77.8	74.8	0.000806
580.02002	3.78238674	14.812453	1.75156448	14.733	4035.5	3974.6686	70.8	70.9	77.8	74.8	0.000807
585.02002	3.77363296	14.8147019	1.75156448	14.7345	4045.25	3974.9169	70.8	70.9	77.9	74.8	0.000809
590.05002	3.78676363	14.8147019	1.75156448	14.73525	4045.25	3973.427	70.7	70.9	77.9	74.8	0.000811
595.02002	3.78051093	14.8139522	1.75156448	14.7345	4045.5	3975.6618	70.7	70.9	77.9	74.7	0.000811
600.04001	3.79176579	14.8147019	1.75156448	14.73525	4055.5	3972.4338	70.6	70.9	77.8	74.8	0.00081
605.02002	3.7873889	14.8154515	1.75093904	14.733	4055.25	3968.9575	70.6	70.9	77.9	74.8	0.000811

Flammable Gas Interlock Spoolpiece Testing

FGI21324.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT PPM	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL VOLTS)
610.05002	3.78488782	14.8154515	1.75218992	14.733	4065.75	3969.7024	70.6	71	77.8	74.8	0.000811
615.02002	3.76800553	14.8109537	1.75156448	14.73225	4075.25	3973.1787	70.6	71	77.9	74.8	0.000812
620.02002	3.77863512	14.8154515	1.74968816	14.73525	4075.25	3973.1787	70.6	70.9	77.9	74.8	0.000813
625.05002	3.77363296	14.8139522	1.75156448	14.736	4085.75	3968.2125	70.7	70.9	77.8	74.7	0.000814
630.06	3.7811362	14.8139522	1.7503136	14.73525	4085.5	3970.6956	70.7	71	77.9	74.7	0.000814
635.02002	3.77738458	14.8139522	1.74968816	14.7345	4095.75	3969.2058	70.7	70.9	77.8	74.8	0.000816
640.05002	3.78301201	14.8154515	1.7503136	14.736	4095.5	3969.4541	70.6	71	77.9	74.8	0.000817
645.02002	3.77738458	14.8147019	1.7503136	14.7345	4105.75	3970.4473	70.6	71	77.8	74.7	0.000817
650.02002	3.77800985	14.8139522	1.7503136	14.73525	4105.5	3972.6821	70.6	71	77.8	74.8	0.000817
655.02002	3.77050661	14.8139522	1.74968816	14.733	4105.5	3974.4202	70.5	71	77.9	74.8	0.000819
660.02002	3.78488782	14.8139522	1.74968816	14.733	4115.5	3969.9507	70.5	71	77.9	74.8	0.000819
665.02002	3.76988134	14.8147019	1.75083904	14.73525	4115.75	3973.1787	70.5	71	77.9	74.8	0.000821
670.02002	3.77675931	14.8139522	1.7503136	14.733	4125.5	3972.9304	70.5	71	77.9	74.7	0.000821
675.04001	3.77363296	14.8117034	1.7503136	14.733	4125.25	3972.4338	70.5	71	77.9	74.8	0.000821
680.02002	3.7686308	14.812453	1.7503136	14.73225	4125.75	3971.8889	70.5	71	77.9	74.8	0.000821
685.02002	3.7748835	14.8139522	1.7503136	14.733	4135.25	3971.1922	70.6	70.9	77.9	74.8	0.000822
690.02002	3.79114052	14.8117034	1.7503136	14.733	4135.5	3974.9169	70.6	71	77.9	74.8	0.000823
695.02002	3.77863512	14.8117034	1.74968816	14.733	4135.5	3977.1516	70.6	71	77.9	74.7	0.000822
700.03	3.77238242	14.812453	1.74906272	14.733	4144.75	3982.6144	70.6	71	77.9	74.8	0.000823
705.02002	3.7811362	14.8117034	1.74968816	14.73225	4145.5	3978.655	70.6	71	77.9	74.8	0.000823
710.02002	3.77613404	14.8147019	1.74968816	14.7315	4145	3972.4338	70.6	71	77.9	74.8	0.000825
715.04001	3.77928039	14.8102041	1.7503136	14.73225	4155.5	3970.4473	70.6	71	77.9	74.8	0.000825
720.02002	3.77050661	14.8117034	1.7503136	14.733	4155.5	3972.4338	70.5	71	77.9	74.8	0.000826
725.03	3.7748835	14.812453	1.74781184	14.73225	4155.75	3974.1719	70.5	71	77.9	74.8	0.000825
730.05002	3.77675931	14.8117034	1.74843728	14.733	4165.75	3967.2193	70.6	71	77.9	74.7	0.000825
735.02002	3.76800553	14.812453	1.74781184	14.73225	4165.5	3975.4135	70.6	71	77.9	74.8	0.000826
740.06	3.78426255	14.8117034	1.7503136	14.733	4165.25	3978.655	70.6	71	77.9	74.8	0.000826
745.02002	3.77050661	14.8139522	1.74843728	14.733	4165	3978.8898	70.6	71	77.9	74.8	0.000826
750.02002	3.77863512	14.812453	1.74781184	14.73225	4175.75	3979.883	70.5	71	77.9	74.8	0.000828
755.02002	3.77988566	14.8139522	1.74843728	14.73225	4175.75	3979.6347	70.5	71	77.9	74.8	0.000827
760.04001	3.77613404	14.8147019	1.74781184	14.73225	4175.75	3970.199	70.5	71	77.9	74.8	0.000827
765.02002	3.78551309	14.8139522	1.74781184	14.733	4175.5	3972.4338	70.5	71	77.9	74.8	0.000828
770.04001	3.77863512	14.8117034	1.74781184	14.733	4185.5	3968.9575	70.5	71	77.8	74.8	0.000829
775.02002	3.78488782	14.8139522	1.74781184	14.73225	4185.25	3969.4541	70.5	71	77.9	74.8	0.000828
780.02002	3.77238242	14.8132026	1.74843728	14.73225	4185.5	3962.9981	70.5	71.1	77.8	74.7	0.000829
785.08002	3.78551309	14.812453	1.7503136	14.733	4185.25	3965.9778	70.5	71	77.8	74.7	0.000831
790.02002	3.77863512	14.8139522	1.74906272	14.73225	4195.5	3962.5015	70.5	71.1	77.9	74.7	0.00083
795.02002	3.77238242	14.812453	1.74781184	14.733	4195.75	3960.7633	70.5	71	77.8	74.8	0.00083
800.02002	3.78551309	14.8154515	1.7471864	14.733	4195.75	3962.5015	70.5	71	77.9	74.8	0.00083
805.02002	3.78301201	14.8139522	1.7471864	14.73225	4195.5	3963.743	70.5	71	77.9	74.8	0.000832
810.02002	3.78051093	14.812453	1.7471864	14.733	4195.5	3964.9845	70.4	71	77.9	74.8	0.000831
815.02002	3.79551741	14.8147019	1.74781184	14.73225	4205.25	3973.427	70.4	71	77.9	74.8	0.000831

Flammable Gas Interlock Spoolpiece Testing

FGI21324.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT PPM	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
820.02002	3.78551309	14.812453	1.7471864	14.733	4205.5	3973.6753	70.4	71	77.9	74.7	0.000833
825.02002	3.78051093	14.8102041	1.7471864	14.73225	4205.5	3964.2396	70.5	71	77.9	74.7	0.000832
830.02002	3.77800985	14.8117034	1.74656096	14.73225	4205	3959.0252	70.5	71	77.8	74.8	0.000833
835.04001	3.78301201	14.8117034	1.7471864	14.733	4205.5	3957.7836	70.5	71	77.8	74.8	0.000833
840.02002	3.7811362	14.8117034	1.7471864	14.7315	4215.75	3960.2667	70.5	71.1	77.9	74.8	0.000834
845.03	3.77675931	14.812453	1.74781184	14.73225	4215.25	3955.7971	70.5	71	77.8	74.7	0.000834
850.02002	3.77675931	14.8109537	1.7471864	14.73225	4215.5	3955.0522	70.5	71	77.8	74.7	0.000834
855.02002	3.77863512	14.8117034	1.7471864	14.733	4215.5	3957.287	70.5	71	77.8	74.7	0.000834
860.04001	3.77926039	14.8139522	1.74656096	14.73225	4215.5	3960.7633	70.5	71.1	77.9	74.7	0.000834
865.02002	3.78488782	14.8117034	1.7471864	14.7315	4215.5	3960.515	70.5	71.1	77.8	74.7	0.000834
870.02002	3.79114052	14.8132026	1.74781184	14.73225	4226	3957.7836	70.6	71	77.8	74.7	0.000835
875.03	3.76800553	14.8117034	1.74781184	14.73225	4225	3955.5488	70.6	71	77.8	74.8	0.000834
880.02002	3.78488782	14.812453	1.74656096	14.7315	4225.75	3956.5421	70.8	71.1	77.9	74.7	0.000835
885.02002	3.77675931	14.8117034	1.74468464	14.73225	4225.5	3955.5488	70.7	71.1	77.8	74.7	0.000835
890.04001	3.7811362	14.812453	1.74656096	14.7315	4225.5	3963.9913	70.8	71.1	77.9	74.7	0.000836
895.02002	3.77863512	14.8147019	1.7471864	14.73225	4226.25	3966.4744	70.7	71.1	77.9	74.7	0.000836
900.02002	3.7811362	14.812453	1.74531008	14.73225	4225.75	3962.7498	70.7	71.1	77.9	74.8	0.000835
905.04001	3.7873889	14.8117034	1.7471864	14.7315	4235.25	3959.0252	70.8	71.1	77.9	74.7	0.000835
910.02002	3.78426255	14.8117034	1.74468464	14.7315	4235.25	3947.603	70.7	71.1	77.9	74.7	0.000836
915.02002	3.78051093	14.8109537	1.74468464	14.733	4235.75	3950.3344	70.7	71.1	77.9	74.8	0.000836
920.02002	3.77613404	14.8109537	1.74468464	14.73225	4235.5	3951.8242	70.6	71	77.9	74.7	0.000836
925.02002	3.77238242	14.8102041	1.74531008	14.73225	4235.5	3960.515	70.6	71	77.9	74.7	0.000837
930.02002	3.77300769	14.8117034	1.74531008	14.73225	4236	3965.7295	70.6	71.1	77.9	74.6	0.000838
935.04001	3.76925607	14.8109537	1.74531008	14.73225	4235.25	3966.4744	70.7	71.1	77.8	74.7	0.000837
940.02002	3.7748835	14.812453	1.74531008	14.733	4236	3966.4744	70.7	71.1	77.9	74.7	0.000837
945.02002	3.7873889	14.8117034	1.74593552	14.73225	4245.75	3967.2193	70.8	71.1	77.9	74.7	0.000838
950.06	3.77675931	14.8102041	6.5630744	15.993	4245.5	3965.2329	70.9	71.2	77.9	74.8	0.000838
955.02002	3.76988134	14.8117034	8.37184688	16.43175	4245.75	3772.5458	70.8	71.3	77.9	74.7	0.000838
960.02002	3.78238674	14.8109537	8.35621088	16.42725	4245.75	3742.5401	70.8	71.4	77.8	74.8	0.000838
965.07001	3.77926039	14.8139522	8.3737232	16.4325	4245.5	1218.9464	70.8	71.5	77.9	74.8	0.000836
970.02002	3.7873889	14.8132026	8.36934512	16.4325	4205.75	652.55582	70.8	71.5	77.9	74.7	0.00082
975.02002	3.77863512	14.8132026	8.38185392	16.43475	3845.25	380.16195	70.9	71.6	77.9	74.8	0.000752

TEST: EX102137 13 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 4040ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP (F)	WEC CELL (VOLTS)
0.0100098	3.77863512	14.8162011	0.498245264	14.73225	51.175	-1.611602	71	70.2	78.4	74.1	0.000216
5.0400085	3.77926039	14.8169507	1.756568	14.7375	51.175	-1.6860944	71	70.2	78.4	74.1	0.000216
10.019989	3.76612972	14.8162011	1.74280832	14.7375	51.4	-1.6612636	71	70.3	78.5	74.1	0.000215
15.019989	3.77800985	14.8154515	1.73905568	14.7375	51	-1.6612636	71.1	70.3	78.5	74	0.000219
20.019989	3.78551309	14.8162011	1.73905568	14.73675	101.325	-1.6364328	71.1	70.3	78.5	74.1	0.000229
25.019989	3.79114052	14.8169507	1.73905568	14.7375	201.375	-1.6612636	71	70.3	78.4	74	0.000246
30.019989	3.79239106	14.8169507	1.73968112	14.7375	322	-1.6860944	70.9	70.3	78.5	74.1	0.000267
35.019989	3.78551309	14.8169507	1.73905568	14.73675	491.5	-1.6364328	70.9	70.3	78.5	74	0.000289
40.019989	3.77926039	14.8169507	1.73905568	14.736	641.75	-1.6364328	70.9	70.3	78.5	74	0.000315
45.019989	3.78551309	14.8177003	1.73905568	14.7375	832	-1.7109252	70.9	70.3	78.5	74	0.000341
50.019989	3.7873889	14.8154515	1.73968112	14.73825	1032.5	-1.6860944	70.9	70.3	78.4	74	0.000367
55.019989	3.80051957	14.8169507	1.73905568	14.73825	1182.5	-1.6612636	70.9	70.3	78.5	74.1	0.000392
60.019989	3.77613404	14.8162011	1.73905568	14.7375	1332	-1.7109252	71	70.3	78.4	74	0.000417
65.019989	3.79614268	14.8162011	1.740932	14.73675	1535	-1.6612636	70.9	70.3	78.5	74.1	0.000441
70.019989	3.7811362	14.8169507	1.74155744	14.73825	1663	-1.6612636	71	70.3	78.4	74	0.000464
75.019989	3.77238242	14.8154515	1.74218288	14.7375	1819.75	-1.6364328	71	70.3	78.5	74.1	0.000487
80.019989	3.7748835	14.8154515	1.74218288	14.7375	1962	-1.7109252	70.8	70.3	78.5	74.1	0.000507
85.019989	3.7811362	14.8162011	1.740932	14.7375	2093	-1.7109252	70.9	70.3	78.4	74.1	0.000527
90.019989	3.78176147	14.8154515	1.74218288	14.7375	2233.25	-1.6364328	70.8	70.3	78.5	74.1	0.000545
95.019989	3.78363728	14.8169507	1.740932	14.73825	2332.75	-1.6612636	70.8	70.3	78.4	74	0.000563
100.01999	3.78488782	14.8162011	1.740932	14.73825	2450.5	-1.7109252	70.8	70.3	78.5	74.1	0.000578
105.01999	3.78488782	14.8147019	1.74155744	14.73675	2563.75	-1.6612636	70.8	70.3	78.4	74	0.000595
110.01999	3.7811362	14.8162011	1.74343376	14.73675	2652.5	-1.6612636	70.8	70.3	78.6	74.1	0.00061
115.01999	3.77863512	14.8162011	1.740932	14.7375	2753.75	-1.7109252	70.9	70.3	78.4	74	0.000623
120.01999	3.78551309	14.8169507	1.740932	14.739	2834.25	-1.6364328	70.9	70.3	78.5	74.1	0.000637
125.01999	3.78551309	14.8162011	1.74155744	14.73825	2914	-1.7109252	70.9	70.3	78.5	74	0.000649
130.01999	3.79114052	14.8154515	1.74155744	14.73675	3004	-1.6860944	71	70.3	78.4	74	0.000661
135.01999	3.78051093	14.8162011	1.74280832	14.73675	3084.25	-1.6860944	71	70.3	78.5	74	0.000671
140.01999	3.77926039	14.8169507	1.74343376	14.7375	3154	-1.735756	71.1	70.4	78.4	74	0.000682
145.01999	3.77863512	14.8147019	1.74218288	14.73825	3224	-1.735756	71	70.3	78.5	74	0.000691
150.01999	3.79614268	14.8162011	1.74155744	14.73825	3294.25	-1.6860944	71	70.3	78.5	74	0.000702
155.01999	3.7811362	14.8162011	1.740932	14.7375	3354.25	-1.6860944	71	70.3	78.6	74.1	0.000711
160.01999	3.7873889	14.8162011	1.740932	14.7375	3414.5	-1.7109252	70.9	70.3	78.6	74.1	0.000719
165.01999	3.78613836	14.8169507	1.74343376	14.73825	3464.25	-1.6860944	70.9	70.4	78.4	74	0.000727
170.07001	3.79176579	14.8177003	1.74280832	14.7375	3514.25	-1.7605868	71	70.3	78.5	74.1	0.000736
175.01999	3.78613836	14.8162011	1.74155744	14.73825	3564.75	-1.7109252	71	70.3	78.5	74	0.000742
180.01999	3.78551309	14.8177003	1.74343376	14.7375	3624.5	-1.7109252	71	70.3	78.5	74.1	0.000749
185.01999	3.77988566	14.8169507	1.740932	14.7375	3664.75	-1.6860944	71	70.3	78.5	74	0.000755

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Flammable Gas Interlock Spoolpiece Testing

EX102137.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP (F)	WEC CELL (VOLTS)
190.04001	3.78551309	14.8162011	1.74280832	14.73675	3694.75	-1.6860944	71	70.3	78.6	74	0.000761
195.01999	3.77800985	14.8169507	1.74280832	14.7375	3735	-1.6860944	71	70.3	78.4	74	0.000767
200.01999	3.78613836	14.8162011	1.74218268	14.73675	3774.5	-1.7109252	71	70.3	78.5	74.1	0.000771
205.01999	3.79176579	14.8154515	1.74280832	14.7375	3804.5	-1.7605868	71	70.4	78.4	74	0.000778
210.01999	3.78551309	14.8162011	1.74343376	14.7375	3844.75	-1.6612636	71	70.4	78.5	74.1	0.00078
215.01999	3.77863512	14.8177003	1.740932	14.73675	3864.75	-1.735756	71.1	70.3	78.5	74.1	0.000786
220.01999	3.78238674	14.8162011	1.74155744	14.736	3895	-1.7109252	71	70.4	78.4	74.1	0.000789
225.01999	3.77363296	14.8162011	1.740932	14.73675	3915	-1.7854176	71.1	70.4	78.5	74.1	0.000794
230.01999	3.78426255	14.8162011	1.74280832	14.7375	3945	-1.7605868	71	70.4	78.4	74	0.000797
235.01999	3.79364616	14.8154515	1.740932	14.73825	3974.75	-1.7854176	71.1	70.3	78.5	74.1	0.000801
240.01999	3.77300769	14.8177003	1.74155744	14.73675	3994.75	-1.735756	71.1	70.4	78.3	74	0.000804
245.01999	3.78051093	14.8169507	1.740932	14.7375	4015	-1.7605868	71.1	70.4	78.4	74	0.000807
250.01999	3.78426255	14.8169507	1.74155744	14.7375	4035.25	-1.8102484	71	70.4	78.4	74	0.00081
255.01999	3.78551309	14.8154515	1.74155744	14.73675	4065.5	-1.7605868	71	70.4	78.4	74	0.000813
260.01999	3.77425823	14.8169507	1.74030656	14.7375	4075	-1.8102484	71	70.4	78.6	74.1	0.000815
265.01999	3.78488782	14.8169507	1.74155744	14.7375	4085.5	-1.7854176	70.9	70.4	78.4	74	0.000818
270.01999	3.78551309	14.8162011	1.73968112	14.73675	4105.5	-1.7854176	70.9	70.4	78.5	74.1	0.00082
275.01999	3.7811362	14.8162011	1.74155744	14.7375	4122.5	-1.7854176	70.8	70.4	78.4	74	0.000823
280.04001	3.77863512	14.8162011	1.74030656	14.7375	4135.25	-1.7605868	70.8	70.4	78.3	74	0.000824
285.01999	3.78613836	14.8162011	1.74155744	14.7375	4155.5	-1.7605868	70.8	70.5	78.4	74	0.000826
290.01999	3.79426687	14.8162011	1.73843024	14.7375	4165.5	-1.7854176	70.7	70.4	78.6	74.1	0.000828
295.01999	3.7748835	14.8169507	1.740932	14.73825	4175	-1.7605868	70.7	70.4	78.4	74	0.00083
300.01999	3.79239106	14.8177003	1.74155744	14.73825	4185.25	-1.8350792	70.7	70.4	78.5	74.1	0.000831
305.03	3.76738026	14.8177003	1.73968112	14.7375	4195.5	-1.7854176	70.7	70.4	78.5	74.1	0.000833
310.01999	3.78051093	14.8162011	1.73843024	14.7375	4205.25	-1.7854176	70.7	70.5	78.5	74.1	0.000834
315.01999	3.77926039	14.8177003	1.73968112	14.7375	4215.5	-1.7854176	70.8	70.5	78.5	74	0.000836
320.01999	3.79614268	14.8169507	1.73905568	14.7375	4225.5	-1.7605868	70.8	70.4	78.4	74	0.000837
325.04001	3.78801417	14.8169507	1.73905568	14.7375	4235.25	-1.7854176	70.9	70.5	78.4	74	0.000839
330.01999	3.79051525	14.8154515	1.73968112	14.73825	4245.75	-1.735756	70.8	70.5	78.5	74.1	0.00084
335.01999	3.7873889	14.8169507	1.73905568	14.73825	4255.5	-1.7109252	70.7	70.5	78.5	74	0.00084
340.01999	3.78863944	14.81845	1.73905568	14.7375	4265	-1.7605868	70.7	70.5	78.5	74.1	0.000842
345.01999	3.78488782	14.8162011	1.73905568	14.7375	4265.5	-1.8102484	70.7	70.5	78.5	74.1	0.000843
350.01999	3.77675931	14.8147019	1.73905568	14.73825	4275.25	-1.7605868	70.7	70.5	78.4	74.1	0.000844
355.01999	3.78488782	14.8162011	1.73843024	14.73825	4285.5	-1.7854176	70.7	70.5	78.5	74.1	0.000844
360.01999	3.78238674	14.8169507	1.73905568	14.73675	4295.5	-1.7605868	70.7	70.5	78.4	74.1	0.000847
365.07999	3.78551309	14.81845	1.73843024	14.7375	4295	-1.7605868	70.7	70.5	78.5	74.1	0.000847
370.01999	3.78176147	14.8191996	1.73968112	14.73675	4305.75	-1.7605868	70.7	70.5	78.4	74.1	0.000847
375.09	3.78801417	14.8169507	1.73905568	14.7375	4305.5	-1.735756	70.7	70.5	78.3	74	0.000849
380.01999	3.77738458	14.8154515	1.73655392	14.73675	4315.5	-1.735756	70.6	70.5	78.4	74	0.000849
385.10999	3.78051093	14.8177003	1.73717936	14.7375	4315.5	-1.8102484	70.5	70.5	78.5	74.1	0.00085
390.01999	3.77675931	14.8169507	1.73905568	14.73675	4315.5	-1.7605868	70.5	70.5	78.5	74.1	0.000851
395.01999	3.78926471	14.8199492	1.73905568	14.73825	4325	-1.8350792	70.5	70.5	78.3	74	0.00085

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Engineering Testing Laboratory 3/13/97

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Flammable Gas Interlock Spoolpiece Testing

EX102137.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
400.01999	3.79176579	14.81845	1.73843024	14.73675	4325.5	-1.7605868	70.6	70.5	78.5	74.1	0.000852
405.01999	3.7811362	14.8191996	1.73905568	14.7375	4335.75	-1.7605868	70.6	70.6	78.4	74.1	0.000853
410.01999	3.78176147	14.81845	1.73655392	14.73675	4335.5	-1.735756	70.7	70.5	78.5	74.1	0.000853
415.01999	3.7748835	14.8154515	1.73655392	14.7375	4335.5	-1.735756	70.7	70.5	78.5	74	0.000853
420.01999	3.78426255	14.8191996	1.73717936	14.7375	4345.25	-1.735756	70.8	70.5	78.4	74	0.000853
425.01999	3.78051093	14.8199492	1.73655392	14.7375	4345	9	70.9	70.5	78.5	74.1	0.000854
430.01999	3.78488782	14.81845	1.73655392	14.73675	4355.75	-1.7109252	71	70.6	78.3	74	0.000855
435.01999	3.77675931	14.81845	1.73655392	14.73825	4355.75	-1.735756	71.1	70.6	78.3	74	0.000855
440.01999	3.77863512	14.8191996	1.73717936	14.73825	4355.5	-1.7109252	71.1	70.6	78.5	74	0.000855
445.01999	3.77863512	14.8177003	1.73655392	14.7375	4365.75	-1.8102484	71.2	70.6	78.4	74	0.000856
450.01999	3.79176579	14.8199492	1.73592848	14.73675	4366	-1.8350792	71.2	70.6	78.5	74.1	0.000857
455.01999	3.7811362	14.8191996	1.73717936	14.736	4365	-1.7605868	71.2	70.6	78.4	74	0.000856
460.01999	3.78676363	14.8199492	1.73717936	14.73675	4366	-1.7605868	71.1	70.6	78.4	74.1	0.000857
465.01999	3.76988998	14.8191996	1.7378048	14.7375	4365.75	-1.7605868	71	70.6	78.5	74.1	0.000856
470.01999	3.78236674	14.8191996	1.7378048	14.7375	4375.5	-1.7605868	71	70.6	78.3	74	0.000856
475.01999	3.77988566	14.8191996	1.73717936	14.7375	4375.75	-1.7854176	70.9	70.6	78.4	74.1	0.000857
480.01999	3.77300769	14.81845	1.73717936	14.7375	4375.5	-1.8102484	70.9	70.6	78.3	74	0.000858
485.01999	3.77550877	14.8191996	1.73655392	14.73675	4375.75	-1.7605868	70.8	70.6	78.4	74.1	0.000858
490.01999	3.78488782	14.81845	1.73717936	14.73675	4375.75	-1.7854176	70.8	70.6	78.3	74	0.000858
495.01999	3.7873889	14.8191996	1.73655392	14.7375	4386	-1.7854176	70.7	70.6	78.4	74	0.000859
500.01999	3.78551309	14.8191996	1.7378048	14.73825	4385.25	-1.8102484	70.7	70.6	78.3	74	0.000858
505.01999	3.78551309	14.8191996	1.73655392	14.7375	4386	-1.735756	70.8	70.6	78.3	74	0.000859
510.01999	3.77300769	14.8177003	1.73655392	14.73675	4386	-1.8102484	70.8	70.6	78.4	74.1	0.000859
515.03	3.78613836	14.81845	1.7346776	14.7375	4385.5	-1.735756	70.8	70.6	78.4	74.1	0.00086
520.01999	3.78663944	14.8199492	1.73530304	14.7375	4386	-1.735756	70.8	70.6	78.4	74.1	0.00086
525.01999	3.77300769	14.8162011	1.73530304	14.73675	4395.25	-1.735756	70.8	70.7	78.3	74.1	0.00086
530.07001	3.79239106	14.8169507	1.73592848	14.7375	4395.5	-1.7854176	70.9	70.6	78.3	74	0.00086
535.01999	3.78928471	14.8177003	1.7346776	14.7375	4396	-1.7605868	70.8	70.6	78.2	74	0.000861
540.01999	3.7811362	14.8177003	1.7346776	14.7375	4395.75	-1.7605868	70.7	70.6	78.4	74.1	0.000861
545.03	3.78551309	14.8177003	1.73530304	14.7375	4395.5	-1.7605868	70.7	70.7	78.3	74	0.000859
550.01999	3.78551309	14.8169507	1.7346776	14.73675	4395.5	-1.7854176	70.6	70.7	78.3	74	0.000861
555.01999	3.78176147	14.8162011	1.7346776	14.73675	4396	-1.735756	70.6	70.7	78.4	74	0.000861
560.07001	3.78551309	14.8169507	1.7346776	14.7375	4396	-1.7854176	70.6	70.7	78.4	74	0.000861
565.01999	3.77988566	14.8162011	1.73530304	14.7375	4396	-1.8350792	70.6	70.7	78.4	74	0.000862
570.01999	3.77300769	14.8177003	1.73530304	14.73675	4405.75	-1.8102484	70.5	70.7	78.5	74.1	0.000861
575.03	3.7811362	14.8177003	1.7346776	14.7375	4405.25	-1.7854176	70.5	70.7	78.3	74.1	0.000862
580.01999	3.78676363	14.8162011	1.73405216	14.7375	4406	-1.7605868	70.5	70.7	78.4	74	0.000861
585.01999	3.79176579	14.8154515	1.73217584	14.7375	4405	-1.735756	70.5	70.7	78.5	74.1	0.000861
590.07001	3.78488782	14.8162011	1.73217584	14.73825	4405.5	-1.8350792	70.6	70.7	78.4	74.1	0.000863
595.01999	3.77988566	14.8162011	1.73530304	14.73675	4406	-1.7605868	70.6	70.7	78.5	74.1	0.000863
600.01999	3.78426255	14.8177003	1.73530304	14.7375	4405.75	-1.7854176	70.6	70.7	78.3	74	0.000862
605.04999	3.77988566	14.8162011	1.73342672	14.7375	4406	-1.8102484	70.6	70.7	78.3	74	0.000863

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SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP (F)	WEC CELL (VOLTS)
610.01999	3.78863944	14.8169507	1.7346776	14.73675	4405.5	-1.7605868	70.6	70.7	78.4	74	0.000862
615.01999	3.78863944	14.81845	1.73405216	14.7375	4406	-1.7854176	70.8	70.7	78.4	74.1	0.000862
620.04001	3.79239106	14.8169507	1.73217584	14.736	4405.25	-1.8102484	70.8	70.7	78.3	74	0.000862
625.10001	3.78551309	14.8169507	1.73217584	14.73675	4406	-1.735756	70.5	70.7	78.4	74.1	0.000863
630.01999	3.78488782	14.8169507	1.73280128	14.73675	4405.25	-1.8102484	70.6	70.7	78.5	74.1	0.000863
635.04999	3.7811362	14.8169507	1.73217584	14.73675	4415	-1.7605868	70.6	70.7	78.4	74.1	0.000864
640.01999	3.79239106	14.8154515	1.73280128	14.7375	4415.75	-1.7854176	70.6	70.7	78.4	74	0.000864
645.01999	3.77425823	14.8191996	1.73217584	14.73675	4415	-1.8102484	70.8	70.8	78.4	74.1	0.000863
650.01999	3.77738458	14.8169507	1.73217584	14.7375	4416	-1.8102484	70.8	70.7	78.4	74	0.000863
655.01999	3.78551309	14.8162011	1.73217584	14.7375	4415.5	-1.735756	70.7	70.7	78.4	74.1	0.000863
660.01999	3.78238674	14.8154515	1.73280128	14.7375	4415.75	-1.7605868	70.8	70.8	78.5	74.1	0.000864
665.01999	3.7873889	14.8154515	1.73217584	14.73675	4415.75	-1.7854176	70.8	70.8	78.4	74	0.000863
670.01999	3.77675931	14.8162011	1.73280128	14.7375	4415.5	-1.735756	70.9	70.8	78.5	74.1	0.000864
675.01999	3.78988998	14.8177003	1.73280128	14.73675	4415.5	-1.7109252	70.8	70.8	78.5	74	0.000863
680.04001	3.79239106	14.8177003	1.73217584	14.73825	4415.25	-1.7854176	70.9	70.8	78.5	74.1	0.000864
685.01999	3.79239106	14.8191996	1.73280128	14.7375	4416	-1.7605868	70.9	70.8	78.6	74.1	0.000863
690.01999	3.78613836	14.8169507	1.73217584	14.73825	4415.5	-1.7854176	70.9	70.8	78.4	74	0.000865
695.01999	3.77863512	14.8191996	1.73280128	14.73675	4416	-1.7605868	70.8	70.8	78.5	74.1	0.000864
700.01999	3.78551309	14.8177003	1.73342672	14.7375	4416	-1.735756	70.8	70.8	78.4	74.1	0.000865
705.01999	3.77926039	14.8169507	1.73217584	14.73825	4415.5	-1.735756	70.7	70.8	78.5	74.1	0.000864
710.04999	3.79051525	14.8177003	1.7315504	14.7375	4415.5	-1.7109252	70.7	70.8	78.5	74.1	0.000864
715.01999	3.77988566	14.8162011	1.73217584	14.73825	4415.5	-1.8350792	70.7	70.8	78.4	74	0.000864
720.01999	3.79176579	14.8199492	1.73280128	14.7375	4415.75	-1.7605868	70.8	70.8	78.5	74.1	0.000864
725.01999	3.78551309	14.8177003	1.73217584	14.73825	4415.75	-1.8350792	70.7	70.8	78.4	74	0.000864
730.01999	3.77800985	14.8169507	1.7315504	14.73825	4415.75	-1.7605868	70.7	70.8	78.6	74.1	0.000864
735.01999	3.78551309	14.8191996	1.7315504	14.73825	4426	-1.7854176	70.8	70.8	78.5	74	0.000863
740.04999	3.78176147	14.81845	1.73217584	14.73825	4425.5	-1.8102484	70.8	70.8	78.5	74.1	0.000864
745.01999	3.78551309	14.81845	1.73280128	14.73825	4425.75	-1.7605868	70.7	70.9	78.6	74.1	0.000865
750.01999	3.78988998	14.81845	1.73217584	14.73675	4425.25	-1.7605868	70.8	70.8	78.4	74	0.000864
755.03	3.77238242	14.8177003	1.7315504	14.73675	4425.75	-1.7854176	70.7	70.8	78.5	74.1	0.000864
760.01999	3.78926471	14.8191996	1.73217584	14.73675	4425.75	-1.8350792	70.8	70.8	78.4	74	0.000864
765.01999	3.7811362	14.8191996	1.73217584	14.73675	4426	-1.8102484	70.7	70.8	78.4	74	0.000864
770.04999	3.78926471	14.8191996	1.73280128	14.7375	4425.75	-1.7605868	70.6	70.9	78.4	74	0.000865
775.01999	3.79239106	14.8199492	1.73280128	14.7375	4425.25	-1.735756	70.6	70.9	78.4	74	0.000864
780.01999	3.79239106	14.8199492	1.73280128	14.7375	4425.5	-1.8102484	70.7	70.9	78.5	74.1	0.000865
785.07001	3.77988566	14.81845	1.73280128	14.73675	4426	-1.7854176	70.7	70.9	78.4	74	0.000864
790.01999	3.78363728	14.8169507	1.73217584	14.7375	4425.75	-1.7854176	70.6	70.9	78.5	74.1	0.000864
795.01999	3.78176147	14.8191996	1.73280128	14.73825	4425.5	-1.7605868	70.6	70.9	78.4	74	0.000864
800.07001	3.78801417	14.8191996	1.7315504	14.7375	4426	-1.8350792	70.5	70.9	78.5	74.1	0.000864
805.01999	3.77926039	14.8199492	1.73217584	14.73825	4426	-1.7605868	70.5	70.9	78.4	74	0.000864
810.01999	3.77926039	14.81845	1.73217584	14.7375	4425.5	-1.7854176	70.6	70.9	78.5	74.1	0.000865
815.04001	3.78426255	14.8177003	1.73280128	14.7375	4426	-1.7605868	70.6	70.9	78.5	74.1	0.000865

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SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP (F)	WEC CELL (VOLTS)
820.01999	3.78863944	14.8191996	1.73280128	14.73825	4426	-1.7605868	70.7	70.9	78.4	74	0.000864
825.01999	3.7748835	14.8206988	1.73280128	14.7375	4426.25	-1.7854176	70.6	70.9	78.4	74.1	0.000865
830.03	3.7811362	14.81845	1.73217584	14.73675	4426	-1.735756	70.6	70.9	78.4	74	0.000865
835.01999	3.79176579	14.8177003	1.73280128	14.7375	4425.5	-1.8350792	70.6	70.9	78.5	74.1	0.000864
840.01999	3.77550877	14.8199492	1.72967408	14.73675	4426	-1.8350792	70.6	70.9	78.4	74	0.000865
845.01999	3.79114052	14.8199492	1.73217584	14.73675	4425.75	-1.7854176	70.7	70.9	78.5	74.1	0.000865
850.01999	3.78676363	14.8191996	1.73217584	14.7375	4425.5	-1.8102484	70.7	70.9	78.4	74	0.000865
855.01999	3.77926039	14.8191996	1.73280128	14.7375	4425.75	-1.8350792	70.7	71	78.6	74.1	0.000864
860.01999	3.77613404	14.8177003	1.73217584	14.7375	4426	-1.8350792	70.7	71	78.6	74.1	0.000865
865.01999	3.7811362	14.8191996	1.73029952	14.739	4426	-1.7854176	70.7	71	78.6	74.1	0.000865
870.01999	3.78988996	14.8177003	1.73217584	14.73825	4425.5	-1.8847408	70.8	71	78.6	74.1	0.000865
875.06	3.79551741	14.8206988	1.7315504	14.7375	4425	-1.8102484	70.7	71	78.5	74.1	0.000865
880.09	3.77675931	14.81845	1.73092496	14.73825	4425.5	-1.7854176	70.7	71	78.5	74.1	0.000866
885.01999	3.77675931	14.8199492	1.73217584	14.73825	4426	-1.8102484	70.8	71	78.5	74	0.000864
890.04999	3.78676363	14.8177003	1.73029952	14.7375	4426	-1.8102484	70.8	71	78.6	74.1	0.000865
895.01999	3.78176147	14.8177003	1.73029952	14.7375	4425.5	-1.8102484	70.7	71	78.6	74.2	0.000866
900.01999	3.77926039	14.8191996	1.73029952	14.7375	4426	-1.7854176	70.8	71	78.5	74.1	0.000866
905.01999	3.77425823	14.8191996	1.73029952	14.739	4425.5	-1.7854176	70.8	71	78.6	74.2	0.000866
910.01999	3.7873889	14.8199492	1.73092496	14.73825	4425.5	-1.8102484	70.9	71	78.5	74	0.000865
915.01999	3.78051093	14.8199492	1.73029952	14.73675	4425.75	-1.8102484	70.9	71	78.5	74	0.000866

TEST: EX202137 13 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 4100ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
0.0099792	3.7686308	14.8169507	0.57010832	14.75625	31.175	-1.4626172	71.5	68.2	78.4	74.2	0.000212
5.0299988	3.77238242	14.8154515	1.79972336	14.74275	31.05	-1.4129556	71.5	68	78.5	74.2	0.000213
10.019989	3.7623781	14.8169507	1.78971632	14.742	131.35	956.484816	71.6	68.1	78.5	74.2	0.000248
15.019989	3.77988566	14.8154515	1.78408736	14.7405	622	2372.08872	71.7	68.2	78.5	74.2	0.000331
20.019989	3.76550445	14.8162011	1.77970928	14.73975	1262.25	3186.53696	71.9	68.1	78.4	74.2	0.000425
25.019989	3.7623781	14.8147019	1.77595664	14.73975	1852.5	3578.12068	72	68.1	78.3	74.2	0.00051
30.019989	3.76050229	14.8169507	1.77345488	14.73975	2333.5	3748.95658	72	68.1	78.3	74.3	0.000578
35.019989	3.77300769	14.8162011	1.76970224	14.739	2763.5	3836.361	71.9	68.1	78.3	74.3	0.000632
40.019989	3.77800985	14.8162011	1.76657504	14.739	3064	3894.46507	72	68.1	78.3	74.3	0.000675
45.019989	3.77113188	14.8169507	1.76468872	14.73975	3294.5	3921.28234	71.8	68.1	78.4	74.2	0.000709
50.019989	3.77300769	14.8169507	1.76282224	14.7375	3464	3944.8716	71.9	68.1	78.3	74.2	0.000735
55.019989	3.77050661	14.8169507	1.76282224	14.7375	3624.25	3952.58914	71.9	68.1	78.3	74.2	0.000756
60.019989	3.75800121	14.8169507	1.76032064	14.7375	3754.75	3965.54884	71.9	68.1	78.3	74.4	0.000772
65.019989	3.76238674	14.8162011	1.75906976	14.7375	3844.5	3963.743	72	68.1	78.4	74.3	0.000785
70.019989	3.77738458	14.8162011	1.75594256	14.73825	3914.75	3972.68209	72	68.1	78.4	74.3	0.000795
75.019989	3.78051093	14.8162011	1.75594256	14.7375	3980.75	3974.66856	72	68.1	78.3	74.2	0.000805
80.019989	3.77113188	14.8162011	1.75594256	14.73825	4034.5	3976.40671	72	68.1	78.3	74.2	0.000812
85.019989	3.77988566	14.8177003	1.75719344	14.7375	4084.75	3964.73624	71.8	68.1	78.3	74.3	0.000818
90.019989	3.77863512	14.8169507	1.75406624	14.7375	4125	3971.44055	71.9	68.2	78.4	74.3	0.000822
95.019989	3.77863512	14.8169507	1.75156448	14.7375	4155	3974.17194	71.9	68.1	78.4	74.2	0.000827
100.01999	3.77050661	14.8169507	1.74968816	14.73675	4175.25	3980.37964	71.9	68.2	78.3	74.2	0.000831
105.01999	3.77926039	14.81845	1.75218992	14.7375	4195.25	3985.09749	72	68.2	78.3	74.2	0.000834
110.01999	3.77738458	14.8169507	1.7503136	14.7375	4214.75	3989.07042	71.8	68.2	78.4	74.3	0.000836
115.01999	3.76362864	14.8162011	1.74968816	14.7375	4235.5	3997.51289	71.8	68.2	78.3	74.3	0.000838
120.01999	3.77238242	14.8154515	1.74781184	14.7375	4255	4006.9486	71.7	68.2	78.4	74.2	0.000841
125.01999	3.7748835	14.8169507	1.74843728	14.7375	4265.5	4024.08185	71.7	68.2	78.4	74.3	0.000843
130.01999	3.7623781	14.8169507	1.74781184	14.7375	4275.25	4021.10215	71.8	68.2	78.3	74.3	0.000844
135.01999	3.76738026	14.8177003	1.74781184	14.7375	4285.25	4009.18337	71.8	68.2	78.2	74.3	0.000846
140.01999	3.77988566	14.8162011	1.74593552	14.7375	4295.5	4013.1563	71.8	68.2	78.2	74.3	0.000847
145.01999	3.76925607	14.8169507	1.74593552	14.7375	4305.5	4022.34369	71.7	68.2	78.4	74.3	0.000849
150.01999	3.77550877	14.8169507	1.74531008	14.73825	4315.25	4017.12922	71.7	68.3	78.4	74.3	0.00085
155.01999	3.76925607	14.8162011	1.7440592	14.7375	4315.5	4015.63938	71.7	68.3	78.4	74.3	0.00085
160.01999	3.77050661	14.8162011	1.74343376	14.7375	4325.5	4014.89445	71.6	68.3	78.4	74.3	0.000851
165.01999	3.7763296	14.8162011	1.7440592	14.73675	4325.25	4022.34369	71.5	68.3	78.3	74.3	0.000852
170.01999	3.7623781	14.8162011	1.74343376	14.73675	4335.5	4020.80554	71.4	68.3	78.3	74.3	0.000851
175.01999	3.76800553	14.8169507	1.7440592	14.7375	4335.5	4023.08862	71.4	68.3	78.3	74.3	0.000852
180.01999	3.76875499	14.8169507	1.7440592	14.7375	4345.5	4022.09538	71.3	68.3	78.4	74.4	0.000853
185.01999	3.75800121	14.8177003	1.74343376	14.7375	4345.75	4013.4046	71.2	68.3	78.4	74.4	0.000854

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
190.01999	3.76738026	14.8169507	1.74343376	14.73825	4345.75	4016.13599	71.2	68.4	78.3	74.3	0.000854
195.01999	3.76050229	14.8154515	1.74218288	14.7375	4355.5	4023.08862	71.1	68.4	78.4	74.3	0.000854
200.01999	3.7623781	14.8162011	1.74155744	14.736	4355.25	4014.64614	71.1	68.4	78.3	74.4	0.000856
205.01999	3.7686308	14.8177003	1.74155744	14.7375	4365.25	4018.61907	71.1	68.4	78.3	74.5	0.000856
210.01999	3.76925607	14.8154515	1.74155744	14.7375	4365.5	4034.01417	71.1	68.4	78.3	74.4	0.000856
215.01999	3.77238242	14.8162011	1.73968112	14.73675	4365.75	4029.04801	71	68.4	78.4	74.4	0.000855
220.01999	3.77363296	14.8169507	1.73968112	14.73825	4366	4021.10215	71.1	68.4	78.4	74.4	0.000855
225.01999	3.76675499	14.8154515	1.73968112	14.7375	4365.25	4013.65291	71.1	68.4	78.3	74.3	0.000857
230.01999	3.76675499	14.8177003	1.73905568	14.7375	4366	4023.08862	71.1	68.4	78.2	74.3	0.000857
235.01999	3.7748835	14.8162011	1.73905568	14.73825	4366	4025.32339	71.1	68.5	78.2	74.4	0.000857
240.01999	3.7686308	14.8169507	1.73968112	14.7375	4375	4027.30985	71.1	68.5	78.3	74.4	0.000857
245.01999	3.77113188	14.8169507	1.73968112	14.7375	4376	4025.07508	71	68.5	78.4	74.5	0.000858
250.01999	3.77050661	14.81845	1.73717936	14.7375	4375.75	4022.34369	71	68.5	78.3	74.3	0.000857
255.01999	3.77738458	14.8169507	1.7378048	14.73825	4375.25	4026.31682	71	68.5	78.4	74.3	0.000858
260.01999	3.77926039	14.8169507	1.73843024	14.73825	4375.75	4021.35046	70.9	68.5	78.3	74.3	0.000858
265.06	3.7748835	14.8177003	1.73717936	14.7375	4375.75	4023.08862	70.9	68.5	78.3	74.3	0.000859
270.01999	3.77113188	14.8177003	1.7378048	14.7375	4375.5	4023.33692	70.9	68.5	78.3	74.4	0.000859
275.01999	3.76425391	14.8177003	1.7378048	14.73825	4385.5	4014.14953	71	68.5	78.4	74.4	0.000858
280.03	3.77926039	14.81845	1.73717936	14.7375	4386	4012.41137	71	68.5	78.3	74.4	0.000858
285.01999	3.77113188	14.8169507	1.73717936	14.7375	4385.5	4012.65968	71	68.5	78.3	74.4	0.000859
290.01999	3.7686308	14.8162011	1.73717936	14.73825	4385.5	4004.46552	70.9	68.6	78.3	74.4	0.000859
295.01999	3.75675067	14.8169507	1.73717936	14.739	4386	4010.67322	70.9	68.5	78.2	74.4	0.000858
300.01999	3.77113188	14.8169507	1.73717936	14.739	4385.5	4020.60554	70.9	68.6	78.3	74.4	0.000858
305.01999	3.7623781	14.8169507	1.73655392	14.73825	4386	4019.86061	70.9	68.6	78.3	74.4	0.000859
310.01999	3.77550677	14.8162011	1.73717936	14.7375	4385.75	4017.12922	70.9	68.6	78.4	74.4	0.000859
315.01999	3.75362432	14.8177003	1.7378048	14.7375	4386	4012.41137	70.9	68.6	78.4	74.4	0.000859
320.01999	3.76050229	14.8169507	1.73655392	14.7375	4395.75	4010.92152	70.9	68.6	78.3	74.4	0.00086
325.01999	3.76675499	14.8169507	1.73530304	14.73825	4395.5	4013.1563	70.9	68.6	78.3	74.4	0.00086
330.01999	3.7811362	14.8177003	1.73530304	14.7375	4396	4016.3843	70.9	68.6	78.4	74.4	0.000859
335.01999	3.76988134	14.8169507	1.73530304	14.73825	4395.75	4014.39784	70.9	68.6	78.4	74.4	0.000861
340.01999	3.77550677	14.8162011	1.73530304	14.7375	4396	4011.66645	70.9	68.6	78.4	74.4	0.000861
345.01999	3.7686308	14.8177003	1.73530304	14.73825	4396	4012.16306	70.9	68.6	78.3	74.4	0.00086
350.06	3.76925607	14.8177003	1.73530304	14.739	4395.25	4015.39107	70.9	68.6	78.4	74.4	0.000861
355.01999	3.7748835	14.8169507	1.73530304	14.7375	4396	4017.62584	70.9	68.7	78.4	74.5	0.000861
360.03	3.77050661	14.81845	1.7346776	14.73825	4395.75	4011.41814	70.9	68.6	78.4	74.5	0.000861
365.01999	3.76487918	14.8162011	1.73530304	14.739	4396.25	4020.60554	71	68.6	78.3	74.4	0.000861
370.03999	3.75862648	14.8177003	1.73217584	14.73825	4396	4024.57846	71	68.7	78.3	74.5	0.000861
375.01999	3.76925607	14.8169507	1.73280128	14.73825	4396.25	4024.33016	71.1	68.6	78.2	74.4	0.000859
380.01999	3.75550013	14.81845	1.73342672	14.73825	4396	4021.10215	71.1	68.6	78.3	74.4	0.00086
385.01999	3.7988566	14.8177003	1.73280128	14.7375	4395.75	4016.88092	71.1	68.6	78.3	74.4	0.000861
390.01999	3.76175283	14.8169507	1.73342672	14.73825	4396	4011.16983	71.2	68.7	78.4	74.5	0.000861
395.01999	3.76900553	14.8162011	1.73342672	14.73825	4395.5	4002.97567	71.2	68.7	78.4	74.4	0.00086

Flammable Gas Interlock Spoolpiece Testing

EX202137.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
400.01999	3.7811362	14.8199492	1.73342672	14.74125	4395.75	4010.42491	71.3	68.7	78.3	74.4	0.000861
405.01999	3.77050661	14.8177003	1.73280128	14.73825	4395.5	4010.67322	71.2	68.7	78.3	74.4	0.000861
410.01999	3.7748835	14.8162011	1.73217584	14.73975	4396	4002.97567	71.3	68.7	78.3	74.5	0.000861
415.01999	3.76800553	14.81845	1.73217584	14.7375	4395.5	4005.95536	71.2	68.8	78.3	74.5	0.000861
420.01999	3.76800553	14.81845	1.73342672	14.73675	4406	4001.98244	71.2	68.7	78.3	74.5	0.000862
425.01999	3.7748835	14.81845	1.73280128	14.73975	4406	4003.72059	71.3	68.7	78.4	74.5	0.000862
430.04999	3.77238242	14.81845	1.73280128	14.7375	4405.75	4001.48582	71.3	68.8	78.4	74.5	0.000862
435.01999	3.7686308	14.8169507	1.73280128	14.7375	4406	3996.27135	71.3	68.8	78.2	74.5	0.000862
440.01999	3.77300769	14.8191996	1.73280128	14.7405	4405.75	3998.25782	71.4	68.8	78.4	74.5	0.000862
445.01999	3.75737594	14.8162011	1.73405216	14.7375	4405.75	3994.7815	71.4	68.8	78.4	74.5	0.000861
450.03	3.7686308	14.81845	1.73280128	14.73825	4405.75	3993.53996	71.3	68.8	78.2	74.4	0.000861
455.01999	3.77300769	14.8154515	1.73280128	14.73825	4406	3999.99597	71.4	68.8	78.3	74.4	0.000861
460.06998	3.77550877	14.8177003	1.73342672	14.7405	4405.5	3991.5535	71.4	68.8	78.3	74.5	0.000862
465.01999	3.76925607	14.8177003	1.73280128	14.7375	4405.75	3983.60764	71.5	68.8	78.2	74.5	0.000861
470.01999	3.77050661	14.8191996	1.73280128	14.73825	4406.25	3982.61441	71.5	68.8	78.3	74.5	0.000863
475.01999	3.77238242	14.8191996	1.73217584	14.7375	4405.75	3987.58057	71.5	68.8	78.3	74.5	0.000863
480.09998	3.77988566	14.8199492	1.73280128	14.7375	4406	4009.67998	71.5	68.8	78.2	74.4	0.000861
485.01999	3.7686308	14.81845	1.73217584	14.7375	4406	4012.41137	71.5	68.8	78.2	74.4	0.000862
490.01999	3.78613836	14.81845	1.73342672	14.73825	4406	3997.51289	71.5	68.8	78.2	74.5	0.000862
495.01999	3.76988134	14.8177003	1.73342672	14.7405	4396	4001.48582	71.5	68.9	78.3	74.5	0.000862
500.01999	3.77300769	14.8199492	1.73217584	14.73825	4395.75	4005.70706	71.5	68.8	78.3	74.5	0.000861
505.01999	3.77113188	14.8191996	1.73342672	14.7375	4396.25	4000.24428	71.5	68.8	78.3	74.5	0.000861
510.06	3.77425823	14.8177003	1.73280128	14.7405	4395.75	3985.09749	71.5	68.9	78.3	74.5	0.000861
515.01999	3.77300769	14.81845	1.73217584	14.7375	4396	3991.30519	71.6	68.9	78.2	74.6	0.000861
520.01999	3.76487918	14.8162011	1.73280128	14.73675	4396	3992.05012	71.6	68.9	78.3	74.5	0.000861
525.03998	3.77675931	14.81845	1.73280128	14.7375	4395.5	3988.3255	71.6	68.9	78.2	74.5	0.000861
530.01999	3.76925607	14.8191996	1.73280128	14.73975	4396.25	3991.30519	71.7	68.9	78.2	74.5	0.000861
535.01999	3.77675931	14.8191996	1.73217584	14.7405	4395.75	3991.30519	71.7	68.9	78.2	74.5	0.000861
540.07999	3.7686308	14.8191996	1.73217584	14.7375	4396	3989.07042	71.7	68.9	78.2	74.5	0.000861
545.01999	3.76738026	14.8191996	1.73342672	14.7375	4406	3982.3681	71.7	68.9	78.3	74.5	0.000861
550.01999	3.7811362	14.81845	1.73092496	14.73975	4406	3980.62795	71.7	68.9	78.2	74.5	0.000862
555.06	3.78176147	14.81845	1.73280128	14.7375	4405.75	3972.43378	71.7	68.9	78.3	74.5	0.000862
560.01999	3.7686308	14.8191996	1.73280128	14.73825	4405.75	3971.93717	71.8	68.9	78.3	74.6	0.000862
565.01999	3.76675499	14.8177003	1.73217584	14.7375	4406	3972.9304	71.8	68.9	78.3	74.6	0.000862
570.08999	3.76738026	14.8177003	1.73092496	14.7405	4406.25	3978.14487	71.9	68.9	78.2	74.6	0.000862
575.01999	3.77175715	14.8191996	1.73217584	14.74125	4406.25	3977.15164	71.8	68.9	78.2	74.6	0.000862
580.01999	3.76675499	14.8169507	1.73092496	14.73825	4406.25	3985.59411	71.8	68.9	78.2	74.6	0.000861
585.03998	3.77550877	14.8199492	1.73092496	14.73825	4385.75	3992.54673	71.8	68.9	78.3	74.5	0.000858
590.03998	3.76112756	14.8169507	1.73029952	14.7405	4386.25	3989.07042	71.7	68.9	78.2	74.6	0.000859
595.01999	3.7623781	14.8206988	1.7315504	14.73825	4395.75	3989.31873	71.6	69	78.2	74.6	0.000861
600.01999	3.7686308	14.8191996	1.73092496	14.7405	4396	3972.18548	71.5	69	78.2	74.6	0.000861
605.01999	3.76675499	14.8191996	1.73092496	14.7375	4405.25	3971.44055	71.5	69	78.2	74.7	0.000862

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
610.01999	3.77050661	14.8199492	1.73092496	14.73825	4406	3973.67532	71.4	69	78.3	74.7	0.000862
615.03	3.7686308	14.8191996	1.73029952	14.73825	4406.25	3981.62118	71.4	69	78.2	74.6	0.000863
620.01999	3.76675499	14.8214485	1.73029952	14.7405	4405.25	3982.3661	71.3	69	78.3	74.6	0.000861
625.01999	3.76925607	14.8154515	1.73029952	14.7405	4406	3981.86949	71.4	69.1	78.2	74.6	0.000862
630.03998	3.76612972	14.8191996	1.73092496	14.73825	4406	3983.85595	71.4	69.1	78.3	74.6	0.000862
635.01999	3.7686308	14.8191996	1.73092496	14.7405	4405.75	3982.61441	71.4	69	78.3	74.7	0.000862
640.01999	3.77238242	14.8191996	1.73029952	14.7375	4405.75	3983.35934	71.4	69.1	78.3	74.6	0.000863
645.01999	3.76925607	14.8199492	1.73092496	14.739	4405.75	3985.09749	71.5	69	78.2	74.6	0.000863
650.01999	3.75987702	14.8162011	1.73092496	14.73825	4416	3981.62118	71.6	69.1	78.2	74.6	0.000863
655.01999	3.76425391	14.8199492	1.73092496	14.73825	4415.75	3984.84918	71.6	69.1	78.2	74.6	0.000863
660.06	3.76487918	14.8206988	1.72967408	14.73825	4415.5	3981.62118	71.7	69.1	78.2	74.6	0.000862
665.01999	3.76925607	14.8206988	1.73029952	14.73825	4405.5	3973.92363	71.7	69.1	78.2	74.7	0.000863
670.01999	3.76800553	14.8199492	1.73029952	14.7375	4406	3964.23962	71.7	69.1	78.3	74.6	0.000863
675.03998	3.76487918	14.8169507	1.7284232	14.7375	4406.25	3961.01162	71.7	69.1	78.1	74.7	0.000862
680.01999	3.77863512	14.81845	1.73092496	14.739	4406	3964.98454	71.7	69.1	78.2	74.6	0.000862
685.01999	3.77425823	14.8169507	1.73092496	14.73825	4406.25	3969.7024	71.7	69.1	78.2	74.6	0.000862
690.03	3.76175283	14.81845	1.73029952	14.7375	4405.5	3972.68209	71.8	69.1	78.2	74.7	0.000862
695.07999	3.7748835	14.81845	1.73029952	14.7375	4406	3972.43378	71.6	69.1	78.3	74.6	0.000861
700.01999	3.77238242	14.81845	1.73029952	14.73825	4405.75	3972.18548	71.4	69.1	78.4	74.7	0.000863
705.06	3.77238242	14.8191996	1.72779776	14.7375	4405.5	3974.42025	71.5	69.1	78.2	74.7	0.000863
710.01999	3.76738026	14.8191996	1.72967408	14.73825	4405.75	3976.90333	71.5	69.1	78.2	74.6	0.000862
715.01999	3.76300337	14.81845	1.7284232	14.7375	4406.25	3974.91686	71.5	69.1	78.2	74.6	0.000862
720.06	3.77613404	14.8199492	1.73029952	14.73675	4406.25	3968.21255	71.5	69.2	78.2	74.7	0.000862
725.01999	3.7686308	14.81845	1.72779776	14.74125	4405.25	3963.743	71.5	69.2	78.3	74.7	0.000862
730.01999	3.77550877	14.8199492	1.7284232	14.73825	4406.25	3956.79038	71.5	69.1	78.3	74.7	0.000862
735.06998	3.76050229	14.8199492	1.7284232	14.73825	4406	3952.56914	71.5	69.2	78.2	74.6	0.000862
740.01999	3.76300337	14.81845	1.7284232	14.73825	4406.25	3963.24639	71.5	69.2	78.2	74.7	0.000862
745.01999	3.76612972	14.8214485	1.7284232	14.73825	4406	3968.70916	71.5	69.2	78.3	74.7	0.000862
750.03998	3.77675931	14.8199492	1.7284232	14.7375	4405.75	3971.44055	71.6	69.2	78.1	74.7	0.000862
755.01999	3.76925607	14.8191996	1.72904864	14.73825	4406.25	3970.94394	71.5	69.2	78.1	74.6	0.000861
760.01999	3.75487486	14.8199492	1.72904864	14.73825	4405.5	3974.91686	71.3	69.2	78.1	74.7	0.000862
765.03998	3.76112756	14.8191996	1.7284232	14.7375	4405.75	3981.12456	71.3	69.2	78.2	74.7	0.000861
770.01999	3.75424959	14.81845	1.7284232	14.7375	4405.75	3980.87626	71.2	69.2	78.3	74.7	0.000862
775.01999	3.76112756	14.8177003	1.72904864	14.739	4406.25	3983.11103	71.2	69.2	78.3	74.7	0.000862
780.04999	3.7686308	14.81845	1.7284232	14.7375	4406.25	3971.19224	71.2	69.2	78.3	74.7	0.000862
785.01999	3.76800553	14.8177003	1.7284232	14.7375	4405.5	3972.18548	71.1	69.2	78.1	74.7	0.000863
790.01999	3.76925607	14.81845	1.72904864	14.739	4406.25	3969.7024	71	69.3	78.2	74.7	0.000862
795.03	3.76800553	14.81845	1.7284232	14.7375	4406	3959.77008	71.1	69.2	78.3	74.6	0.00086
800.01999	3.77675931	14.8199492	1.72779776	14.73975	4406	3958.52854	71	69.2	78.3	74.6	0.000862
805.01999	3.7623781	14.8191996	1.72904864	14.7375	4406	3958.52854	71	69.3	78.2	74.6	0.000861
810.03	3.76988134	14.8191996	1.72779776	14.7375	4405.5	3966.22608	71.2	69.3	78.2	74.7	0.000861
815.04999	3.7686308	14.8199492	1.7284232	14.7375	4395.75	3975.16517	71.1	69.3	78.2	74.6	0.00086

Flammable Gas Interlock Spoolpiece Testing

EX202137.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
820.01999	3.77425823	14.81845	1.72779776	14.7375	4405.5	3972.68209	71.1	69.3	78.3	74.7	0.000862
825.06	3.76612972	14.8177003	1.7284232	14.73825	4405.75	3973.17871	71	69.3	78.2	74.6	0.000861
830.03	3.76988134	14.8191996	1.72779776	14.73825	4406	3968.70916	70.9	69.3	78.1	74.6	0.000862
835.01999	3.76612972	14.81845	1.72904864	14.7375	4406.25	3961.50823	71	69.4	78.2	74.7	0.000862
840.01999	3.77238242	14.81845	1.72904864	14.739	4405.75	3957.78361	71.1	69.3	78.2	74.7	0.000861
845.01999	3.77175715	14.8199492	1.7284232	14.7375	4405.75	3964.73624	71.2	69.3	78.3	74.6	0.000861
850.01999	3.76738026	14.8199492	1.72904864	14.7375	4406	3964.73624	71.2	69.3	78.3	74.6	0.000862
855.01999	3.77238242	14.8199492	1.72904864	14.7375	4405.25	3964.23962	71.3	69.4	78.2	74.6	0.000861
860.06998	3.77675931	14.8199492	1.72904864	14.73825	4406	3972.18548	71.3	69.4	78.2	74.6	0.000861
865.01999	3.7748835	14.81845	1.72967408	14.73825	4406	3962.25316	71.3	69.4	78.3	74.7	0.000861
870.07999	3.7686308	14.8199492	1.72904864	14.7375	4406	3968.46086	71.4	69.4	78.3	74.7	0.000862
875.06998	3.76487918	14.8191996	1.72904864	14.7375	4406	3963.24639	71.5	69.4	78.3	74.7	0.000861
880.01999	3.75800121	14.8199492	1.72904864	14.73825	4396.25	3956.54207	71.5	69.4	78.3	74.7	0.00086
885.03998	3.75800121	14.8162011	1.72904864	14.73825	4396.25	3957.287	71.4	69.4	78.2	74.7	0.000859
890.01999	3.77988566	14.8191996	1.72967408	14.73825	4395.75	3955.05222	71.4	69.4	78.1	74.7	0.00086
895.01999	3.77050661	14.8199492	1.7284232	14.7375	4396.25	3956.79038	71.3	69.4	78.3	74.7	0.00086
900.01999	3.76362864	14.8199492	1.72904864	14.7375	4385.75	3960.76331	71.3	69.4	78.3	74.7	0.000861
905.01999	3.77926039	14.8199492	1.72904864	14.7375	4396.25	3963.24639	71.3	69.4	78.2	74.6	0.00086
910.01999	3.7623781	14.8199492	1.72904864	14.73825	4386.25	3958.52854	71.4	69.4	78.1	74.7	0.000861
915.06	3.76800553	14.8206998	1.72904864	14.73825	4396	3954.3073	71.4	69.4	78.2	74.6	0.000861
920.01999	3.77113188	14.8191996	1.72904864	14.73825	4396.25	3959.02515	71.5	69.4	78.2	74.7	0.000861

TEST: EX102147 14 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 4150ppm

SECOND	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (Volts)
0.01001	3.75987702	14.7524832	-0.007297888	14.5845	31.125	36.6029992	70.9	70.7	77.7	73.8	0.000213
5.019999	3.77238242	14.7532329	1.66150112	14.664	31.275	37.3230924	70.9	70.5	77.7	73.8	0.000213
10.01999	3.76425391	14.7532329	1.66462832	14.66625	137.4	827.116348	70.9	70.7	77.7	73.8	0.000248
15.01999	3.7748835	14.750984	1.7690768	14.67225	619.75	2092.24561	70.9	70.8	77.7	73.8	0.000326
20.01999	3.77050661	14.7539825	1.772204	14.6745	1198.5	2884.84474	70.9	70.7	77.7	73.8	0.000409
25.01999	3.77425823	14.7524832	1.772204	14.6715	1741	3354.89179	70.8	70.7	77.6	73.8	0.000488
30.01999	3.76362864	14.7524832	1.77157856	14.6715	2203	3622.56781	70.8	70.8	77.7	73.8	0.000552
35.29001	3.76050229	14.7517336	1.772204	14.6745	2543	3759.88214	70.7	70.7	77.7	73.8	0.000607
40.01999	3.77050661	14.7517336	1.77282944	14.6715	2862.5	3822.95237	70.7	70.7	77.7	73.8	0.000646
45.01999	3.77238242	14.7532329	1.77345488	14.6715	3090.5	3865.86134	70.8	70.7	77.7	73.8	0.000679
50.01999	3.76175283	14.7502344	1.77282944	14.67075	3274.75	3896.94815	70.8	70.7	77.7	73.8	0.000706
55.01999	3.76612972	14.7524832	1.772204	14.6715	3442.75	3923.02049	70.8	70.7	77.7	73.8	0.000728
60.01999	3.77300769	14.7539825	1.77282944	14.6715	3554.5	3933.20112	70.8	70.7	77.7	73.9	0.000744
65.01999	3.75737594	14.7494847	1.77282944	14.6715	3664.25	3948.34791	70.7	70.7	77.6	73.9	0.000757
70.01999	3.7686308	14.7532329	1.77345488	14.67075	3754.5	3962.50146	70.7	70.8	77.7	73.8	0.00077
75.01999	3.77675931	14.7517336	1.77282944	14.67225	3814.75	3966.22608	70.6	70.7	77.7	73.8	0.000778
80.01999	3.77425823	14.7494847	1.77282944	14.6715	3864.25	3975.41348	70.7	70.7	77.7	73.8	0.000786
85.01999	3.76362864	14.7494847	1.77282944	14.67225	3914.75	3985.59411	70.7	70.7	77.7	73.8	0.000792
90.01999	3.7686308	14.7524832	1.77345488	14.67225	3954.75	3998.50612	70.7	70.8	77.7	73.9	0.000799
95.01999	3.75800121	14.750984	1.77282944	14.67225	3974.75	4006.45198	70.8	70.7	77.6	73.9	0.000803
100.02	3.77300769	14.7539825	1.77282944	14.6715	4015	4011.41814	70.7	70.7	77.7	73.9	0.000807
105.02	3.77926039	14.7517336	1.77282944	14.67225	4035.25	4018.37076	70.7	70.8	77.7	73.9	0.000809
110.02	3.78988998	14.7524832	1.77282944	14.6745	4054.75	4024.82677	70.8	70.7	77.8	73.8	0.000812
115.02	3.79239106	14.7517336	1.77282944	14.6745	4074.5	4021.59877	70.8	70.8	77.8	73.9	0.000815
120.02	3.77738458	14.7532329	1.77345488	14.6745	4095.5	4025.82	70.7	70.8	77.8	73.9	0.000817
125.02	3.78926471	14.7524832	1.77282944	14.6715	4104.5	4031.03447	70.8	70.8	77.8	73.9	0.000818
130.02	3.7748835	14.7539825	1.77345488	14.6715	4115.25	4039.97356	70.8	70.7	77.8	73.9	0.000819
135.02	3.7748835	14.7494847	1.77282944	14.67225	4125	4038.2354	70.7	70.8	77.7	73.9	0.000821
140.02	3.75987702	14.750984	1.77408032	14.67225	4135	4037.24217	70.7	70.8	77.7	74	0.000823
145.02	3.7686308	14.7502344	1.77345488	14.673	4135.25	4045.43634	70.7	70.8	77.8	74	0.000823
150.02	3.75862648	14.7502344	1.77408032	14.6715	4150	4046.42957	70.7	70.8	77.8	74	0.000825
155.02	3.76112756	14.7494847	1.77345488	14.67225	4155.25	4053.38219	70.6	70.8	77.7	73.9	0.000825
160.02	3.77050661	14.750984	1.77282944	14.67225	4165.5	4060.58312	70.5	70.8	77.7	73.9	0.000827
165.02	3.76800553	14.7517336	1.77282944	14.67225	4170.75	4062.07297	70.4	70.8	77.7	73.9	0.000828
170.02	3.75737594	14.7502344	1.77282944	14.673	4175	4064.80436	70.4	70.8	77.6	73.9	0.000829
175.02	3.76675499	14.7517336	1.77408032	14.67225	4185.5	4066.54252	70.4	70.8	77.6	73.9	0.00083
180.02	3.75424959	14.7502344	1.77282944	14.67225	4195.25	4069.2739	70.4	70.8	77.5	74	0.000831
185.02	3.75675067	14.7502344	1.77345488	14.6715	4195	4070.01883	70.4	70.8	77.5	73.9	0.000832

Flammable Gas Interlock Spoolpiece Testing

EX102147.XLS

SECOND	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (Volts)
190.02	3.76362864	14.7502344	1.77345488	14.67225	4205.25	4070.26714	70.5	70.8	77.5	74	0.000832
195.02	3.76988134	14.7502344	1.77282944	14.67225	4204.75	4073.74345	70.5	70.8	77.5	74	0.000833
200.02	3.76612972	14.7487351	1.77345488	14.6715	4205.75	4081.93761	70.5	70.8	77.6	73.9	0.000834
205.02	3.75737594	14.7524832	1.77282944	14.67075	4215.5	4083.92408	70.5	70.8	77.6	73.9	0.000833
210.02	3.7686308	14.7502344	1.77345488	14.67225	4215	4086.90377	70.5	70.8	77.5	73.9	0.000834
215.02	3.7623781	14.7524832	1.77345488	14.6715	4225.25	4086.65546	70.5	70.8	77.5	74	0.000835
220.02	3.77300769	14.750984	1.77345488	14.67225	4225.25	4091.37332	70.6	70.8	77.6	73.9	0.000836
225.02	3.76800553	14.7494847	1.77282944	14.673	4235.25	4093.60809	70.6	70.8	77.5	74	0.000837
230.02	3.76175283	14.7502344	1.77345488	14.67225	4235.5	4096.58778	70.6	70.8	77.5	74	0.000837
235.02	3.76888782	14.7502344	1.77282944	14.67225	4235.5	4092.11824	70.6	70.8	77.6	74	0.000837
240.02	3.75987702	14.750984	1.77345488	14.67225	4245.5	4086.15885	70.6	70.8	77.6	73.9	0.000837
245.02	3.77550877	14.7487351	1.772204	14.67225	4245.25	4082.68254	70.6	70.8	77.6	74	0.000837
250.02	3.7686308	14.7502344	1.77282944	14.6715	4245.5	4081.441	70.6	70.8	77.6	73.9	0.000838
255.02	3.77363296	14.7502344	1.772204	14.67225	4245.25	4081.19269	70.7	70.8	77.5	73.9	0.000838
260.02	3.76738026	14.7502344	1.772204	14.6715	4245.5	4083.67577	70.6	70.8	77.5	74	0.000838
265.02	3.77988566	14.7502344	1.77282944	14.6715	4245.25	4084.17238	70.7	70.8	77.5	74	0.000838
270.02	3.77926039	14.7532329	1.77282944	14.67225	4255.25	4084.17238	70.7	70.8	77.5	74	0.000838
275.02	3.7748835	14.7517336	1.77095312	14.67225	4255.75	4080.69607	70.6	70.8	77.6	74	0.000839
280.02	3.76988134	14.7517336	1.77032768	14.6715	4255.5	4078.95792	70.7	70.8	77.6	74	0.000839
285.02	3.76675499	14.750984	1.77345488	14.67075	4255.5	4085.41392	70.7	70.8	77.5	74	0.000841
290.02	3.77800985	14.7502344	1.77095312	14.67225	4265.5	4092.36655	70.7	70.8	77.6	74	0.00084
295.02	3.76675499	14.7494847	1.77095312	14.6715	4265.5	4090.38008	70.7	70.8	77.6	74	0.00084
300.02	3.78176147	14.7502344	1.77032768	14.6715	4256.25	4088.89024	70.8	70.8	77.6	74	0.000839
305.02	3.77550877	14.750984	1.77157856	14.6715	4255.5	4085.16562	70.8	70.8	77.7	74	0.00084
310.03	3.75675067	14.750984	1.77032768	14.6715	4255.75	4081.19269	70.8	70.8	77.6	74	0.00084
315.02	3.75800121	14.7517336	1.77095312	14.67225	4256.25	4089.38685	70.8	70.8	77.7	74	0.000839
320.02	3.76675499	14.7502344	1.7690768	14.67225	4265.75	4088.14531	70.8	70.8	77.7	74	0.00084
325.02	3.7561254	14.750984	1.76845136	14.6715	4265.5	4093.11147	70.8	70.8	77.8	74	0.000841
330.02	3.76175283	14.7494847	1.7690768	14.6715	4265.5	4087.897	70.8	70.8	77.7	74	0.000841
335.02	3.77113188	14.7502344	1.7690768	14.6715	4265.75	4086.15885	70.8	70.9	77.7	74	0.000841
340.02	3.7748835	14.7494847	1.77095312	14.6715	4265.5	4086.65546	70.8	70.8	77.7	74	0.000842
345.02	3.76675499	14.7502344	1.7690768	14.6715	4265.75	4089.63516	70.8	70.8	77.7	74	0.000842
350.02	3.7686308	14.7487351	1.7690768	14.67075	4265.5	4096.58778	70.8	70.9	77.8	74	0.000843
355.03	3.75362432	14.7494847	1.7690768	14.67075	4275.5	4096.83609	70.8	70.8	77.8	74	0.000842
360.02	3.77363296	14.7502344	1.76970224	14.67075	4275.5	4098.07763	70.8	70.8	77.8	74	0.000842
365.02	3.77175715	14.7502344	1.76970224	14.6715	4275.5	4084.91731	70.8	70.8	77.7	74	0.000842
370.02	3.77926039	14.750984	1.7690768	14.6715	4275.75	4084.669	70.8	70.8	77.8	74	0.000842
375.02	3.76050229	14.750984	1.76970224	14.6715	4275.5	4085.91054	70.8	70.8	77.7	74	0.000843
380.02	3.7561254	14.7517336	1.7690768	14.6715	4275.75	4083.17915	70.8	70.8	77.7	74	0.000842
385.02	3.77738458	14.750984	1.7690768	14.6715	4275.5	4086.40716	70.8	70.8	77.7	74	0.000843
390.02	3.7686308	14.7502344	1.7690768	14.67075	4275.25	4087.15208	70.7	70.8	77.7	74	0.000843
395.02	3.76487918	14.7502344	1.7690768	14.67225	4285.75	4076.22653	70.8	70.9	77.7	74	0.000844

Flammable Gas Interlock Spoolpiece Testing

EX102147.XLS

SECOND	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (Volts)
400.02	3.77363296	14.7502344	1.7690768	14.6715	4285	4078.4613	70.8	70.9	77.6	74	0.000844
405.02	3.76988134	14.7502344	1.7690768	14.67225	4285.25	4081.19269	70.8	70.9	77.6	74	0.000843
410.02	3.7686308	14.750984	1.76845136	14.67075	4285.25	4077.46807	70.8	70.9	77.6	74	0.000843
415.02	3.76675499	14.7502344	1.7690768	14.6715	4285.25	4073.49514	70.7	70.8	77.6	74	0.000843
420.02	3.77300769	14.7487351	1.7690768	14.67225	4285.5	4076.22653	70.8	70.9	77.6	74.1	0.000845
425.02	3.75862648	14.7502344	1.7690768	14.67225	4285.5	4079.45453	70.8	70.9	77.7	74.1	0.000844
430.02	3.77113188	14.7517336	1.76845136	14.6715	4285.75	4075.72991	70.8	70.9	77.7	74	0.000844
435.02	3.7686308	14.7539825	1.76845136	14.6715	4285.25	4081.441	70.8	70.9	77.7	74.1	0.000843
440.02	3.7686308	14.7539825	1.76657504	14.6715	4286	4083.67577	70.8	70.9	77.7	74.1	0.000844
445.11	3.76800553	14.750984	1.76845136	14.67225	4285.5	4087.40039	70.8	70.9	77.7	74	0.000843
450.02	3.76362864	14.7502344	1.76720048	14.6715	4285.75	4095.09794	70.8	70.9	77.7	74	0.000843
455.02	3.77663512	14.7539825	1.76657504	14.6715	4285.5	4101.05733	70.8	70.9	77.8	74	0.000844
460.02	3.76425391	14.7502344	1.76657504	14.67225	4285.25	4100.0641	70.8	70.9	77.8	74	0.000843
465.1	3.7561254	14.750984	1.7659496	14.6715	4285.25	4099.31917	70.8	70.9	77.7	74.1	0.000845
470.02	3.76175283	14.7517336	1.76657504	14.6715	4285.5	4092.61486	70.8	70.9	77.8	74	0.000845
475.11	3.77238242	14.750984	1.76657504	14.67075	4285.75	4090.13178	70.9	70.9	77.8	74.1	0.000845
480.02	3.76112756	14.750984	1.76657504	14.67225	4285.5	4100.3124	70.9	70.9	77.8	74.1	0.000845
485.02	3.75737594	14.7502344	1.76657504	14.67225	4285.75	4099.81579	71	70.9	77.8	74.1	0.000845
490.02	3.76925607	14.7494847	1.76657504	14.67225	4295.25	4095.84286	71.1	70.9	77.8	74.1	0.000846
495.02	3.76050229	14.7502344	1.76720048	14.67075	4295.75	4085.91054	71.1	71	77.8	74	0.000846
500.02	3.76675499	14.7494847	1.76657504	14.6715	4295.75	4067.15208	71.2	70.9	77.9	74.1	0.000846
505.02	3.76425391	14.750984	1.7659496	14.6715	4295.5	4085.16562	71.2	71	77.9	74.1	0.000847
510.02	3.7686308	14.750984	1.7659496	14.6715	4296	4088.39362	71.1	70.9	77.8	74.1	0.000846
515.03	3.77113188	14.7502344	1.76720048	14.6715	4305.75	4092.36655	71.1	71	77.8	74.1	0.000845
520.02	3.7561254	14.750984	1.76720048	14.67	4305.25	4084.91731	71	71	77.8	74.1	0.000847
525.02	3.77363296	14.750984	1.76657504	14.67	4303.5	4081.19269	70.9	71	77.8	74.1	0.000846
530.06	3.76050229	14.7494847	1.76657504	14.6715	4296	4085.41392	70.8	70.9	77.7	74.1	0.000847
535.02	3.76112756	14.7524832	1.7659496	14.6715	4296.5	4079.70284	70.8	70.9	77.8	74.1	0.000846
540.02	3.76612872	14.7517336	1.76782592	14.67	4306	4079.45453	70.8	71	77.7	74.1	0.000846
545.02	3.76175283	14.7502344	1.76657504	14.6715	4296	4080.44776	70.8	71	77.7	74.1	0.000845
550.05	3.7686308	14.7517336	1.76720048	14.66925	4295.75	4077.96468	70.8	71	77.7	74.1	0.000846
555.02	3.76800553	14.7479855	1.76720048	14.6715	4295.75	4078.95792	70.7	71	77.6	74.1	0.000846
560.05	3.75550013	14.7494847	1.76782592	14.6715	4296	4079.95115	70.8	71	77.6	74.1	0.000845
565.02	3.75550013	14.7502344	1.76782592	14.66925	4295.75	4086.65546	70.7	71	77.7	74.1	0.000844
570.02	3.75237378	14.7502344	1.76720048	14.6715	4295.75	4079.95115	70.7	71	77.8	74.1	0.000845
575.06	3.76175283	14.7464863	1.76657504	14.67075	4295.75	4079.45453	70.7	71	77.6	74.1	0.000845
580.02	3.76738026	14.750984	1.76720048	14.6685	4296	4082.68254	70.7	71	77.6	74.1	0.000845
585.02	3.75987702	14.7502344	1.76657504	14.67075	4296.25	4077.46807	70.7	71	77.5	74.1	0.000845
590.07	3.77175715	14.7502344	1.76657504	14.6715	4296	4083.42746	70.7	71	77.6	74.1	0.000844
595.02	3.77300769	14.7502344	1.7659496	14.6715	4295.75	4086.15885	70.7	71	77.7	74.1	0.000845
600.02	3.76800553	14.7517336	1.76657504	14.67	4295.75	4085.41392	70.7	71	77.7	74.1	0.000845
605.02	3.76175283	14.7479855	1.7659496	14.6715	4296	4094.84963	70.8	71	77.6	74.1	0.000845

Flammable Gas Interlock Spoilpiece Testing

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SECOND	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEG CELL TEMP. (F)	WEG CELL (Volts)
610.02	3.75112324	14.7149855	1.76657504	14.6885	4296	4067.40039	70.8	71.1	77.6	74.2	0.000845
615.02	3.765500445	14.7503984	1.76657504	14.67075	4296.25	4077.96468	70.8	71.1	77.7	74.1	0.000845
620.03	3.76509605	14.7494847	1.76694966	14.67225	4295.75	4084.17238	70.9	71.1	77.7	74.2	0.000845
625.02	3.76425391	14.76720048	1.76720048	14.67075	4296	4082.43423	70.9	71.1	77.7	74.2	0.000845
630.02	3.76800553	14.77494847	1.76720048	14.66925	4295.75	4079.45453	70.9	71.1	77.8	74.2	0.000846
635.02	3.76800553	14.750984	1.76594966	14.67	4295.75	4078.95792	70.9	71.1	77.8	74.2	0.000846
640.02	3.76675469	14.7494847	1.76720048	14.66775	4296	4096.40716	70.9	71.1	77.7	74.2	0.000845
645.02	3.75962432	14.7487351	1.76594966	14.66775	4296	4079.20622	70.8	71.1	77.8	74.2	0.000846
650.02	3.76175283	14.7449374	1.76720048	14.66775	4295.75	4075.4816	70.8	71.1	77.7	74.2	0.000846
655.02	3.76175283	14.7449374	1.76720048	14.6685	4295.75	4083.92408	70.8	71.1	77.7	74.2	0.000845
660.02	3.77175283	14.7479555	1.76657504	14.66925	4295.75	4078.95792	70.8	71.1	77.7	74.2	0.000846
665.03	3.76738026	14.7464863	1.76657504	14.66775	4295.25	4068.03236	70.7	71.1	77.8	74.2	0.000847
670.02	3.76194404	14.7487351	1.76657504	14.6715	4305.75	4077.46907	70.8	71.1	77.7	74.2	0.000847
675.02	3.76738026	14.7487351	1.76657504	14.67075	4306	4083.17915	70.8	71.1	77.7	74.1	0.000847
680.02	3.77238242	14.750984	1.76720048	14.6715	4305.75	4088.64193	70.8	71.1	77.7	74.2	0.000846
685.02	3.76175283	14.750984	1.76657504	14.6715	4306	4080.69607	70.7	71.1	77.7	74.2	0.000847
690.02	3.74612108	14.7487351	1.76762592	14.6715	4306	4082.43423	70.7	71.1	77.6	74.2	0.000847
695.04	3.76362864	14.7502344	1.76720048	14.67075	4305.75	4075.97822	70.7	71.1	77.6	74.2	0.000847
700.02	3.76675469	14.7494847	1.76657504	14.6715	4306	4073.74345	70.7	71.1	77.6	74.2	0.000847
705.02	3.76612072	14.750984	1.76657504	14.67075	4306	4081.441	70.7	71.1	77.6	74.2	0.000846
710.04	3.75550013	14.750984	1.76720048	14.67225	4305.75	4082.88254	70.7	71.1	77.6	74.2	0.000847
715.02	3.765500445	14.7517336	1.76720048	14.6715	4306.25	4074.48837	70.7	71.1	77.6	74.2	0.000847
720.02	3.76738026	14.750984	1.76657504	14.67075	4305.5	4067.03913	70.7	71.1	77.7	74.2	0.000847
725.02	3.75487486	14.7472359	1.76762592	14.6715	4305.25	4073.24883	70.7	71.1	77.7	74.2	0.000847
730.02	3.7623781	14.7472359	1.76657504	14.67075	4305.5	4076.22953	70.7	71.1	77.7	74.2	0.000847
735.02	3.75987702	14.7502344	1.76720048	14.6715	4305.5	4070.51544	70.7	71.1	77.8	74.2	0.000847
740.04	3.76551308	14.7517336	1.76720048	14.6715	4305.75	4072.75022	70.8	71.1	77.7	74.2	0.000847
745.02	3.7666308	14.7487351	1.76657504	14.6715	4306	4081.6893	70.8	71.1	77.7	74.3	0.000848
750.02	3.76675469	14.7517336	1.76720048	14.6715	4306	4080.94438	70.8	71.1	77.7	74.2	0.000848
755.07	3.77425623	14.7517336	1.76594966	14.6715	4305.75	4074.79668	70.8	71.1	77.8	74.2	0.000847
760.02	3.76988134	14.7517336	1.76594966	14.6715	4305.75	4085.16562	70.8	71.1	77.8	74.2	0.000848
765.02	3.7623781	14.7494847	1.76657504	14.6715	4305.75	4086.15895	70.8	71.1	77.8	74.2	0.000848
770.04	3.7696308	14.7517336	1.76532416	14.6715	4305.75	4083.42746	70.8	71.1	77.8	74.2	0.000848
775.02	3.77663512	14.750984	1.76832416	14.6715	4306	4079.20622	70.7	71.1	77.8	74.2	0.000847
780.02	3.7686308	14.750984	1.76657504	14.6715	4305.75	4088.40716	70.7	71.1	77.8	74.2	0.000846
785.06	3.76987702	14.7494847	1.76594966	14.6715	4306	4080.94438	70.7	71.1	77.8	74.2	0.000846
790.06	3.7686308	14.7502344	1.76657504	14.67075	4295.75	4079.95115	70.7	71.1	77.8	74.3	0.000847
795.02	3.77663512	14.750984	1.76720048	14.67225	4305.25	4073.99176	70.7	71.1	77.8	74.3	0.000847
800.04	3.75487486	14.750984	1.76594966	14.67075	4305.75	4076.97145	70.7	71.1	77.8	74.3	0.000847
805.02	3.7686308	14.7502344	1.76594966	14.6715	4306	4078.70981	70.8	71.1	77.8	74.3	0.000847
810.02	3.76489762	14.750984	1.76489762	14.6715	4305.5	4076.47484	70.8	71.1	77.9	74.2	0.000847
815.03	3.7623781	14.750984	1.76489872	14.67075	4305.5	4070.51544	70.7	71.1	77.8	74.3	0.000847

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APPENDIX C, Page

Flammable Gas Interlock Spoolpiece Testing

EX102147.XLS

SECOND	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (Volts)
820.02	3.75737594	14.7494847	1.76469872	14.6715	4305.5	4069.77052	70.7	71.1	77.8	74.3	0.000848
825.02	3.75362432	14.7517336	1.76532416	14.673	4305.5	4074.48837	70.8	71.1	77.9	74.3	0.000848
830.04	3.76050229	14.7524832	1.76532416	14.6715	4305.75	4074.24006	70.8	71.1	77.9	74.3	0.000847
835.02	3.7686308	14.750984	1.76469872	14.6715	4305.75	4074.24006	70.7	71.1	77.9	74.2	0.000848
840.02	3.7686308	14.7502344	1.76469872	14.67075	4316	4077.96468	70.8	71.1	77.9	74.2	0.000848
845.03	3.76175283	14.750984	1.76469872	14.6715	4306.25	4075.4816	70.8	71.1	77.9	74.2	0.000848
850.02	3.76612972	14.7479855	1.76407328	14.67075	4316	4074.98499	70.8	71.1	78	74.3	0.000847
855.02	3.76300337	14.750984	1.76469872	14.6715	4306	4080.69607	70.9	71.1	78	74.3	0.000848
860.04	3.77113188	14.750984	1.76532416	14.6715	4305.75	4087.897	70.9	71.1	78	74.2	0.000846
865.02	3.76487918	14.7494847	1.76469872	14.6715	4305.75	4081.6893	70.8	71.2	78	74.3	0.000848
870.02	3.7623781	14.7502344	1.7659496	14.67225	4305.75	4077.71638	70.9	71.2	78	74.3	0.000848
875.05	3.76925607	14.7502344	1.76532416	14.6715	4305.5	4074.73668	70.9	71.2	78	74.3	0.000847
880.02	3.76612972	14.7517336	1.76469872	14.67075	4306	4075.97822	70.9	71.2	77.9	74.3	0.000846
885.02	3.75237378	14.7494847	1.76532416	14.6715	4305.5	4075.4816	70.9	71.1	77.9	74.2	0.000846
890.04	3.77675831	14.7517336	1.76469872	14.67075	4305.75	4085.16562	70.9	71.2	78	74.3	0.000847
895.05	3.7686308	14.7502344	1.76407328	14.6715	4306.25	4086.65546	70.9	71.2	78	74.2	0.000846
900.02	3.76362864	14.750984	1.76407328	14.67075	4305.5	4081.6893	70.9	71.2	77.9	74.3	0.000847
905.04	3.76487918	14.7532329	1.76407328	14.67	4306	4071.50868	70.9	71.2	78	74.3	0.000847
910.02	3.77550877	14.750984	1.76469872	14.6715	4306	4071.01206	70.8	71.2	78	74.2	0.000846

TEST: FGI22211 22 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 219ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
0.01001	3.7686308	14.7472359	0.327937952	14.71875	1.125	2.8082804	69.4	68.7	68.4	69	0.00023
5.02002	3.77926039	14.7472359	3.98751248	15.05775	1.075	1.5915712	69.4	68.7	68.3	68.9	0.000231
10.02002	3.80739754	14.7464863	4.00314848	15.06075	1.125	0.2755388	69.4	68.7	68.3	69	0.000233
15.02002	3.74612108	14.7472359	4.01628272	15.06225	10.95	28.1605272	69.4	68.7	68.2	68.9	0.000235
20.02002	3.7686308	14.7472359	4.0269152	15.066	40.775	46.7091348	69.4	68.8	68.4	69	0.00024
25.02002	3.74737162	14.7464863	4.02879152	15.0645	61.25	55.25093	69.3	68.8	68.4	69	0.000244
30.02002	3.75487486	14.7472359	4.03191872	15.06525	91.075	58.35478	69.3	68.8	68.3	69	0.000247
35.02002	3.76050229	14.7464863	4.03254416	15.06525	111.075	59.472166	69.4	68.8	68.4	68.9	0.00025
40.02002	3.75862648	14.7464863	4.03442048	15.06525	131.025	59.2486888	69.4	68.8	68.2	68.9	0.000252
45.02002	3.77988566	14.7479855	4.03379504	15.0645	141.025	59.0500424	69.5	68.8	68.4	69	0.000255
50.02002	3.76050229	14.7479855	4.03129328	15.0645	151.475	59.6708124	69.4	68.8	68.5	69	0.000257
55.02002	3.75049797	14.7472359	4.03129328	15.066	161.025	59.1245348	69.5	68.8	68.4	69	0.000256
60.02002	3.77926039	14.744987	4.03504592	15.06525	171.175	59.1245348	69.6	68.8	68.3	68.9	0.000258
65.02002	3.77300769	14.7464863	4.03254416	15.0645	181.075	59.0500424	69.6	68.8	68.3	68.9	0.000259
70.02002	3.75862648	14.7457366	4.03129328	15.0645	181.375	58.1809644	69.6	68.8	68.5	68.9	0.000259
75.02002	3.75862648	14.7472359	4.03129328	15.0645	191.3	58.5782572	69.7	68.8	68.4	68.9	0.00026
80.02002	3.7623781	14.7479855	4.02879152	15.06525	190.9	59.2735196	69.6	68.8	68.5	69	0.000261
85.02002	3.76362864	14.7472359	4.02879152	15.066	201.3	59.5714892	69.7	68.8	68.5	69	0.000261
90.02002	3.75675067	14.7464863	4.02628976	15.066	201.05	58.8017344	69.7	68.9	68.3	68.9	0.000261
95.02002	3.74549581	14.744987	4.02754064	15.06525	201.35	58.8265652	69.7	68.8	68.5	69	0.000261
100.02	3.75424959	14.7479855	4.02754064	15.066	201.25	59.6459816	69.7	68.9	68.3	68.9	0.000261
105.02	3.75675067	14.7464863	4.02441344	15.066	210.825	59.4969968	69.6	68.8	68.5	69	0.000262
110.02	3.76487918	14.7464863	4.02503888	15.06675	211.025	59.3728428	69.6	68.8	68.5	69	0.000262
115.02	3.7561254	14.7472359	4.02441344	15.06375	211.1	59.4473352	69.6	68.9	68.4	69	0.000263
120.02	3.7561254	14.7464863	4.02253712	15.06675	211.425	59.1741964	69.6	68.8	68.4	69	0.000262
125.02	3.7623781	14.7479855	4.02253712	15.063	211.025	58.851396	69.5	68.9	68.3	69	0.000263
130.02	3.76300337	14.7457366	4.02253712	15.063	210.85	59.9936128	69.5	68.9	68.5	69	0.000263
135.02	3.77363296	14.7472359	4.02128624	15.06375	211.15	59.3976736	69.5	68.8	68.4	69	0.000264
140.02	3.75800121	14.7464863	4.02003536	15.06375	210.95	58.851396	69.5	68.8	68.4	69.1	0.000263
145.02	3.7561254	14.7472359	4.02003536	15.0645	211.425	59.6211508	69.5	68.9	68.4	69.1	0.000263
150.02	3.7561254	14.7479855	4.02253712	15.06675	210.875	58.6279188	69.5	68.8	68.3	69	0.000263
155.02	3.75237378	14.7479855	4.02003536	15.06525	211.025	58.851396	69.5	68.9	68.3	68.9	0.000263
160.02	3.76175283	14.7464863	4.02003536	15.066	211.325	59.3231812	69.5	68.9	68.2	68.9	0.000263
165.02	3.76738026	14.7472359	4.01940982	15.0645	210.65	59.9439512	69.5	68.9	68.3	69.1	0.000263
170.02	3.75174851	14.7479855	4.0206608	15.06675	221.525	59.844628	69.4	68.9	68.2	69	0.000264
175.02	3.76112758	14.7472359	4.01940982	15.06225	221.125	59.3231812	69.3	68.9	68.3	69.1	0.000263
180.02	3.75800121	14.7472359	4.01940982	15.0645	221.425	60.0184436	69.3	68.8	68.1	68.9	0.000263
185.02	3.75675067	14.7472359	4.02253712	15.0645	221.575	59.2486888	69.3	68.9	68.2	68.9	0.000263

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
190.02	3.7748835	14.7487351	4.02191168	15.06525	221.175	59.720474	69.3	68.9	68.4	69	0.000263
195.02	3.7496727	14.7479855	4.02316256	15.06375	221.475	60.0681052	69.3	68.9	68.4	68.9	0.000264
200.02	3.76425391	14.7479855	4.02253712	15.06525	221.35	60.4902288	69.4	68.9	68.4	69	0.000264
205.02	3.7623781	14.7464863	4.02003536	15.0645	213	60.0184436	69.5	68.9	68.5	69	0.000264
210.02	3.76112756	14.7472359	4.0206608	15.0645	221.375	58.9010576	69.6	68.9	68.4	68.9	0.000264
215.02	3.76175283	14.7472359	4.02316256	15.06525	221.05	60.21709	69.6	68.9	68.2	68.8	0.000263
220.14	3.75987702	14.7464863	4.02316256	15.06525	221.525	59.6956432	69.6	68.9	68.4	69	0.000264
225.02	3.76487918	14.7479855	4.02253712	15.06525	221.575	60.713706	69.5	68.9	68.4	69	0.000264
230.02	3.7561254	14.7479855	4.02253712	15.0645	221.15	59.2983504	69.5	68.9	68.3	69	0.000263
235.02	3.74737162	14.7479855	4.02316256	15.06525	221.4	58.7769036	69.6	68.9	68.4	69	0.000263
240.02	3.75174851	14.7479855	4.02253712	15.06525	221.35	59.4225044	69.5	68.9	68.3	68.9	0.000263
245.02	3.74737162	14.7472359	4.02503888	15.066	221.35	59.1990272	69.4	68.9	68.2	68.9	0.000263
250.02	3.75362432	14.7457366	4.02316256	15.066	221.575	59.1493656	69.4	68.9	68.4	68.9	0.000264
255.02	3.7561254	14.7472359	4.02441344	15.06525	221.325	58.1561336	69.4	68.9	68.3	69	0.000264
260.02	3.76425391	14.7464863	4.02441344	15.066	221.375	60.4157364	69.3	68.9	68.4	69	0.000263
265.02	3.76362864	14.7472359	4.023788	15.06525	221.475	59.1245348	69.4	68.9	68.3	69	0.000263
270.02	3.77300769	14.7472359	4.02754064	15.06525	221.25	60.0681052	69.4	68.9	68.3	68.9	0.000263
275.02	3.75675067	14.7464863	4.02566432	15.066	221.5	59.5714892	69.4	68.9	68.2	68.9	0.000263
280.03	3.75362432	14.7479855	4.0269152	15.066	221.325	59.7701356	69.4	68.9	68.4	69	0.000264
285.02	3.7748835	14.7464863	4.0269152	15.0645	221.4	58.851396	69.4	68.9	68.3	68.9	0.000264
290.02	3.75424959	14.7464863	4.02754064	15.0645	221.55	58.478934	69.5	69	68.4	69.1	0.000263
295.02	3.76812972	14.7479855	4.02754064	15.06525	221.15	58.5037648	69.5	69	68.3	68.9	0.000264
300.02	3.77300769	14.7472359	4.0269152	15.066	221.35	58.8017344	69.5	69	68.4	69	0.000264
305.03	3.7686308	14.7464863	4.0269152	15.06525	221.475	58.4044416	69.5	69	68.4	68.9	0.000264
310.02	3.76175283	14.7457366	4.0269152	15.06525	221.5	58.603088	69.5	69	68.3	68.9	0.000264
315.03	3.78863944	14.7472359	4.02628976	15.0675	221.55	58.5782572	69.6	69	68.4	69	0.000264
320.02	3.7748835	14.7464863	4.02754064	15.06525	221.35	58.8265652	69.6	68.9	68.2	68.9	0.000264
325.02	3.76425391	14.7479855	4.0269152	15.06525	221.375	58.8762268	69.5	68.9	68.3	69	0.000264
330.02	3.76425391	14.7464863	4.02754064	15.06825	221.5	58.2802876	69.5	69	68.3	68.9	0.000263
335.06	3.77926039	14.7464863	4.03129328	15.06525	221.4	59.0500424	69.5	69	68.3	68.9	0.000263
340.02	3.76112756	14.7479855	4.02941696	15.0645	221.5	59.1990272	69.5	69	68.4	69	0.000264
345.02	3.77300769	14.7487351	4.03066784	15.06525	221.35	59.5714892	69.5	69	68.3	68.9	0.000264
350.02	3.79676795	14.7464863	4.03191872	15.066	221.45	58.5782572	69.6	69	68.4	69	0.000264
355.02	3.7561254	14.7472359	4.03066784	15.06525	221.575	58.5285956	69.7	69	68.3	68.9	0.000264
360.02	3.7561254	14.7472359	4.03191872	15.0675	221.35	59.1493656	69.7	69	68.2	68.9	0.000264
365.08	3.7686308	14.7464863	4.03066784	15.06525	221.55	60.2915824	69.7	69	68.3	68.9	0.000264
370.02	3.75800121	14.7472359	4.03254416	15.06675	221.475	59.3231812	69.8	69	68.3	68.9	0.000263
375.02	3.7686308	14.7464863	4.0331696	15.0675	221.525	58.4292724	69.8	69	68.4	69	0.000263
380.02	3.77800985	14.7487351	4.0331696	15.06525	221.525	59.0500424	69.8	69	68.3	68.9	0.000264
385.02	3.76300337	14.7487351	4.03254416	15.06675	221.15	58.9258884	69.8	69	68.3	68.9	0.000264
390.02	3.77988566	14.7479855	4.03191872	15.06525	221.35	59.3728428	69.7	69	68.4	69	0.000265
395.1	3.76988134	14.7487351	4.03379504	15.06675	221.35	58.851396	69.6	69	68.4	69	0.000264

Flammable Gas Interlock Spoolpiece Testing

FGI2211.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
400.02	3.78863944	14.7479855	4.0331696	15.06825	221.45	59.472166	69.5	69	68.5	69	0.000264
405.02	3.77363296	14.7479855	4.0331696	15.0675	221.375	57.9574872	69.6	69	68.4	69	0.000264
410.02	3.76675499	14.7464863	4.03066784	15.06825	221.5	59.1741964	69.6	69	68.4	68.9	0.000264
415.02	3.76112756	14.7479855	4.03379504	15.0675	221.575	59.1741964	69.7	69	68.3	68.9	0.000264
420.02	3.77613404	14.7464863	4.03254416	15.0675	221.475	59.1990272	69.7	69	68.3	69	0.000264
425.02	3.76925607	14.7479855	4.03379504	15.0675	221.1	58.35478	69.7	69	68.4	69	0.000264
430.02	3.77113188	14.7479855	4.03254416	15.0675	221.35	58.2554568	69.7	69	68.2	68.9	0.000263
435.02	3.79239106	14.7479855	4.03379504	15.0675	221.325	59.0748732	69.7	69	68.2	68.9	0.000263
440.02	3.76738026	14.7479855	4.0331696	15.06825	221.5	59.5466584	69.7	69.1	68.3	69	0.000264
445.02	3.76988134	14.7472359	4.0331696	15.06675	221.375	58.3796108	69.6	69	68.2	68.9	0.000265
450.02	3.76612972	14.7472359	4.0331696	15.0675	221.05	58.35478	69.6	69	68.3	69	0.000264
455.02	3.7811362	14.7472359	4.03379504	15.0675	221.35	58.3299492	69.6	69	68.2	68.9	0.000263
460.02	3.75675067	14.7479855	4.0331696	15.06825	221.475	58.5534264	69.6	69	68.1	68.9	0.000264
465.02	3.77113188	14.7479855	4.03379504	15.0675	221.2	58.6279188	69.6	69	68.2	69	0.000264
470.02	3.7686308	14.7479855	4.0331696	15.0675	221.375	58.5782572	69.6	69	68.1	68.9	0.000264
475.02	3.78676363	14.7472359	4.03442048	15.0675	221.25	59.1245348	69.6	69	68.2	69	0.000264
480.02	3.77988566	14.7464863	4.0331696	15.0675	221.425	59.4969968	69.6	69	68.3	68.9	0.000264
485.02	3.7811362	14.7464863	4.0331696	15.0675	221.575	58.5534264	69.5	69.1	68.2	68.9	0.000264
490.02	3.77988566	14.7479855	4.03254416	15.0675	221.05	58.3299492	69.5	69	68.3	69	0.000264
495.02	3.77300769	14.7472359	4.03254416	15.0675	221.55	58.7520728	69.5	69	68.2	69	0.000265
500.02	3.79926903	14.7472359	4.03442048	15.069	221.375	58.5037648	69.4	69	68.1	68.9	0.000265
505.02	3.77050661	14.7479855	4.03379504	15.0675	221.35	59.472166	69.4	69	68.1	68.9	0.000265
510.02	3.77175715	14.7487351	4.03254416	15.06675	221.425	59.1493656	69.5	69.1	68.3	69	0.000264
515.06	3.76675499	14.7487351	4.03504592	15.06675	221.45	58.5782572	69.5	69	68.3	69	0.000264
520.02	3.77988566	14.7472359	4.0331696	15.06825	221.475	59.2983504	69.5	69	68.3	69	0.000264
525.02	3.76425391	14.7464863	4.03379504	15.07125	221.35	58.2554568	69.6	69.1	68.2	68.9	0.000263
530.05	3.7811362	14.7464863	4.03504592	15.06675	221.575	58.3051184	69.6	69	68.3	68.9	0.000264
535.02	3.78487918	14.7479855	4.03442048	15.06975	221.5	58.97555	69.6	69.1	68.4	69	0.000263
540.02	3.76675499	14.7487351	4.03567136	15.0675	221.475	58.851396	69.5	69.1	68.3	69	0.000264
545.04	3.80051957	14.7479855	4.03442048	15.06975	221.4	58.5285956	69.5	69.1	68.5	69	0.000264
550.02	3.77300769	14.7494847	4.03504592	15.06675	221.525	58.1561336	69.4	69.1	68.4	69	0.000265
555.02	3.77363296	14.7472359	4.03442048	15.06975	221.1	58.8762268	69.3	69.1	68.3	68.9	0.000265
560.03	3.77363296	14.7464863	4.03442048	15.0675	221.55	58.3796108	69.4	69.1	68.5	69	0.000264
565.02	3.78988998	14.7472359	4.03504592	15.06675	221.6	59.4473352	69.4	69.1	68.4	69	0.000264
570.02	3.7623781	14.744987	4.03254416	15.0705	221.175	59.3728428	69.4	69.1	68.3	69	0.000265
575.07	3.77300769	14.7472359	4.03504592	15.06825	221.575	60.7385368	69.4	69.1	68.4	69	0.000264
580.02	3.76112756	14.7479855	4.0331696	15.0675	221.35	59.6211508	69.5	69.1	68.3	68.9	0.000265
585.02	3.76300337	14.7479855	4.03504592	15.06825	221.425	60.1425976	69.5	69.1	68.4	69	0.000264
590.04	3.76738026	14.7472359	4.03504592	15.0705	221.35	59.968782	69.5	69.1	68.2	68.9	0.000264
595.02	3.80364592	14.7457366	4.0362968	15.06975	221.125	58.2057952	69.5	69.1	68.3	69	0.000265
600.02	3.79676795	14.7479855	4.03567136	15.0675	221.575	59.099704	69.6	69.1	68.2	68.9	0.000264
605.02	3.7998943	14.7472359	4.03504592	15.0705	221.575	59.8197972	69.6	69.1	68.3	69	0.000264

Flammable Gas Interlock Spoolpiece Testing

FGI22211.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP (F)	GAS INJECT TEMP (F)	MAIN DUCT TEMP (F)	WEC CELL TEMP (F)	WEC CELL (VOLTS)
610.02	3.79301633	14.7472359	4.03504592	15.0705	221.075	60.1922592	69.6	69.1	68.4	69	0.000264
615.02	3.79301633	14.7472359	4.03504592	15.0705	221.35	58.9258884	69.5	69.1	68.4	68.9	0.000264
620.03	3.76050229	14.7479855	4.03504592	15.06975	221.5	59.7453048	69.5	69.1	68.4	69	0.000264
625.03	3.76300337	14.7472359	4.03567136	15.0705	221.375	58.9010576	69.5	69.1	68.3	68.9	0.000265
630.2	3.77550877	14.7472359	4.03504592	15.069	221.15	58.7769036	69.5	69.1	68.3	69	0.000264
635.02	3.77363296	14.7472359	4.03504592	15.06975	221.425	57.9574872	69.4	69.1	68.4	69	0.000265
640.02	3.7561254	14.7479855	4.0331696	15.06975	221.35	58.5534264	69.4	69.1	68.3	68.9	0.000264
645.04	3.77550877	14.7464863	4.03567136	15.0705	221.525	59.0748732	69.5	69.1	68.3	68.9	0.000264
650.02	3.7623781	14.7472359	4.03504592	15.069	221.5	58.7520728	69.5	69.1	68.3	69	0.000264
655.02	3.76300337	14.7479855	4.03754768	15.06975	221.575	58.9010576	69.6	69.1	68.1	68.9	0.000265
660.02	3.76300337	14.7479855	4.03504592	15.06975	221.375	58.1313028	69.6	69.1	68.3	68.9	0.000264
665.06	3.80364592	14.7464863	4.03567136	15.06975	221.5	57.7588408	69.6	69.1	68.4	69	0.000264
670.02	3.78176147	14.7472359	4.03504592	15.0705	221.425	58.3299492	69.6	69.1	68.3	69	0.000265
675.04	3.76425391	14.7457366	4.03567136	15.0705	221.55	58.478934	69.6	69.1	68.3	68.9	0.000264
680.02	3.77675931	14.7472359	4.03692224	15.0705	221.575	59.3728428	69.6	69.1	68.2	68.9	0.000265
685.02	3.78426255	14.7464863	4.03504592	15.069	221.225	57.8829948	69.5	69.1	68.2	68.9	0.000265
690.06	3.77926039	14.7472359	4.0362968	15.069	221.575	57.609856	69.5	69.1	68.4	68.9	0.000265
695.02	3.76738026	14.7464863	4.03504592	15.06975	221.55	57.3118864	69.5	69.1	68.4	69	0.000265
700.02	3.7623781	14.7457366	4.03504592	15.06975	221.275	58.8265652	69.6	69.1	68.4	69	0.000265
705.04	3.7748835	14.7457366	4.03504592	15.06975	221.275	57.9078256	69.6	69.1	68.4	68.9	0.000265
710.02	3.78176147	14.7457366	4.03567136	15.06975	221.5	58.106472	69.7	69.1	68.3	69	0.000265
715.02	3.80927335	14.7472359	4.03567136	15.0705	221.575	58.6279188	69.7	69.1	68.2	68.9	0.000264
720.02	3.77050661	14.7457366	4.03817312	15.069	221.375	58.3299492	69.7	69.1	68.3	68.9	0.000264
725.02	3.78051093	14.7457366	4.03567136	15.06975	221.475	58.7024112	69.7	69.1	68.3	69	0.000265
730.02	3.77363296	14.7472359	4.03504592	15.06975	221.575	57.485702	69.7	69.1	68.4	69	0.000264
735.07	3.77175715	14.7472359	4.03504592	15.06975	221.075	57.858164	69.7	69.1	68.4	68.9	0.000265
740.02	3.76050229	14.7479855	4.0362968	15.0705	221.35	57.8333332	69.8	69.1	68.3	68.9	0.000265
745.02	3.77988566	14.7472359	4.03754768	15.07125	221.375	58.6527496	69.8	69.1	68.4	69	0.000264
750.02	3.76925607	14.7464863	4.0362968	15.072	221.45	58.1809644	69.8	69.1	68.3	69	0.000265
755.02	3.77363296	14.7472359	4.03817312	15.06975	221.275	58.851396	69.8	69.1	68.4	69	0.000264
760.02	3.76487918	14.7472359	4.03567136	15.0705	221.475	58.7520728	69.8	69.1	68.5	69	0.000265
765.02	3.76925607	14.7479855	4.03567136	15.072	221.45	57.9574872	69.7	69.1	68.3	68.9	0.000264
770.02	3.79426687	14.7464863	4.03567136	15.07275	221.6	57.7836716	69.7	69.1	68.3	68.9	0.000264
775.07	3.79239106	14.7464863	4.0362968	15.0705	221.1	57.7588408	69.7	69.1	68.3	69	0.000265
780.04	3.78488782	14.7479855	4.0362968	15.069	221.15	57.3118864	69.7	69.1	68.3	69	0.000265
785.02	3.78551309	14.7464863	4.0362968	15.0705	221.475	58.0071488	69.7	69.1	68.4	69	0.000264
790.07	3.77300769	14.7464863	4.03504592	15.06975	221.325	58.2554568	69.6	69.1	68.4	68.9	0.000264
795.02	3.76800553	14.7464863	4.03754768	15.06975	221.5	57.5353636	69.7	69.1	68.4	68.8	0.000264
800.02	3.7686308	14.7457366	4.03504592	15.06975	221.525	57.8333332	69.7	69.1	68.3	68.9	0.000264
805.07	3.76875499	14.7464863	4.03692224	15.07125	221.35	58.2057952	69.8	69.1	68.4	68.9	0.000264
810.02	3.79301633	14.744987	4.03567136	15.07125	221.35	57.3367172	69.8	69.1	68.3	68.9	0.000265
815.02	3.77113188	14.7472359	4.03692224	15.0705	221.4	57.5601944	69.8	69.1	68.4	68.9	0.000265

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
820.02	3.77550877	14.7457366	4.03754768	15.0705	221.175	57.1877324	69.8	69.1	68.4	68.9	0.000264
825.02	3.7748835	14.7464863	4.03692224	15.07275	221.55	58.0319796	69.8	69.2	68.4	68.8	0.000263
830.02	3.76925607	14.7472359	4.03754768	15.072	221.5	57.2622248	69.7	69.1	68.4	69	0.000264
835.02	3.78363728	14.7464863	4.03754768	15.0735	221.15	57.9326564	69.8	69.2	68.4	68.9	0.000265
840.02	3.75675067	14.7464863	4.03504592	15.0735	221.375	57.7836716	69.7	69.2	68.3	68.9	0.000265
845.02	3.76800553	14.7464863	4.03754768	15.06975	221.3	57.6595176	69.7	69.2	68.3	68.9	0.000264
850.03	3.77926039	14.7479855	4.03754768	15.072	221.375	57.7588408	69.7	69.2	68.4	69	0.000265
855.02	3.7686308	14.7472359	4.03754768	15.07275	221.35	58.2057952	69.7	69.2	68.5	68.9	0.000265
860.02	3.77988566	14.7464863	4.03754768	15.0735	221.375	57.4608712	69.7	69.2	68.3	68.9	0.000264
865.03	3.78988998	14.7457366	4.03692224	15.07275	221.525	57.5601944	69.7	69.2	68.4	68.9	0.000265
870.02	3.76612972	14.7464863	4.03692224	15.07275	221.05	57.9078256	69.7	69.2	68.3	68.9	0.000265
875.02	3.7748835	14.7472359	4.03692224	15.06975	221.375	58.3796108	69.7	69.2	68.3	68.9	0.000264
880.02	3.80927335	14.7464863	4.03817312	15.0735	221.5	58.0319796	69.7	69.2	68.4	68.9	0.000265
885.02	3.76300337	14.7464863	4.03692224	15.07275	221.25	58.3796108	69.7	69.2	68.5	68.9	0.000264
890.02	3.78988998	14.7464863	4.0362968	15.072	221.475	58.0816412	69.6	69.2	68.5	68.9	0.000264
895.07	3.76925607	14.7464863	4.03754768	15.0735	221.575	57.5105328	69.6	69.2	68.3	68.9	0.000265
900.02	3.78426255	14.7479855	4.03504592	15.0735	221.425	57.2870556	69.6	69.2	68.4	68.9	0.000264
905.02	3.77050661	14.7457366	4.0362968	15.07275	221.525	57.7588408	69.6	69.2	68.2	68.9	0.000264
910.07	3.7686308	14.7464863	4.03754768	15.07275	221.575	57.2622248	69.6	69.2	68.3	69	0.000265
915.02	3.78301201	14.7472359	4.03754768	15.07275	221.5	57.9326564	69.6	69.1	68.3	69	0.000264
920.02	3.77675931	14.7464863	4.03754768	15.07275	221.45	58.7024112	69.6	69.2	68.3	68.9	0.000265

TEST: FGI22212 22 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 218ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
0.0100098	3.80239538	14.7479855	0.410683664	14.72925	1.45	-1.9592332	69.5	68.9	68.4	69	0.00023
5.019989	3.79301633	14.7494847	4.00690112	15.06525	1.2	-2.1578796	69.5	68.9	68.1	68.9	0.00023
10.019989	3.78801417	14.7464863	4.0206808	15.06525	1.15	-1.7605868	69.3	68.9	68.3	68.9	0.000232
15.019989	3.78613836	14.7502344	4.02754064	15.0675	11.025	24.162768	69.3	68.9	68.3	69	0.000236
20.019989	3.79426687	14.7487351	4.0331696	15.0675	41.25	42.984515	69.3	68.9	68.3	69	0.00024
25.019989	3.78613836	14.7494847	4.03442048	15.069	60.975	50.334432	69.3	68.9	68.2	68.9	0.000244
30.019989	3.76800553	14.744987	4.03754768	15.06975	91.275	52.569204	69.4	68.9	68.3	69	0.000247
35.019989	3.78801417	14.7472359	4.03817312	15.06975	111.35	54.282529	69.5	68.9	68.2	68.9	0.00025
40.019989	3.78613836	14.7494847	4.03754768	15.06975	130.975	53.761082	69.5	68.9	68.4	68.9	0.000253
45.019989	3.78176147	14.7494847	4.03754768	15.06975	140.85	53.910067	69.5	68.9	68.3	68.9	0.000254
50.019989	3.76300337	14.7464863	4.03817312	15.0705	151.225	53.165143	69.5	68.9	68.3	68.9	0.000255
55.019989	3.78863944	14.7479855	4.03754768	15.06975	161.45	53.115481	69.5	68.9	68.4	68.9	0.000257
60.019989	3.78676363	14.7472359	4.03817312	15.0675	171	53.736251	69.6	69	68.2	68.9	0.000258
65.019989	3.78613836	14.7472359	4.03567136	15.0675	181.175	52.718188	69.6	68.9	68.4	68.9	0.000259
70.019989	3.78426255	14.7464863	4.03567136	15.06875	181.225	51.476648	69.6	69	68.2	68.9	0.00026
75.019989	3.78676363	14.7487351	4.03254416	15.0675	190.85	51.898772	69.6	68.9	68.4	69	0.000261
80.019989	3.78676363	14.7464863	4.03442048	15.0675	191.45	53.438282	69.6	69	68.3	69	0.000261
85.019989	3.78801417	14.750984	4.0331696	15.0675	190.875	53.264466	69.6	68.9	68.4	69	0.000261
90.019989	3.78613836	14.7494847	4.03254416	15.06875	201.2	52.991327	69.6	69	68.2	68.9	0.000261
95.019989	3.79926903	14.7524832	4.0331696	15.06825	201.225	52.569204	69.5	68.9	68.3	68.9	0.000261
100.01999	3.77550877	14.7464863	4.03191872	15.06875	200.575	53.06582	69.5	69	68.3	68.9	0.000262
105.01999	3.78676363	14.750984	4.02941696	15.069	201.475	53.314128	69.4	68.9	68.2	68.9	0.000261
110.01999	3.77175715	14.7502344	4.02754064	15.06825	210.975	53.413451	69.4	68.9	68.4	69	0.000263
115.01999	3.79301633	14.750984	4.0269152	15.0675	211.25	53.761082	69.4	69	68.3	68.9	0.000264
120.01999	3.81927767	14.7479855	4.02566432	15.06675	211.3	53.562436	69.4	68.9	68.4	68.9	0.000263
125.01999	3.80239538	14.750984	4.02503888	15.06825	210.525	53.314128	69.4	69	68.2	68.9	0.000262
130.01999	3.79176579	14.7502344	4.02441344	15.06525	211.4	53.512774	69.5	69	68.3	68.9	0.000263
135.01999	3.78488782	14.7479855	4.02503888	15.06825	211.125	53.040989	69.4	69	68.4	69	0.000262
140.01999	3.79489214	14.7502344	4.02503888	15.0675	211.425	52.643696	69.4	69	68.3	68.9	0.000263
145.01999	3.77300769	14.7479855	4.02754064	15.06825	211.275	53.289297	69.4	69	68.4	69	0.000263
150.01999	3.77988566	14.7494847	4.02503888	15.0645	210.85	52.792681	69.5	69	68.3	68.9	0.000263
155.01999	3.78676363	14.7472359	4.02503888	15.0675	211.475	54.158375	69.5	69	68.3	68.9	0.000263
160.01999	3.79239106	14.7494847	4.02441344	15.0675	221.275	53.860405	69.5	69	68.4	68.9	0.000262
165.01999	3.79676795	14.7524832	4.02191168	15.06875	211.35	52.718188	69.6	69	68.3	68.9	0.000263
170.01999	3.78176147	14.7494847	4.02253712	15.0675	221.375	53.463112	69.6	69	68.4	69	0.000264
175.01999	3.79651741	14.7494847	4.0206808	15.06675	221.4	53.115481	69.6	69	68.4	69	0.000263
180.01999	3.77113188	14.7494847	4.0206808	15.06675	221.475	53.636928	69.6	69	68.5	69	0.000264
185.01999	3.77550877	14.7487351	4.02003536	15.06675	214.1	53.115481	69.6	69	68.3	68.9	0.000264

Flammable Gas Interlock Spoolpiece Testing

FGI2212.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
190.01999	3.76925607	14.7502344	4.0206608	15.0675	221.25	52.916835	69.7	69	68.3	68.9	0.000264
195.01999	3.79239106	14.7494847	4.01940992	15.0675	221.35	53.512774	69.6	69	68.3	69	0.000264
200.01999	3.79239106	14.7487351	4.02128624	15.066	211.4	54.63016	69.6	69	68.5	69	0.000264
205.01999	3.78051093	14.7494847	4.0206608	15.0675	221.6	53.314128	69.6	69	68.5	69	0.000264
210.01999	3.77988566	14.7487351	4.01940992	15.0675	221.525	53.661759	69.5	69	68.4	68.9	0.000264
215.01999	3.77988566	14.7494847	4.01815904	15.0645	221.225	54.208036	69.6	69.1	68.4	69	0.000263
220.01999	3.79239106	14.7502344	4.01878448	15.0645	221.35	53.463112	69.6	69	68.4	68.9	0.000264
225.01999	3.78176147	14.7487351	4.01815904	15.0645	221.45	53.363789	69.6	69	68.4	69	0.000264
230.01999	3.78613836	14.7494847	4.01878448	15.0675	221.225	53.289297	69.6	69	68.5	69	0.000263
235.01999	3.82052821	14.7502344	4.02003536	15.0645	221.55	53.661759	69.5	69	68.4	68.9	0.000264
240.01999	3.76988134	14.7524832	4.01878448	15.06525	221.275	53.38862	69.5	69.1	68.5	68.9	0.000264
245.01999	3.7873889	14.7517336	4.0206608	15.066	221.175	52.991327	69.6	69	68.3	68.8	0.000263
250.01999	3.7748835	14.7517336	4.01878448	15.0675	221.45	53.587266	69.6	69	68.4	69	0.000264
255.04001	3.78551309	14.7517336	4.01940992	15.0675	221.55	53.289297	69.6	69	68.3	68.9	0.000263
260.01999	3.77738458	14.7487351	4.0206608	15.0675	221.575	53.140312	69.6	69	68.3	68.9	0.000264
265.01999	3.77738458	14.7494847	4.01628272	15.0675	221.35	52.420219	69.6	69	68.4	68.9	0.000264
270.01999	3.78176147	14.7532329	4.01690816	15.0675	221.15	52.594034	69.6	69	68.3	69	0.000264
275.01999	3.77300769	14.7494847	4.01690816	15.0675	221.5	53.587266	69.6	69	68.4	69	0.000263
280.01999	3.79801849	14.750984	4.01940992	15.06825	221.575	53.314128	69.6	69.1	68.3	68.9	0.000264
285.01999	3.80552173	14.7532329	4.01878448	15.06825	221.55	52.221572	69.6	69.1	68.4	69	0.000265
290.01999	3.79176579	14.7517336	4.01815904	15.0675	221.375	53.636928	69.6	69	68.3	68.9	0.000264
295.01999	3.79614268	14.7524832	4.01940992	15.0675	221.15	53.38862	69.6	69.1	68.4	68.9	0.000264
300.01999	3.7811362	14.7502344	4.01690816	15.0675	221.5	53.934898	69.6	69.1	68.3	68.8	0.000264
305.01999	3.79051525	14.7524832	4.01628272	15.06675	221.55	52.743019	69.5	69	68.5	69	0.000264
310.01999	3.77988566	14.7524832	4.01690816	15.06825	221.475	53.363789	69.5	69	68.4	68.8	0.000264
315.01999	3.7686308	14.7517336	4.01815904	15.066	221.525	53.189974	69.5	69	68.2	68.8	0.000263
320.01999	3.78301201	14.7524832	4.01565728	15.0675	221.075	53.165143	69.5	69	68.4	68.9	0.000264
325.01999	3.78363728	14.750984	4.01878448	15.06675	221.4	53.562436	69.5	69	68.2	68.9	0.000264
330.01999	3.80051957	14.7524832	4.0206608	15.06675	221.475	52.916835	69.5	69	68.1	68.9	0.000264
335.10001	3.806147	14.750984	4.01815904	15.06675	221.05	53.016158	69.5	69	68.3	68.9	0.000264
340.01999	3.79176579	14.750984	4.01565728	15.06675	221.575	52.345726	69.5	69	68.3	68.9	0.000265
345.01999	3.78801417	14.7494847	4.01815904	15.06675	221.35	51.675295	69.5	69.1	68.3	68.9	0.000264
350.01999	3.77113188	14.7517336	4.01628272	15.0675	221.25	52.594034	69.6	69	68.2	68.9	0.000264
355.01999	3.77926039	14.750984	4.01815904	15.06675	221.525	52.271234	69.5	69	68.2	68.9	0.000264
360.01999	3.77988566	14.750984	4.01878448	15.06825	221.475	52.594034	69.5	69	68.4	69	0.000265
365.07999	3.79614268	14.7517336	4.01878448	15.0675	221.475	53.562436	69.5	69.1	68.4	68.9	0.000264
370.01999	3.79739322	14.7524832	4.01690816	15.0675	221.375	52.842342	69.6	69.1	68.3	68.9	0.000264
375.10001	3.78925607	14.750984	4.01628272	15.06825	221.075	52.643696	69.6	69.1	68.3	68.9	0.000264
380.01999	3.78801417	14.7502344	4.02128624	15.0675	221.375	52.668527	69.5	69.1	68.4	68.9	0.000264
385.07999	3.79739322	14.7517336	4.01878448	15.06675	221.175	54.232867	69.4	69.1	68.3	68.8	0.000263
390.01999	3.77675931	14.7517336	4.0206608	15.06675	221.5	53.562436	69.5	69	68.5	69	0.000264
395.06	3.80239538	14.7517336	4.0206608	15.06975	221.375	52.519542	69.5	69	68.4	68.9	0.000264

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
400.01999	3.78676363	14.7517336	4.01878448	15.0705	221.125	52.395388	69.5	69.1	68.3	69	0.000264
405.01999	3.78613836	14.7524832	4.02003536	15.0669	221.375	52.122249	69.5	69	68.5	68.9	0.000264
410.01999	3.79239106	14.750984	4.01878448	15.06675	221.5	51.948434	69.6	69.1	68.3	68.8	0.000265
415.01999	3.79676795	14.7502344	4.01878448	15.06675	221.25	53.835574	69.7	69	68.5	69	0.000263
420.01999	3.79676795	14.750984	4.01878448	15.06825	221.55	54.034221	69.7	69.1	68.4	68.9	0.000264
425.01999	3.77738458	14.750984	4.01940992	15.06975	221.15	53.264466	69.7	69.1	68.5	68.9	0.000265
430.01999	3.78613836	14.750984	4.01940992	15.0705	221.45	53.289297	69.7	69.1	68.3	68.9	0.000264
435.01999	3.78613836	14.7517336	4.0206608	15.06975	221.55	53.761082	69.7	69.1	68.3	68.8	0.000264
440.01999	3.7811362	14.750984	4.0206608	15.0705	221.2	53.910067	69.7	69.1	68.5	68.9	0.000264
445.01999	3.79614266	14.7517336	4.0206608	15.0675	221.425	53.264466	69.7	69.1	68.4	68.9	0.000264
450.01999	3.77675931	14.7517336	4.01940992	15.06975	221.375	53.06582	69.6	69.1	68.5	69	0.000263
455.01999	3.7748835	14.7517336	4.0206608	15.06975	221.4	53.09065	69.5	69.1	68.6	69	0.000264
460.01999	3.7686308	14.7517336	4.02128624	15.06975	221.575	52.14708	69.5	69.1	68.4	68.9	0.000265
465.01999	3.77738458	14.7524832	4.01815904	15.06975	221.4	53.115481	69.5	69.1	68.4	68.9	0.000263
470.01999	3.7798566	14.7524832	4.02128624	15.06975	221.375	52.842342	69.5	69.1	68.3	68.9	0.000263
475.01999	3.7989843	14.7517336	4.02003536	15.0705	221.5	52.966496	69.5	69.1	68.5	68.9	0.000264
480.01999	3.77926039	14.750984	4.0206608	15.0669	221.5	52.991327	69.5	69.1	68.4	68.9	0.000264
485.01999	3.78863944	14.7524832	4.02003536	15.06975	221.425	52.941666	69.5	69.1	68.5	69	0.000264
490.01999	3.80677227	14.7524832	4.02128624	15.06975	221.35	52.345726	69.5	69.1	68.4	68.9	0.000264
495.01999	3.7873889	14.7517336	4.0206608	15.0705	221.375	52.991327	69.5	69.1	68.4	68.9	0.000265
500.01999	3.7811362	14.750984	4.0206608	15.06975	221.5	52.941666	69.5	69.1	68.5	68.9	0.000264
505.01999	3.79114052	14.7517336	4.02128624	15.06975	221.3	52.345726	69.5	69.1	68.5	68.9	0.000265
510.01999	3.7873889	14.750984	4.02128624	15.06975	221.55	52.668527	69.5	69.1	68.4	68.9	0.000264
515.01999	3.79051525	14.7517336	4.02191168	15.06975	221.35	53.438282	69.5	69.1	68.4	68.9	0.000265
520.01999	3.77863512	14.7524832	4.0206608	15.06975	221.4	53.587266	69.5	69.1	68.4	68.8	0.000264
525.01999	3.78801417	14.7517336	4.02128624	15.06975	221.525	52.594034	69.6	69.1	68.5	68.9	0.000265
530.01999	3.7811362	14.7517336	4.02128624	15.06975	221.275	53.537605	69.7	69.1	68.4	68.9	0.000264
535.01999	3.77238242	14.7524832	4.0206608	15.0705	221.425	53.562436	69.8	69.1	68.5	68.9	0.000264
540.01999	3.80927335	14.7502344	4.02128624	15.0669	221.375	52.966496	69.8	69.1	68.5	68.9	0.000264
545.01999	3.7798566	14.7517336	4.0206608	15.06975	221.275	52.867173	69.8	69.2	68.4	68.9	0.000264
550.01999	3.78176147	14.7517336	4.0206608	15.06975	221.55	52.668527	69.8	69.2	68.3	68.9	0.000264
555.01999	3.80239538	14.7517336	4.0206608	15.069	221.175	53.09065	69.7	69.1	68.4	68.9	0.000264
560.04999	3.7798566	14.7524832	4.0206608	15.0705	221.4	52.420219	69.7	69.2	68.3	68.9	0.000264
565.11002	3.77926039	14.7517336	4.02128624	15.06975	221.45	53.413451	69.7	69.1	68.3	68.9	0.000264
570.01999	3.80051957	14.7524832	4.02003536	15.06975	221.275	53.165143	69.7	69.2	68.4	68.9	0.000264
575.03	3.7873889	14.7524832	4.02128624	15.06975	221.525	52.594034	69.7	69.2	68.3	68.9	0.000264
580.01999	3.7686308	14.7524832	4.0206608	15.06975	221.425	52.966496	69.7	69.2	68.3	68.9	0.000264
585.01999	3.78551309	14.7524832	4.02003536	15.06975	221.5	52.892004	69.7	69.1	68.4	68.9	0.000263
590.06	3.79551741	14.750984	4.01940992	15.06975	221.275	52.618865	69.6	69.2	68.4	69	0.000264
595.01999	3.7798566	14.7517336	4.0206608	15.06975	221.425	53.06582	69.7	69.2	68.4	68.9	0.000264
600.01999	3.7873889	14.7524832	4.0206608	15.069	221.575	53.661759	69.6	69.2	68.5	68.9	0.000264
605.03	3.78176147	14.7524832	4.02128624	15.06975	221.4	53.785913	69.7	69.2	68.3	68.9	0.000265

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
610.01999	3.80239538	14.7532329	4.0206608	15.072	221.25	53.016158	69.7	69.2	68.4	68.9	0.000265
615.01999	3.79176579	14.7524832	4.0206608	15.06975	221.55	52.892004	69.7	69.2	68.3	68.9	0.000263
620.04001	3.7686308	14.7524832	4.0206608	15.07275	221.5	52.842342	69.7	69.2	68.3	68.9	0.000264
625.01999	3.76487918	14.7532329	4.0206608	15.07275	221.55	52.395388	69.6	69.1	68.4	68.9	0.000264
630.01999	3.77300769	14.750984	4.02128624	15.0705	221.45	53.165143	69.6	69.1	68.2	68.9	0.000264
635.07999	3.80927335	14.7517336	4.02128624	15.07275	221.3	52.494711	69.6	69.1	68.4	69	0.000265
640.01999	3.76925607	14.7524832	4.0206608	15.07275	221.4	52.320896	69.5	69.1	68.3	68.9	0.000264
645.01999	3.76925607	14.7524832	4.0206608	15.0705	221.5	52.792681	69.6	69.2	68.3	68.9	0.000265
650.04001	3.7873889	14.7532329	4.0206608	15.06975	221.575	52.892004	69.6	69.1	68.3	68.9	0.000265
655.01999	3.77113188	14.7524832	4.0206608	15.069	221.6	52.966496	69.6	69.1	68.4	68.9	0.000264
660.01999	3.77550877	14.750984	4.02003536	15.06975	221.5	53.810744	69.6	69.2	68.4	68.9	0.000265
665.01999	3.76488782	14.7524832	4.02003536	15.06975	221.45	53.636928	69.6	69.2	68.5	69	0.000264
670.01999	3.78426255	14.7524832	4.02003536	15.072	221.475	52.320896	69.5	69.1	68.3	68.9	0.000265
675.01999	3.79176579	14.7532329	4.02128624	15.069	221.4	52.792681	69.6	69.1	68.4	68.9	0.000264
680.03	3.7686308	14.7539825	4.02128624	15.0705	221.375	53.338958	69.6	69.1	68.4	69	0.000264
685.01999	3.7623781	14.7524832	4.0206608	15.07275	221.45	53.115481	69.6	69.1	68.5	68.9	0.000264
690.01999	3.79176579	14.7539825	4.02128624	15.072	221.375	52.46988	69.6	69.1	68.4	68.9	0.000265
695.04999	3.77175715	14.7532329	4.02191168	15.07275	221.575	53.338958	69.7	69.1	68.4	68.9	0.000265
700.01999	3.79614268	14.7532329	4.0206608	15.072	221.2	53.612097	69.6	69.2	68.5	69	0.000264
705.01999	3.79239106	14.7532329	4.02128624	15.06975	221.425	52.792681	69.7	69.1	68.4	69	0.000265
710.01999	3.7811362	14.7532329	4.02128624	15.0725	221.375	53.338958	69.7	69.1	68.5	69	0.000265
715.01999	3.81615132	14.7517336	4.02128624	15.072	231.325	53.314128	69.7	69.1	68.4	68.9	0.000264
720.01999	3.76800553	14.7532329	4.02128624	15.06975	231.45	53.487943	69.8	69.2	68.6	69	0.000264
725.01999	3.79614268	14.7539825	4.0206608	15.06975	231.475	55.201268	69.7	69.2	68.4	68.9	0.000264
730.01999	3.77300769	14.7539825	4.0206608	15.07275	221.4	53.810744	69.7	69.2	68.5	69	0.000265
735.01999	3.79551741	14.7539825	4.02128624	15.06975	221.425	52.718188	69.7	69.2	68.5	68.9	0.000264
740.06	3.79551741	14.7517336	4.02128624	15.0705	221.55	52.916835	69.7	69.1	68.5	68.9	0.000264
745.01999	3.77926039	14.7532329	4.02191168	15.072	221.55	53.165143	69.7	69.2	68.6	69	0.000265
750.01999	3.7686308	14.7517336	4.02191168	15.07275	221.55	52.494711	69.7	69.1	68.6	68.9	0.000264
755.07001	3.7811362	14.7517336	4.02128624	15.072	221.5	53.264466	69.6	69.1	68.4	68.9	0.000264
760.01999	3.77926039	14.7524832	4.02128624	15.072	221.425	52.420219	69.6	69.2	68.5	68.9	0.000264
765.01999	3.77988566	14.7517336	4.0206608	15.07275	221.3	52.76785	69.7	69.1	68.3	68.9	0.000265
770.04999	3.77926039	14.7524832	4.02128624	15.07275	221.15	52.345726	69.7	69.2	68.3	68.9	0.000264
775.01999	3.79676795	14.7524832	4.02191168	15.072	221.425	52.867173	69.6	69.1	68.3	68.9	0.000264
780.01999	3.77113188	14.7517336	4.02128624	15.072	221.175	52.792681	69.6	69.2	68.5	68.9	0.000264
785.07001	3.77113188	14.7532329	4.02191168	15.072	221.375	53.68659	69.6	69.2	68.4	68.9	0.000264
790.01999	3.7968943	14.7517336	4.02128624	15.06975	231.325	53.115481	69.6	69.1	68.4	68.9	0.000265
795.01999	3.78551309	14.7524832	4.02128624	15.072	231.275	52.842342	69.7	69.2	68.4	68.9	0.000264
800.06	3.76612972	14.7524832	4.0206608	15.0735	221.6	52.271234	69.7	69.2	68.4	68.9	0.000266
805.01999	3.7748835	14.7517336	4.0206608	15.07275	221.275	52.916835	69.6	69.1	68.5	68.9	0.000264
810.01999	3.78801417	14.7524832	4.02128624	15.072	221.525	53.09065	69.6	69.2	68.3	68.9	0.000266
815.04999	3.76425391	14.7539825	4.0206608	15.07275	221.175	52.370557	69.7	69.2	68.4	68.9	0.000265

Flammable Gas Interlock Spoolpiece Testing

FGI22212.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
820.01999	3.7748835	14.7517336	4.02128624	15.07275	230.75	52.693358	69.7	69.2	68.4	69	0.000265
825.01999	3.77238242	14.7532329	4.0206608	15.07275	221.4	51.873941	69.7	69.1	68.3	68.9	0.000265
830.04001	3.79926903	14.7524832	4.02128624	15.072	221.6	52.693358	69.8	69.2	68.4	68.9	0.000266
835.01999	3.77363296	14.7524832	4.02128624	15.072	221.55	52.370557	69.8	69.2	68.4	68.9	0.000265
840.01999	3.78676363	14.7532329	4.0206608	15.07275	231.425	52.022926	69.8	69.2	68.4	69	0.000265
845.04001	3.77175715	14.7524832	4.02128624	15.072	221.5	53.264466	69.8	69.2	68.4	68.9	0.000265
850.01999	3.79301633	14.7524832	4.0206608	15.07275	221.45	52.097418	69.8	69.2	68.3	68.8	0.000265
855.01999	3.83490942	14.7554817	4.0206608	15.07275	221.575	52.296065	69.7	69.2	68.5	68.9	0.000265
860.03	3.77363296	14.7532329	4.0206608	15.07275	221.35	52.022926	69.7	69.2	68.4	68.9	0.000265
865.03	3.77363296	14.7532329	4.02128624	15.07275	221.5	52.14708	69.6	69.2	68.4	69	0.000265
870.39999	3.78988998	14.7532329	4.0206608	15.07275	231.45	53.040989	69.7	69.2	68.5	68.9	0.000264
875.01999	3.78801417	14.7524832	4.0206608	15.07275	231.425	52.792681	69.7	69.2	68.5	68.9	0.000264
880.01999	3.81114916	14.7517336	4.02128624	15.07275	231.475	53.363789	69.7	69.2	68.4	68.9	0.000265
885.01999	3.78363728	14.7532329	4.02003536	15.07275	231.15	53.289297	69.7	69.2	68.6	69	0.000265
890.01999	3.76362864	14.7539825	4.0175336	15.0735	231.425	52.196742	69.6	69.2	68.6	68.9	0.000264
895.01999	3.77613404	14.7524832	4.01878448	15.07275	231.475	53.239635	69.7	69.2	68.5	68.9	0.000264
900.01999	3.78051093	14.7524832	4.01878448	15.072	230	52.46988	69.8	69.2	68.6	68.9	0.000265
905.01999	3.76362864	14.7532329	4.0206608	15.07275	221.425	52.395388	69.7	69.2	68.4	68.9	0.000265
910.01999	3.78988998	14.7539825	4.0206608	15.072	231.45	51.973264	69.7	69.2	68.5	69	0.000265
915.01999	3.77988566	14.7539825	4.0206608	15.06975	231.35	52.892004	69.7	69.2	68.3	68.9	0.000266
920.04999	3.77988566	14.7524832	4.01878448	15.072	221.375	52.569204	69.7	69.2	68.4	68.9	0.000264
925.01999	3.79114052	14.7532329	4.01878448	15.072	231.45	52.693358	69.8	69.2	68.5	68.9	0.000264

Flammable Gas Interlock Spoolpiece Testing

TEST: FG122213 22 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 217ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP (F)	GAS INJECT TEMP (F)	MAIN DUCT TEMP (F)	WEC CELL TEMP (F)	WEC CELL (VOLTS)
0.019999	3.79614268	14.7539825	0.71427224	14.77425	1.1	-2.9028036	68.6	68.8	68.5	68.9	0.000231
5.019999	3.81990294	14.7554817	3.99751952	15.0645	1.1	-3.10145	68.6	68.9	68.6	68.9	0.000231
10.019999	3.80684808	14.7547321	4.00377382	15.06875	1.05	-2.6793284	68.5	68.9	68.5	68.9	0.000232
15.019999	3.78901417	14.7547321	4.01065376	15.0705	1.15	19.022793	68.6	68.9	68.6	68.9	0.000236
20.019999	3.77738468	14.7547321	4.01690816	15.0705	41.1	37.496908	68.6	68.9	68.5	69	0.00024
25.019999	3.7561254	14.7539825	4.0206808	15.06975	61.075	44.95784	68.6	68.9	68.4	68.9	0.000244
30.019999	3.80051857	14.7547321	4.02003536	15.06975	91.225	48.074829	68.7	68.9	68.4	69	0.000248
35.019999	3.77738468	14.7547321	4.02128624	15.06975	121.3	47.752028	68.7	68.9	68.4	68.9	0.000251
40.019999	3.80489646	14.7539825	4.02128624	15.07275	131.1	48.521783	68.7	68.9	68.6	69	0.000253
45.019999	3.77738468	14.7547321	4.02003536	15.06975	141.75	48.794922	68.7	68.9	68.6	68.9	0.000254
50.019999	3.7561254	14.7547321	4.01690816	15.069	151.25	48.397629	68.8	68.9	68.5	68.9	0.000256
55.019999	3.77238242	14.7547321	4.0144064	15.069	160.975	47.876182	68.8	68.9	68.6	69	0.000257
60.019999	3.75800121	14.7547321	4.01378096	15.0675	171.55	48.167384	68.8	68.9	68.5	68.9	0.000258
65.019999	3.77928039	14.7554817	4.01253008	15.06675	181.4	48.323137	68.8	68.9	68.5	68.9	0.000259
70.019999	3.78551309	14.7554817	4.01065376	15.0675	191.35	49.291539	68.8	68.9	68.6	69	0.00026
75.019999	3.78613636	14.7539825	4.00752856	15.0675	191.4	48.72343	68.8	68.9	68.6	68.9	0.000261
80.019999	3.79614268	14.7539825	4.00752856	15.0675	190.95	47.627874	68.8	68.9	68.5	68.9	0.000261
85.019999	3.77113188	14.7539825	4.00439636	15.06825	191.5	48.447291	68.8	68.9	68.5	68.9	0.000261
90.019999	3.77300769	14.7539825	4.0018976	15.06825	201.325	48.869414	68.9	68.9	68.5	68.9	0.000261
95.019999	3.78901417	14.7539825	3.9987704	15.06525	201.225	48.472122	68.9	68.9	68.5	68.9	0.000261
100.019999	3.7748835	14.7539825	4.00002128	15.0645	200.975	47.106428	70	68.9	68.5	68.9	0.000261
105.019999	3.76875499	14.7539825	3.99814296	15.0645	210.875	48.049998	70	68.9	68.6	68.9	0.000262
110.019999	3.7812972	14.7539825	3.99814296	15.06375	201.575	48.198983	70	68.9	68.6	68.9	0.000262
115.019999	3.7873898	14.7539825	3.99656432	15.0645	210.9	48.025167	70	68.9	68.7	69	0.000262
120.019999	3.79114052	14.7539825	3.99376988	15.0645	211.375	48.025167	70	68.9	68.6	68.9	0.000262
125.019999	3.76900553	14.7539825	3.99128512	15.0645	211.225	47.18092	70	68.9	68.6	68.9	0.000262
130.019999	3.75500013	14.7539825	3.99189056	15.06525	210.85	47.826521	70.1	68.9	68.6	68.9	0.000263
135.019999	3.76900553	14.7539825	3.99001424	15.06525	211.45	46.907781	70	68.9	68.6	68.9	0.000263
140.019999	3.76738026	14.7547321	3.98539888	15.0645	210.725	46.684304	70	68.9	68.5	68.9	0.000263
145.019999	3.77050861	14.7547321	3.98001424	15.0645	211.475	46.957443	70	68.9	68.6	68.9	0.000263
150.019999	3.77238242	14.7539825	3.98751248	15.0645	210.85	47.702367	70	68.9	68.5	68.9	0.000263
155.019999	3.77928039	14.7539825	3.98626612	15.06525	210.85	47.702367	70	68.9	68.5	68.9	0.000263
160.019999	3.77928039	14.7539825	3.98501072	15.0645	211.45	47.528551	70	68.9	68.5	68.9	0.000263
165.019999	3.77928039	14.7539825	3.98501072	15.0645	210.75	47.329805	70	68.9	68.4	68.9	0.000263
170.019999	3.7685308	14.7539825	3.98553616	15.0645	211.225	47.031935	70	68.9	68.5	68.9	0.000262
175.019999	3.79428687	14.7562313	3.9831344	15.06525	211.25	47.553382	70	68.9	68.5	68.9	0.000263
180.070001	3.806147	14.7539825	3.9831344	15.06525	211.3	48.025167	70	68.9	68.5	68.9	0.000263
185.019999	3.80177011	14.7547321	3.98063264	15.0645	211.45	47.975506	69.9	68.9	68.5	68.9	0.000263

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APPENDIX C, Page

Flammable Gas Interlock Spoolpiece Testing

FGI2213.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
190.01999	3.77926039	14.7532329	3.98125808	15.06375	211.275	48.074829	69.9	69	68.5	69	0.000262
195.01999	3.77926039	14.7524832	3.98063264	15.06525	221.025	48.273475	69.8	69	68.4	69	0.000263
200.01999	3.77863512	14.7539825	3.98125808	15.06525	211.2	47.826521	69.8	69.1	68.4	68.9	0.000263
205.01999	3.79551741	14.7554817	3.98188352	15.06525	211.675	48.546614	69.9	69.1	68.5	69	0.000263
210.01999	3.79239106	14.7554817	3.98125808	15.0645	211.475	47.404397	69.9	69.1	68.5	68.9	0.000263
215.01999	3.78988998	14.7554817	3.97875632	15.0645	221.175	47.205751	69.9	69	68.6	69	0.000263
220.01999	3.76925607	14.7532329	3.97875632	15.0645	221.175	48.273475	69.8	69	68.4	68.9	0.000263
225.01999	3.77238242	14.7554817	3.97813088	15.0645	218.55	48.447291	69.8	69.1	68.5	69	0.000263
230.01999	3.79614268	14.7547321	3.97875632	15.0645	221.6	47.901013	69.9	69.1	68.6	68.9	0.000264
235.01999	3.76925607	14.7554817	3.97875632	15.063	221.6	47.280243	69.9	69.1	68.4	68.9	0.000263
240.01999	3.77300769	14.7554817	3.97813088	15.0645	221.375	47.752028	69.9	69.1	68.6	69.1	0.000263
245.00001	3.77800985	14.7539825	3.97875632	15.06525	221.375	48.273475	69.9	69.1	68.6	69	0.000263
250.01999	3.78613836	14.7532329	3.97875632	15.066	221.575	48.596276	70	69.1	68.6	69	0.000263
255.01999	3.7686308	14.7532329	3.97813088	15.06225	211.5	48.347968	69.9	69.1	68.5	68.9	0.000263
260.01999	3.77738458	14.7539825	3.97688	15.06225	211.275	48.298306	69.9	69.1	68.5	68.9	0.000263
265.03	3.79676795	14.7554817	3.97625456	15.06225	211.025	47.429228	70	69.1	68.5	68.9	0.000263
270.03	3.81114916	14.7539825	3.97625456	15.0615	221.575	47.50372	70	69.1	68.6	69	0.000263
275.01999	3.76487918	14.7547321	3.97688	15.0615	211	47.131258	69.8	69.1	68.7	69.1	0.000263
280.01999	3.77675931	14.7547321	3.97500368	15.0645	211.5	47.18092	69.8	69.1	68.5	68.9	0.000263
285.03	3.78426255	14.7532329	3.9737528	15.0645	221.425	47.056766	69.7	69.1	68.6	68.9	0.000263
290.01999	3.77363296	14.7539825	3.97437824	15.0645	221.6	48.09966	69.6	69.1	68.6	69	0.000263
295.03	3.77300769	14.7532329	3.97688	15.0615	221.45	47.578213	69.7	69.1	68.7	68.9	0.000263
300.01999	3.79114052	14.7532329	3.97688	15.06225	221.4	47.528551	69.6	69.1	68.5	68.9	0.000262
305.03	3.78238674	14.7539825	3.97500368	15.06225	221.375	48.074829	69.7	69.1	68.6	69	0.000263
310.01999	3.77113188	14.7532329	3.97688	15.0645	221.075	47.47889	69.8	69.1	68.8	69	0.000264
315.03	3.78176147	14.7532329	3.97688	15.0615	221.55	48.695599	69.9	69.1	68.6	68.9	0.000263
320.01999	3.79176579	14.7547321	3.97250192	15.06225	221.6	48.12449	69.9	69.1	68.6	69	0.000263
325.01999	3.77175715	14.7524832	3.97562912	15.06525	221.2	48.447291	69.9	69.1	68.7	68.9	0.000264
330.01999	3.77113188	14.7547321	3.97250192	15.06375	221.425	48.025167	70	69.1	68.6	69	0.000264
335.01999	3.7811362	14.7547321	3.9737528	15.06225	221.325	48.298306	69.9	69.1	68.8	69	0.000263
340.01999	3.77988566	14.7562313	3.97312736	15.06525	221.4	48.347968	69.9	69.1	68.6	69	0.000263
345.01999	3.7686308	14.7562313	3.97250192	15.0615	221.6	48.74526	69.9	69.1	68.6	69	0.000263
350.01999	3.77363296	14.7562313	3.97312736	15.06225	221.275	47.925844	69.9	69.1	68.7	69.1	0.000263
355.01999	3.77300769	14.7539825	3.97312736	15.06225	221.3	47.454059	69.9	69.1	68.6	69	0.000263
360.01999	3.77926039	14.7539825	3.97250192	15.06225	221.525	47.80169	69.9	69.1	68.8	69.1	0.000263
365.04001	3.77738458	14.7539825	3.97187648	15.06225	221.55	47.950675	70	69.2	68.7	69	0.000264
370.01999	3.79176579	14.7554817	3.97250192	15.063	221.55	48.323137	69.9	69.2	68.7	69	0.000263
375.06	3.78801417	14.7532329	3.97250192	15.06225	221.5	48.72043	69.9	69.2	68.8	69.1	0.000264
380.01999	3.77988566	14.7554817	3.97250192	15.0615	221.375	48.968738	69.8	69.1	68.7	69	0.000263
385.04001	3.77863512	14.7547321	3.97187648	15.06075	221.575	48.223814	69.7	69.1	68.7	68.9	0.000263
390.01999	3.77988566	14.7554817	3.97250192	15.06225	221.35	48.993568	69.8	69.1	68.5	69	0.000264
395.06	3.80427119	14.7539825	3.97250192	15.06225	221.325	48.887477	69.8	69.1	68.5	68.9	0.000263

Flammable Gas Interlock Spoolpiece Testing

FGI22213.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
400.01999	3.79676795	14.7539825	3.97312736	15.0615	221.425	48.869414	69.9	69.2	68.7	69	0.000263
405.01999	3.78613836	14.7539825	3.97187648	15.0615	221.475	50.135785	69.8	69.2	68.7	69	0.000263
410.01999	3.78613836	14.7539825	3.97187648	15.06225	221.575	49.241876	69.7	69.2	68.7	69	0.000263
415.01999	3.77926039	14.7539825	3.97250192	15.06225	221.525	48.993568	69.7	69.1	68.6	68.9	0.000263
420.01999	3.77300769	14.7539825	3.97187648	15.06225	221.4	48.894245	69.7	69.2	68.6	68.9	0.000263
425.01999	3.77300769	14.7547321	3.97187648	15.063	211.275	49.589508	69.7	69.2	68.7	69	0.000263
430.01999	3.77613404	14.7554817	3.97250192	15.063	221.46	48.695599	69.7	69.2	68.6	68.9	0.000263
435.01999	3.78863944	14.7532329	3.97000016	15.0615	221.475	49.241876	69.8	69.2	68.7	69	0.000263
440.01999	3.78551309	14.7524832	3.97312736	15.063	221.325	50.781386	69.8	69.2	68.8	69.1	0.000264
445.01999	3.7686308	14.7532329	3.97312736	15.06225	221.35	48.149321	69.8	69.2	68.6	68.9	0.000263
450.01999	3.77238242	14.7547321	3.97187648	15.06225	221.375	49.639169	69.9	69.2	68.6	69	0.000263
455.01999	3.77675931	14.7539825	3.97250192	15.06375	221.225	49.068061	69.9	69.2	68.6	68.9	0.000264
460.01999	3.77738458	14.7539825	3.97312736	15.06225	221.55	48.273475	69.9	69.2	68.7	69	0.000263
465.01999	3.79239106	14.7539825	3.97250192	15.0615	211.425	49.217046	69.9	69.2	68.7	69	0.000263
470.01999	3.77926039	14.7539825	3.97250192	15.06225	221.075	48.571445	69.9	69.2	68.6	68.9	0.000263
475.01999	3.77926039	14.7539825	3.97312736	15.063	221.4	48.645937	69.9	69.2	68.5	69	0.000263
480.01999	3.77550877	14.7539825	3.97000016	15.06375	221.5	48.496952	69.8	69.2	68.6	69	0.000263
485.01999	3.76925607	14.7539825	3.97187648	15.06225	221.375	48.670768	69.8	69.2	68.6	69	0.000263
490.01999	3.77238242	14.7539825	3.97250192	15.05925	221.4	49.415692	69.8	69.2	68.6	69.1	0.000264
495.01999	3.7811362	14.7539825	3.97250192	15.06225	221.2	49.465354	69.8	69.2	68.5	69	0.000263
500.01999	3.76425391	14.7532329	3.97000016	15.06225	221.5	48.273475	69.8	69.2	68.5	69	0.000263
505.01999	3.77738458	14.7547321	3.97250192	15.063	221.55	48.372798	69.8	69.2	68.6	69	0.000263
510.01999	3.77363296	14.7524832	3.97312736	15.063	210.55	48.447291	69.8	69.2	68.5	69	0.000263
515.04001	3.77675931	14.7547321	3.97000016	15.0615	221.55	48.397629	69.7	69.2	68.5	69	0.000264
520.01999	3.80739754	14.7524832	3.9706256	15.06225	221.225	48.000336	69.7	69.2	68.5	69	0.000264
525.01999	3.77926039	14.7547321	3.96874928	15.06225	211.475	47.80169	69.8	69.2	68.6	69	0.000263
530.01999	3.79614268	14.7539825	3.96874772	15.0615	214.175	47.851352	69.8	69.2	68.5	69	0.000264
535.01999	3.79676795	14.7547321	3.96812384	15.06	221.2	47.578213	69.9	69.2	68.6	69	0.000263
540.01999	3.77988566	14.7554817	3.9674984	15.06225	221.55	47.156089	69.9	69.2	68.6	69.1	0.000264
545.08002	3.77425823	14.7547321	3.96874928	15.063	221.25	47.47889	69.9	69.2	68.5	68.9	0.000262
550.01999	3.78176147	14.7539825	3.96812384	15.05925	221.55	47.404397	69.8	69.2	68.5	69	0.000263
555.01999	3.77300769	14.7539825	3.96812384	15.0615	221.425	47.727198	69.9	69.2	68.6	69	0.000264
560.04999	3.77926039	14.7532329	3.96874928	15.06	221.35	48.149321	69.9	69.2	68.6	69	0.000264
565.01999	3.7748835	14.7532329	3.96874928	15.06225	221.475	47.627874	69.8	69.2	68.6	69	0.000264
570.01999	3.77300769	14.7532329	3.96874928	15.06	210.9	48.074829	69.8	69.2	68.6	69	0.000263
575.04001	3.77363296	14.7539825	3.96812384	15.06075	221.1	48.794822	69.8	69.2	68.7	69.1	0.000264
580.01999	3.806147	14.7539825	3.9687296	15.05925	221.525	47.901013	69.9	69.2	68.6	69	0.000263
585.01999	3.77675931	14.7539825	3.9687296	15.05925	221.6	48.372798	69.9	69.2	68.5	69	0.000263
590.01999	3.77300769	14.7532329	3.96862208	15.0615	221.6	48.496952	69.8	69.2	68.6	69	0.000263
595.01999	3.78926471	14.7547321	3.96874928	15.063	221.4	48.025167	69.9	69.2	68.6	69	0.000262
600.01999	3.77175715	14.7547321	3.96824752	15.05925	221.3	47.50372	70	69.2	68.5	68.9	0.000263
605.04999	3.78426255	14.7539825	3.96824752	15.06225	221.5	48.000336	70	69.2	68.5	69	0.000263

Flammable Gas Interlock Spoolpiece Testing

FGI2213.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
610.01999	3.77300769	14.7524832	3.96687296	15.06	221.55	48.42246	70	69.2	68.6	69.1	0.000263
615.01999	3.78176147	14.7539825	3.96624752	15.06	221.4	47.826521	70	69.2	68.7	69.1	0.000263
620.01999	3.77863512	14.7547321	3.96687296	15.05925	218.175	48.819753	70.1	69.2	68.5	69	0.000263
625.01999	3.77175715	14.7547321	3.96624752	15.05925	221.15	48.770091	70.1	69.2	68.6	69	0.000263
630.01999	3.79739322	14.7524832	3.96562208	15.05925	221.575	48.72043	70.1	69.2	68.7	69	0.000264
635.01999	3.76925607	14.7532329	3.96624752	15.06	221.4	47.652705	70.1	69.2	68.7	69.1	0.000264
640.07001	3.79239106	14.7532329	3.96624752	15.05925	221.575	48.397629	70.1	69.3	68.6	69	0.000263
645.01999	3.77550877	14.7539825	3.96562208	15.05925	213.5	48.447291	70.1	69.2	68.6	69	0.000263
650.01999	3.77113188	14.7547321	3.96624752	15.06	211.025	48.621106	70.1	69.2	68.6	69.1	0.000263
655.06	3.7811362	14.7547321	3.96562208	15.05925	211.4	49.3412	70.1	69.2	68.7	69.1	0.000263
660.01999	3.79551741	14.7547321	3.96687296	15.06	221.25	48.621106	70.1	69.2	68.6	69	0.000263
665.01999	3.77988566	14.7547321	3.96374576	15.06	221.1	47.652705	70.1	69.2	68.7	69.1	0.000263
670.04001	3.79739322	14.7547321	3.96499664	15.06	221.55	48.273475	69.9	69.3	68.5	69	0.000264
675.01999	3.76925607	14.7547321	3.96562208	15.05925	211.275	48.819753	70	69.2	68.6	69	0.000263
680.01999	3.78363728	14.7547321	3.96186944	15.05925	210.7	47.553382	70	69.2	68.7	69.1	0.000264
685.03	3.79301633	14.7532329	3.961244	15.06	211.475	47.702367	70	69.2	68.5	69	0.000262
690.01999	3.7686308	14.7554817	3.96186944	15.05925	212.775	48.372798	70	69.2	68.6	69.1	0.000264
695.01999	3.7686308	14.7562313	3.96186944	15.06	219.075	47.677536	70	69.3	68.7	69.1	0.000263
700.04001	3.78551309	14.7539825	3.96186944	15.06	211.45	48.695599	70	69.3	68.7	69.1	0.000263
705.01999	3.77738458	14.7554817	3.96186944	15.06	221.175	48.943907	70.1	69.2	68.7	69.1	0.000263
710.01999	3.78613836	14.7547321	3.961244	15.0585	221.4	48.174152	70	69.3	68.5	69	0.000263
715.04999	3.76738026	14.7547321	3.96186944	15.06	211.35	47.901013	70	69.2	68.6	69	0.000264
720.01999	3.77550877	14.7532329	3.96186944	15.0585	211.475	47.553382	70.1	69.2	68.7	69.1	0.000263
725.01999	3.81490078	14.7547321	3.96186944	15.05925	216.525	48.12449	70	69.3	68.6	69.1	0.000263
730.04001	3.76675499	14.7539825	3.96061856	15.05925	221.5	47.50372	69.9	69.2	68.6	69	0.000263
735.01999	3.76988134	14.7539825	3.96186944	15.06	211.4	47.553382	69.9	69.3	68.6	68.9	0.000263
740.01999	3.78051093	14.7547321	3.96249488	15.0585	211.1	47.553382	69.9	69.2	68.8	69.1	0.000263
745.01999	3.76738026	14.7547321	3.96249488	15.05775	221.6	46.982274	69.9	69.3	68.7	69	0.000262
750.01999	3.78613836	14.7547321	3.96186944	15.06	221.5	46.659473	70	69.3	68.6	69	0.000263
755.01999	3.79301633	14.7554817	3.961244	15.05925	221.125	46.609812	69.9	69.2	68.7	69.1	0.000263
760.06	3.78613836	14.7554817	3.95874224	15.06	221.55	48.496952	69.9	69.3	68.7	69.1	0.000263
765.01999	3.77300769	14.7554817	3.95936768	15.05925	221.525	47.454059	70	69.3	68.7	69.1	0.000262
770.01999	3.79239106	14.7554817	3.96061856	15.05925	221.3	47.578213	70	69.2	68.7	69.1	0.000262
775.04999	3.8123997	14.7539825	3.96249488	15.06	211.075	46.808458	69.9	69.2	68.7	69.1	0.000263
780.01999	3.78988998	14.7547321	3.95936768	15.06	211.3	46.187688	69.9	69.3	68.7	69.1	0.000263
785.01999	3.78176147	14.7547321	3.961244	15.05925	211.25	47.578213	69.9	69.3	68.6	69	0.000263
790.06	3.78363728	14.7532329	3.961244	15.05925	211.175	47.553382	69.9	69.3	68.6	69	0.000262
795.01999	3.77738458	14.7562313	3.95936768	15.06	221.125	47.205751	69.9	69.3	68.7	69	0.000263
800.01999	3.76738026	14.7539825	3.95936768	15.05925	212.8	48.248644	69.9	69.3	68.7	69.1	0.000263
805.04999	3.77988566	14.7547321	3.95999312	15.06	221.525	48.000336	69.8	69.3	68.7	69.1	0.000264
810.01999	3.79239106	14.7532329	3.95936768	15.0585	221.475	47.528551	69.9	69.3	68.6	69.1	0.000263
815.01999	3.7748835	14.7539825	3.95999312	15.06	221.4	47.429228	70	69.3	68.8	69	0.000264

Flammable Gas Interlock Spoolpiece Testing

FGI22213.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
820.04999	3.78801417	14.7547321	3.95936768	15.05925	221.525	47.975506	70	69.3	68.8	69.1	0.000264
825.01999	3.79176579	14.7547321	3.96061856	15.05925	221.375	47.901013	70	69.3	68.7	69.1	0.000264
830.01999	3.78801417	14.7539825	3.95936768	15.0585	221.525	47.627874	69.9	69.3	68.8	69.1	0.000263
835.06	3.77675931	14.7554817	3.95936768	15.05925	211.475	47.851352	70	69.3	68.6	69	0.000264
840.01999	3.77238242	14.7539825	3.95936768	15.05925	210.9	47.578213	70	69.3	68.7	69	0.000264
845.01999	3.78176147	14.7539825	3.961244	15.05925	221.425	47.752028	70	69.3	68.6	69	0.000263
850.04001	3.79676796	14.7539825	3.96061856	15.05925	211.325	47.627874	69.9	69.3	68.6	69	0.000263
855.01999	3.77988566	14.7547321	3.95999312	15.05925	221.6	47.106428	70	69.3	68.7	69.1	0.000263
860.01999	3.77926039	14.7539825	3.95999312	15.05925	221.1	47.851352	70	69.3	68.6	69.1	0.000262
865.07001	3.80927335	14.7554817	3.95936768	15.05775	221.475	47.454059	69.9	69.3	68.7	69.1	0.000263
870.01999	3.78551309	14.7547321	3.95749136	15.05925	218.275	47.354736	70	69.3	68.6	69	0.000263
875.01999	3.7686308	14.7547321	3.95749136	15.06	221.225	47.627874	70.1	69.3	68.6	69	0.000264
880.04001	3.7811362	14.7554817	3.95749136	15.05925	221.25	47.578213	70	69.3	68.6	69	0.000263
885.01999	3.7748835	14.7547321	3.95749136	15.05925	220.8	47.652705	70	69.3	68.7	69.1	0.000262
890.01999	3.78926471	14.7547321	3.95749136	15.05925	221.5	47.429228	69.9	69.3	68.6	69	0.000263
895.04999	3.79551741	14.7539825	3.9581168	15.0585	221.125	47.329905	70	69.3	68.5	69	0.000264
900.01999	3.77175715	14.7554817	3.95749136	15.05925	210.6	48.049998	70	69.3	68.6	69	0.000263
905.01999	3.78613836	14.7554817	3.95686592	15.0585	221.525	47.031935	70	69.3	68.6	69.1	0.000263
910.04999	3.81802713	14.7532329	3.95749136	15.06	211.475	46.982274	70	69.3	68.6	69	0.000263
915.01999	3.78988134	14.7554817	3.95749136	15.05925	211.15	47.131258	69.9	69.3	68.5	69	0.000264
920.01999	3.7873889	14.7539825	0.080013536	14.60025	210.9	47.329905	69.9	69.3	68.6	69	0.000264

TEST: FGI22221 22 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 2029ppm

SECOND	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
0.009979	3.81802713	14.7554817	-0.000167872	14.56225	21.325	-3.3249272	69.9	68.9	68.8	69.3	0.000234
5.029999	3.83240834	14.7539825	0.9403688	14.62575	21.15	-2.48068	69.9	69	68.7	69.3	0.000234
10.01999	3.81990294	14.7547321	0.94161968	14.62575	49.875	692.036796	70	69	68.6	69.3	0.000248
15.01999	3.81990294	14.7547321	0.94224512	14.625	251.5	1317.02803	69.9	69	68.7	69.3	0.000284
20.01999	3.82615564	14.7547321	0.94224512	14.62575	521.75	1610.7764	69.8	69	68.7	69.3	0.000325
25.01999	3.81990294	14.7547321	0.94161968	14.625	782.25	1728.971	69.7	69	68.8	69.4	0.000361
30.01999	3.84241266	14.7539825	0.94224512	14.6265	1012.25	1776.14952	69.7	69	68.8	69.4	0.000395
35.01999	3.83240834	14.7532329	0.94099424	14.62575	1202.5	1799.24217	69.7	69	68.8	69.4	0.00042
40.01999	3.83240834	14.7532329	0.94161968	14.625	1372.5	1811.16095	69.8	69	68.7	69.3	0.000442
45.01999	3.81052389	14.7539825	0.94161968	14.625	1512.25	1825.56282	69.7	69	68.9	69.4	0.000459
50.01999	3.80302065	14.7539825	0.94161968	14.625	1592.25	1834.2536	69.8	69	68.9	69.3	0.000473
55.01999	3.83666104	14.7532329	0.94099424	14.625	1672.5	1842.94438	69.8	69	68.9	69.4	0.000485
60.01999	3.84178739	14.7547321	0.94224512	14.625	1732.5	1853.125	69.8	69	68.8	69.4	0.000493
65.01999	3.81802713	14.7539825	0.93849248	14.625	1793	1857.34624	69.9	69	68.9	69.4	0.000501
70.01999	3.84303793	14.7547321	0.94099424	14.62575	1833	1857.09793	70.1	69	69	69.4	0.000506
75.01999	3.83666104	14.7547321	0.94099424	14.62575	1863	1861.81578	70.1	69	69	69.3	0.000512
80.01999	3.81552605	14.7547321	0.94099424	14.625	1903	1863.80225	70.1	69	69	69.4	0.000515
85.01999	3.81365024	14.7539825	0.93974336	14.625	1923	1874.47949	70.1	69	68.9	69.3	0.000519
90.01999	3.81615132	14.7539825	0.9403688	14.62575	1943	1876.21765	70	69	68.7	69.3	0.000522
95.01999	3.81802713	14.7532329	0.93974336	14.62575	1962.75	1875.96934	70	69	68.8	69.4	0.000525
100.03	3.83428415	14.7524832	0.93974336	14.62575	1973	1877.45919	70.1	69	68.9	69.4	0.000526
105.02	3.80677227	14.7532329	0.93974336	14.62425	1983	1880.43888	70.1	69	68.9	69.4	0.000529
110.02	3.80677227	14.7547321	0.93974336	14.62575	1993	1883.41858	70	69	68.8	69.4	0.00053
115.17	3.81615132	14.7539825	0.93974336	14.6265	2003	1895.83398	70.1	69	68.7	69.3	0.000531
120.02	3.83490942	14.7554817	0.93974336	14.62575	2012.75	1893.3509	70.1	69	68.9	69.4	0.000532
125.02	3.83666104	14.7539825	0.93911792	14.625	2023	1896.3306	70.1	69	68.8	69.4	0.000533
130.03	3.80664808	14.7532329	0.93786704	14.62425	2033.25	1898.31706	70.1	69	68.9	69.4	0.000534
135.02	3.83053253	14.7532329	0.93849248	14.625	2043	1894.84075	70.1	69	68.8	69.3	0.000535
140.02	3.79864376	14.7532329	0.9372416	14.625	2043.25	1893.3509	70.1	69	68.9	69.4	0.000536
145.16	3.81615132	14.7532329	0.93786704	14.625	2053	1899.06198	70.1	69	69	69.4	0.000538
150.02	3.81927767	14.7524832	0.9372416	14.62575	2053.25	1899.31029	70.2	69	69	69.4	0.000538
155.02	3.8186524	14.7547321	0.9372416	14.625	2063	1897.32383	70.2	69	68.9	69.4	0.000537
160.02	3.80739754	14.7547321	0.93661616	14.625	2062.75	1894.84075	70.2	69	68.9	69.4	0.000538
165.02	3.81927767	14.7547321	0.93661616	14.62575	2063	1893.10259	70.2	69	68.9	69.4	0.000538
170.02	3.80239538	14.7547321	0.9372416	14.62575	2073	1897.07552	70.2	69	68.9	69.4	0.000538
175.02	3.81114916	14.7547321	0.93661616	14.62575	2073.25	1897.07552	70.2	69	68.8	69.4	0.000539
180.02	3.83303361	14.7547321	0.9372416	14.625	2073.25	1899.5586	70.2	69	68.9	69.4	0.00054
185.02	3.82678091	14.7539825	0.9372416	14.625	2073.25	1895.58567	70.1	69	68.9	69.4	0.00054

Flammable Gas Interlock Spoolpiece Testing

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SECOND	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
190.02	3.81114916	14.7554817	0.9372416	14.62425	2082.75	1896.3306	70.1	69	68.8	69.4	0.000541
195.02	3.82240402	14.7547321	0.93599072	14.625	2083	1898.06875	70.2	69	68.9	69.3	0.000541
200.28	3.82365456	14.7547321	0.93473984	14.62425	2082.75	1901.79337	70.2	69	68.8	69.4	0.000541
205.02	3.81802713	14.7547321	0.93473984	14.625	2083.25	1896.08229	70.2	69	69	69.4	0.000541
210.02	3.81552605	14.7554817	0.93536528	14.62575	2083.25	1899.06198	70.1	69	68.8	69.4	0.000541
215.02	3.8249051	14.7547321	0.93473984	14.62575	2083	1900.30352	70.2	69	68.8	69.3	0.000541
220.02	3.82365456	14.7547321	0.93473984	14.62575	2083	1898.56537	70.2	69	68.8	69.3	0.000542
225.02	3.83178307	14.7547321	0.93473984	14.625	2082.75	1900.80014	70.3	69	68.9	69.3	0.000541
230.02	3.80989862	14.7554817	0.93473984	14.6265	2093.5	1905.7863	70.3	69.1	68.8	69.3	0.00054
235.02	3.81490078	14.7554817	0.93536528	14.62575	2093.5	1907.00784	70.2	69	68.8	69.3	0.000541
240.02	3.81427551	14.7554817	0.93536528	14.62575	2093.5	1905.02138	70.2	69	68.8	69.3	0.000541
245.02	3.8249051	14.7547321	0.93536528	14.62575	2092.75	1899.06198	70.2	69	68.9	69.4	0.000541
250.02	3.82678091	14.7547321	0.93473984	14.625	2093	1895.08906	70.2	69	68.8	69.4	0.000541
255.02	3.83053253	14.7562313	0.93536528	14.6265	2093	1903.03491	70.2	69	68.9	69.4	0.000543
260.02	3.81114916	14.7547321	0.93599072	14.625	2093	1905.7863	70.2	69	68.8	69.4	0.000542
265.18	3.81177443	14.7547321	0.93473984	14.62575	2093.25	1904.52478	70.1	69.1	68.7	69.3	0.000542
270.02	3.82177875	14.7547321	0.93536528	14.62575	2093	1904.52478	70.1	69	68.8	69.4	0.000541
275.02	3.81552605	14.7532329	0.93661616	14.62575	2093	1901.54506	70.1	69.1	68.9	69.3	0.000542
280.02	3.82615564	14.7547321	0.93536528	14.62575	2093	1904.27645	70.1	69	68.9	69.4	0.000543
285.03	3.83866104	14.7554817	0.93473984	14.62575	2093.5	1899.31029	70.1	69	68.9	69.4	0.000543
290.02	3.82553037	14.7539825	0.93348896	14.62575	2093.5	1904.52478	70.2	69	68.9	69.4	0.000543
295.02	3.83303361	14.7539825	0.93286352	14.62425	2093	1904.52478	70.2	69.1	68.8	69.3	0.000543
300.02	3.80864808	14.7554817	0.93348896	14.62575	2102.75	1906.51122	70.1	69	68.7	69.4	0.000542
305.02	3.80552173	14.7532329	0.93348896	14.62575	2093	1906.26292	70.1	69.1	68.8	69.3	0.000543
310.02	3.81427551	14.7539825	0.93286352	14.62575	2093	1906.75953	70.2	69.1	68.8	69.4	0.000543
315.02	3.82678091	14.7547321	0.93286352	14.625	2093	1902.28999	70.2	69.1	68.8	69.4	0.000542
320.02	3.81615132	14.7539825	0.93348896	14.62575	2093.5	1900.80014	70.2	69.1	68.8	69.4	0.000542
325.02	3.83240834	14.7532329	0.93286352	14.625	2093.25	1903.03491	70.2	69	68.7	69.4	0.000543
330.02	3.81990294	14.7539825	0.93286352	14.625	2103.25	1901.04845	70.2	69.1	68.7	69.3	0.000542
335.02	3.83303361	14.7539825	0.93286352	14.6265	2103.25	1895.33736	70.2	69	68.8	69.4	0.000544
340.02	3.84428847	14.7532329	0.93223808	14.6265	2103	1896.3306	70.2	69.1	68.8	69.4	0.000543
345.02	3.82052821	14.7539825	0.93286352	14.62575	2103.25	1897.32383	70.2	69	68.8	69.4	0.000543
350.02	3.82427983	14.7539825	0.93161264	14.62575	2103.25	1891.11613	70.3	69.1	68.9	69.4	0.000544
355.02	3.81052389	14.7539825	0.93036176	14.62575	2102.75	1891.36444	70.2	69	68.9	69.4	0.000543
360.02	3.82302929	14.7524832	0.93036176	14.62575	2093	1890.61951	70.2	69.1	68.9	69.4	0.000543
365.02	3.81740186	14.7517336	0.92973632	14.62575	2103	1893.10259	70.2	69.1	68.9	69.4	0.000543
370.02	3.81927767	14.7517336	0.93098772	14.625	2103	1897.82044	70.1	69.1	68.8	69.4	0.000543
375.02	3.82678091	14.7539825	0.93098772	14.62575	2103.25	1900.80014	70	69.1	68.8	69.3	0.000543
380.02	3.83053253	14.7532329	0.93036176	14.6265	2103.25	1904.52478	70.1	69.1	68.8	69.4	0.000543
385.02	3.83240834	14.7517336	0.93098772	14.6265	2103.25	1893.59921	70.1	69.1	68.8	69.4	0.000543
390.06	3.81490078	14.7539825	0.93098772	14.62575	2103	1894.59244	70.1	69.1	68.8	69.4	0.000543
395.02	3.83928631	14.7547321	0.93036176	14.62575	2103.25	1893.84752	70.1	69.1	68.8	69.4	0.000544

Flammable Gas Interlock Spoolpiece Testing

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SECOND	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
400.03	3.80927335	14.7547321	0.9309872	14.62575	2102.75	1897.57214	70.2	69.1	69	69.4	0.000544
405.02	3.83428415	14.7547321	0.93036176	14.62575	2103.25	1892.85428	70.2	69.1	68.8	69.3	0.000543
410.02	3.80239538	14.7539825	0.92911088	14.625	2103	1895.33736	70.2	69.1	68.9	69.4	0.000542
415.02	3.81552605	14.7532329	0.92848544	14.625	2102.75	1896.82721	70.2	69.1	68.9	69.4	0.000544
420.07	3.80927335	14.7524832	0.93036176	14.62575	2102.75	1898.06875	70.1	69.1	68.8	69.4	0.000543
425.02	3.81177443	14.7524832	0.92911088	14.62575	2103	1896.3306	70.1	69.1	68.9	69.4	0.000543
430.02	3.80864808	14.7539825	0.92848544	14.62425	2103.5	1894.34413	70.1	69.1	69	69.4	0.000543
435.02	3.83240834	14.7532329	0.92848544	14.62575	2103.5	1895.83398	70.1	69.1	68.9	69.4	0.000543
440.07	3.81677659	14.7547321	0.92848544	14.62575	2103	1888.38474	70.1	69.1	69	69.4	0.000543
445.02	3.81552605	14.7539825	0.92911088	14.6265	2103.25	1890.1229	70.1	69.1	69	69.4	0.000543
450.09	3.81802713	14.7539825	0.92786	14.62575	2103.25	1889.62628	70.1	69.1	68.9	69.4	0.000543
455.02	3.83666104	14.7532329	0.92848544	14.625	2103	1891.36444	70.2	69.1	68.9	69.4	0.000544
460.02	3.81740186	14.7532329	0.92848544	14.62575	2103.25	1894.59244	70.1	69.1	68.9	69.4	0.000544
465.02	3.85366752	14.7539825	0.92848544	14.625	2103	1894.59244	70.1	69.1	68.8	69.4	0.000544
470.02	3.80739754	14.7547321	0.92848544	14.62575	2103.25	1890.1229	70.1	69.1	68.8	69.3	0.000543
475.02	3.82427983	14.7532329	0.92911088	14.62575	2103	1889.87459	70.1	69.1	68.8	69.4	0.000543
480.02	3.82615564	14.7547321	0.92848544	14.6265	2103	1894.09582	70.1	69.1	68.9	69.4	0.000544
485.02	3.81990294	14.7532329	0.92911088	14.625	2103.25	1892.35767	70.1	69.1	68.9	69.4	0.000543
490.02	3.81740186	14.7524832	0.92848544	14.62575	2103.25	1886.64658	70.2	69.1	68.9	69.4	0.000543
495.02	3.81927767	14.7532329	0.92848544	14.62575	2103.25	1888.88136	70.2	69.1	68.9	69.4	0.000543
500.02	3.81990294	14.7532329	0.92848544	14.62575	2103	1890.86782	70.2	69.1	69	69.4	0.000543
505.02	3.82553037	14.7562313	0.92848544	14.62575	2103	1889.87459	70.2	69.1	69	69.4	0.000543
510.06	3.80677227	14.7539825	0.92911088	14.62575	2103	1889.12966	70.3	69.1	68.9	69.4	0.000542
515.06	3.81615132	14.7539825	0.92973632	14.6265	2103	1886.64658	70.2	69.1	69	69.4	0.000544
520.02	3.82990726	14.7539825	0.92848544	14.625	2103.25	1889.62628	70.1	69.1	69	69.4	0.000543
525.05	3.83365888	14.7547321	0.92786	14.625	2102.5	1887.88812	70.2	69.2	68.9	69.3	0.000542
530.02	3.82240402	14.7539825	0.92911088	14.62575	2103	1884.90843	70.1	69.1	69	69.4	0.000543
535.02	3.82615564	14.7547321	0.92911088	14.62575	2103	1887.1432	70.1	69.1	68.9	69.4	0.000543
540.02	3.81990294	14.7532329	0.92911088	14.62575	2103.25	1886.89489	70.1	69.1	68.9	69.4	0.000543
545.08	3.80552173	14.7554817	0.92848544	14.62575	2103.25	1889.37797	70.1	69.1	68.9	69.4	0.000543
550.02	3.81615132	14.7539825	0.92911088	14.62575	2103.5	1884.68012	70	69.2	68.8	69.4	0.000543
555.05	3.82427983	14.7539825	0.92598368	14.62575	2103	1880.43888	70	69.1	69	69.4	0.000544
560.02	3.80927335	14.7539825	0.92911088	14.62575	2103	1880.43888	69.9	69.1	68.8	69.4	0.000543
565.02	3.81740186	14.7532329	0.92848544	14.6265	2103	1881.18381	70	69.2	68.9	69.4	0.000544
570.02	3.82052821	14.7539825	0.92660912	14.625	2103.25	1883.9152	70.1	69.2	68.9	69.4	0.000543
575.02	3.81365024	14.7547321	0.92660912	14.62575	2103.25	1883.9152	70.2	69.2	69	69.4	0.000542
580.02	3.81490078	14.7539825	0.92786	14.6265	2103.25	1882.92196	70.2	69.2	68.9	69.4	0.000542
585.05	3.83303361	14.7539825	0.92848544	14.62575	2103.25	1884.90843	70.2	69.2	68.9	69.3	0.000542
590.1	3.83053253	14.7547321	0.92786	14.6265	2103.25	1886.64658	70.2	69.2	68.9	69.4	0.000544
595.02	3.82615564	14.7547321	0.92911088	14.6265	2093	1886.39828	70.2	69.2	68.9	69.4	0.000543
600.06	3.81927767	14.7539825	0.92660912	14.625	2103	1881.43212	70.2	69.2	69	69.3	0.000542
605.02	3.83178307	14.7547321	0.92660912	14.62575	2103.25	1884.41181	70.2	69.2	68.9	69.4	0.000544

Flammable Gas Interlock Spoolpiece Testing

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SECOND	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
610.02	3.81552605	14.7547321	0.92723456	14.62575	2103.25	1886.64658	70.2	69.2	68.9	69.4	0.000543
615.02	3.82302929	14.7524832	0.92660912	14.625	2103	1887.88812	70.2	69.2	68.9	69.4	0.000543
620.02	3.81365024	14.7539825	0.92660912	14.625	2103	1886.14997	70.2	69.2	68.9	69.4	0.000543
625.02	3.81927767	14.7539825	0.92598368	14.625	2103.25	1879.94227	70.2	69.2	68.9	69.4	0.000543
630.05	3.80864808	14.7539825	0.92723456	14.625	2103	1883.9152	70.2	69.2	68.9	69.4	0.000543
635.02	3.82427983	14.7547321	0.92723456	14.62575	2103.25	1881.18381	70.2	69.2	68.9	69.4	0.000543
640.02	3.81552605	14.7532329	0.92786	14.6265	2103	1880.43888	70.2	69.2	68.9	69.3	0.000542
645.03	3.80864808	14.7539825	0.92723456	14.62575	2102.5	1882.17704	70.2	69.2	68.9	69.4	0.000542
650.02	3.81490078	14.7517336	0.92660912	14.62575	2103	1884.66012	70.2	69.2	68.9	69.4	0.000543
655.02	3.85491806	14.7532329	0.92723456	14.625	2103	1879.94227	70.2	69.2	68.9	69.3	0.000543
660.05	3.81740186	14.7539825	0.92660912	14.62575	2103	1881.43212	70.2	69.2	69.1	69.4	0.000544
665.02	3.83615996	14.7532329	0.92660912	14.62575	2093.5	1877.21088	70.2	69.2	68.9	69.4	0.000543
670.02	3.82177875	14.7532329	0.9247328	14.62575	2093	1870.50656	70.2	69.2	68.9	69.3	0.000543
675.02	3.8249061	14.7547321	0.92410736	14.62575	2092.75	1868.76841	70.3	69.2	68.9	69.4	0.000543
680.02	3.83178307	14.7532329	0.92285648	14.62575	2093	1872.74134	70.3	69.2	68.9	69.4	0.000543
685.02	3.806147	14.7539825	0.9247328	14.62575	2102.75	1873.48626	70.2	69.2	68.9	69.4	0.000543
690.02	3.82240402	14.7547321	0.9247328	14.62575	2093.25	1875.22442	70.2	69.2	69	69.4	0.000543
695.02	3.81740186	14.7554817	0.92223104	14.62575	2093.25	1876.96257	70.2	69.2	69	69.4	0.000542
700.02	3.84116212	14.7532329	0.92285648	14.625	2092.75	1877.9558	70.3	69.2	69.1	69.4	0.000542
705.07	3.82240402	14.7547321	0.92223104	14.62575	2093	1878.20411	70.2	69.2	69	69.4	0.000543
710.11	3.83178307	14.7547321	0.92348192	14.62575	2093	1878.70073	70.3	69.2	68.9	69.4	0.000542
715.02	3.82052821	14.7547321	0.92285648	14.62575	2093.25	1877.9558	70.3	69.2	69	69.4	0.000542
720.02	3.79551741	14.7517336	0.92285648	14.62575	2093.5	1874.97611	70.3	69.2	69	69.4	0.000542
725.05	3.81177443	14.7532329	0.92285648	14.62575	2093.25	1879.44565	70.3	69.2	69	69.5	0.000542
730.02	3.81490078	14.7539825	0.92223104	14.62575	2093.25	1882.92196	70.4	69.2	68.9	69.5	0.000541
735.02	3.81802713	14.7532329	0.92285648	14.625	2093	1880.68719	70.3	69.2	68.9	69.4	0.000542
740.02	3.83053253	14.7539825	0.92223104	14.62575	2093.5	1880.19058	70.3	69.2	69	69.4	0.000543
745.02	3.82615564	14.7539825	0.92223104	14.625	2093.5	1878.94904	70.3	69.2	69	69.4	0.000542
750.05	3.82365456	14.7554817	0.92223104	14.625	2093.25	1874.47949	70.4	69.3	68.9	69.4	0.000542
755.08	3.82427983	14.7547321	0.92348192	14.62425	2093.25	1877.7075	70.3	69.2	69	69.5	0.000543
760.02	3.81615132	14.7539825	0.92285648	14.625	2093	1876.46596	70.2	69.2	69	69.4	0.000542
765.05	3.82740618	14.7532329	0.92285648	14.625	2093	1874.23118	70.2	69.2	68.9	69.4	0.000542
770.08	3.8249061	14.7539825	0.92348192	14.62425	2093.5	1882.17704	70.2	69.2	69	69.4	0.000542
775.02	3.82553037	14.7554817	0.92223104	14.625	2093.5	1881.68042	70.2	69.2	68.9	69.4	0.000542
780.06	3.82803145	14.7539825	0.9216056	14.6265	2093.5	1875.96934	70.2	69.2	69	69.5	0.000542
785.02	3.82865672	14.7524832	0.92223104	14.6265	2093.25	1879.69396	70.3	69.2	68.9	69.5	0.000543
790.02	3.84491374	14.7517336	0.92285648	14.62575	2093	1883.66689	70.2	69.2	68.9	69.5	0.000543
795.05	3.80927335	14.7524832	0.92285648	14.6265	2093.25	1884.41181	70.3	69.3	69.1	69.5	0.000542
800.07	3.82865672	14.7539825	0.92285648	14.62575	2093	1881.92873	70.2	69.3	69	69.4	0.000542
805.02	3.82115348	14.7539825	0.92223104	14.62575	2093.5	1879.69396	70	69.2	68.9	69.4	0.000543
810.02	3.82302929	14.7524832	0.92223104	14.62575	2093	1880.19058	70	69.3	68.9	69.5	0.000542
815.02	3.8186524	14.7524832	0.92223104	14.625	2093.25	1882.92196	70	69.3	68.9	69.5	0.000542

Flammable Gas Interlock Spoolpiece Testing

FGI22221.XLS

SECOND	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
820.02	3.82928199	14.7539825	0.92223104	14.625	2093	1883.66689	70	69.2	68.9	69.5	0.000542
825.02	3.82177875	14.7524632	0.92223104	14.62575	2093.25	1884.41181	70.1	69.2	69	69.5	0.000543
830.11	3.83178307	14.7532329	0.92285648	14.62575	2093	1879.69396	70.1	69.2	68.9	69.4	0.000543
835.02	3.82240402	14.7539825	0.92223104	14.62575	2093.25	1885.90166	70.2	69.2	69	69.4	0.000542
840.07	3.81177443	14.7532329	0.92285648	14.625	2093	1881.68042	70.2	69.2	69	69.5	0.000542
845.02	3.8186524	14.7524632	0.92348192	14.625	2093	1880.19058	70.2	69.2	69.1	69.4	0.000543
850.02	3.81990294	14.7532329	0.92035472	14.62425	2093	1881.18381	70.2	69.3	69.1	69.5	0.000543
855.02	3.80239538	14.7539825	0.9216056	14.62425	2093	1881.18381	70.3	69.2	69	69.5	0.000542
860.02	3.83178307	14.7532329	0.92035472	14.625	2093.25	1880.19058	70.3	69.3	69	69.4	0.000542
865.02	3.81552605	14.7524632	0.92035472	14.625	2093	1879.94227	70.4	69.3	69	69.4	0.000542
870.02	3.83178307	14.7547321	0.92098016	14.625	2093.25	1878.70073	70.4	69.2	69	69.4	0.000541
875.04	3.82115348	14.7554817	0.9216056	14.62575	2093.25	1872.98964	70.4	69.2	68.9	69.4	0.000542
880.02	3.85366752	14.7539825	0.92035472	14.625	2093	1876.21765	70.3	69.3	68.9	69.4	0.000542
885.02	3.82177875	14.7524632	0.92035472	14.625	2093.5	1876.21765	70.3	69.3	68.9	69.4	0.000542
890.02	3.84241266	14.7539825	0.92035472	14.62425	2093.25	1878.20411	70.3	69.3	68.9	69.4	0.000542
895.02	3.81927767	14.7539825	0.92035472	14.62425	2093.5	1882.92196	70.2	69.3	69	69.4	0.000542
900.02	3.83428415	14.7547321	0.92035472	14.62575	2093	1884.66012	70.3	69.3	68.9	69.4	0.000542
905.03	3.82678091	14.7524632	0.92035472	14.625	2093	1884.1635	70.3	69.3	68.8	69.4	0.000541
910.02	3.83240834	14.7524632	0.92035472	14.625	2093	1880.19058	70.2	69.3	68.9	69.4	0.000542
915.02	3.83929631	14.7539825	0.92035472	14.625	2093	1878.94904	70.2	69.3	68.9	69.4	0.000541
920.02	3.85679387	14.7547321	0.92098016	14.625	2093.25	1875.72103	70.2	69.3	68.9	69.4	0.000541

TEST: FGI22222 22 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 2170ppm

SECONDS	MAIN DUCT DIFF (IN H2)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
0.0100098	3.75550013	14.7532329	0.232120544	14.59125	31	-3.349758	70	69.1	68.8	69.4	0.000236
5.0299988	3.75174851	14.7562313	0.9872768	14.6296	31.65	-2.8283112	70	69.2	68.9	69.4	0.000236
10.02002	3.77363296	14.7539825	0.9872768	14.63325	102.925	734.49746	69.9	69.1	68.8	69.4	0.000252
15.02002	3.7623781	14.7547321	0.98477504	14.63325	281.5	1383.3263	70	69.1	68.9	69.4	0.00029
20.02002	3.76425391	14.7547321	0.98790224	14.63325	571.5	1688.4968	69.9	69.1	68.9	69.5	0.000334
25.02002	3.74111892	14.7532329	0.98602592	14.6325	882.5	1814.1406	70	69.1	68.9	69.5	0.000376
30.02002	3.7498727	14.7524832	0.98790224	14.63325	1149.25	1864.5472	70.1	69.1	68.9	69.5	0.000409
35.02002	3.73924311	14.7532329	0.98790224	14.6325	1312.5	1895.5857	70	69.1	68.9	69.5	0.000438
40.02002	3.75112324	14.7524832	0.98790224	14.6325	1472.25	1919.4232	70	69.1	69	69.5	0.00046
45.02002	3.75550013	14.7554817	0.9872768	14.63325	1622.5	1924.6377	70.1	69.1	68.9	69.5	0.000477
50.02002	3.74737162	14.7532329	0.98540048	14.63325	1722.5	1939.2879	70.1	69.1	68.9	69.5	0.000493
55.02002	3.75675067	14.7562313	0.98477504	14.63325	1792.5	1947.482	70.1	69.1	68.9	69.4	0.000504
60.02002	3.77113188	14.7554817	0.98665136	14.634	1872.5	1950.2134	70.1	69.1	68.9	69.4	0.000513
65.02002	3.75237378	14.7532329	0.98790224	14.6325	1921	1955.1796	70.1	69.1	68.9	69.4	0.000522
70.02002	3.74049365	14.7562313	0.9872768	14.63325	1973.25	1960.6424	70.1	69.1	69	69.4	0.000527
75.02002	3.74924743	14.7532329	0.98665136	14.6325	2002.75	1959.4008	70.1	69.1	68.9	69.4	0.000532
80.02002	3.75112324	14.7547321	0.9872768	14.6325	2050.75	1974.2993	70.2	69.1	68.9	69.4	0.000537
85.02002	3.76487918	14.7524832	0.98540048	14.63175	2062.5	1974.5476	70.2	69.1	68.9	69.4	0.00054
90.02002	3.75487486	14.750984	0.98665136	14.63175	2092.75	1973.5544	70.3	69.1	68.9	69.5	0.000544
95.02002	3.74737162	14.7524832	0.98602592	14.63025	2113.5	1986.963	70.2	69.1	68.9	69.5	0.000547
100.02002	3.75362432	14.7524832	0.98540048	14.63325	2123	1990.9359	70.3	69.1	68.9	69.4	0.00055
105.02002	3.73861784	14.7539825	0.98790224	14.63325	2143.25	1994.4123	70.2	69.1	68.9	69.5	0.000551
110.02002	3.75550013	14.7554817	0.98665136	14.6325	2153.25	1998.6335	70.3	69.1	69	69.5	0.000551
115.02002	3.78900553	14.7524832	0.98665136	14.6325	2162.5	2002.1098	70.3	69.1	69	69.5	0.000554
120.02002	3.74299473	14.7539825	0.98602592	14.6325	2173.25	2006.5793	70.3	69.1	68.9	69.5	0.000555
125.02002	3.79176579	14.7539825	0.98540048	14.63325	2172.75	2004.5929	70.3	69.1	68.9	69.4	0.000556
130.02002	3.73968838	14.7539825	0.98602592	14.63325	2182.75	2005.6344	70.3	69.1	69	69.4	0.000557
135.02002	3.74737162	14.7532329	0.98477504	14.6325	2193.25	2009.0624	70.3	69.1	69	69.5	0.000558
140.09	3.7498727	14.7539825	0.98540048	14.6325	2203	2008.0692	70.4	69.1	69	69.5	0.000559
145.02002	3.78801417	14.7524832	0.98540048	14.6325	2203.25	2005.3378	70.4	69.2	69	69.5	0.00056
150.02002	3.74549581	14.7524832	0.98540048	14.63325	2213.25	2012.2904	70.4	69.1	68.9	69.4	0.000561
155.02002	3.75112324	14.7562313	0.98602592	14.6325	2213.25	2011.5455	70.4	69.1	68.9	69.4	0.000561
160.02002	3.7498727	14.7532329	0.98477504	14.63325	2223.25	2015.5184	70.4	69.1	68.9	69.4	0.000562
165.02002	3.74612108	14.7539825	0.98540048	14.6325	2223.25	2014.2769	70.4	69.1	68.8	69.4	0.000562
170.02002	3.75862648	14.7577306	0.98540048	14.634	2223.25	2018.2498	70.3	69.1	68.8	69.4	0.000563
175.02002	3.7498727	14.7532329	0.98540048	14.63325	2223.25	2021.2295	70.4	69.1	68.9	69.4	0.000563
180.02002	3.73924311	14.7517336	0.98540048	14.6325	2233.25	2029.1754	70.4	69.1	68.9	69.4	0.000563
185.02002	3.74299473	14.7524832	0.98540048	14.63325	2233.25	2023.216	70.4	69.1	69	69.5	0.000563

Flammable Gas Interlock Spoolpiece Testing

FGI2222.XLS

SECONDS	MAIN DUCT DIFF (IN H2)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
190.02002	3.73611676	14.7547321	0.98602592	14.634	2233.25	2026.6923	70.4	69.1	68.8	69.4	0.000564
195.02002	3.76425391	14.7532329	0.98540048	14.63475	2243.25	2018.4981	70.4	69.1	68.8	69.5	0.000564
200.02002	3.75174851	14.7532329	0.98477504	14.63325	2243.25	2022.2228	70.4	69.1	68.8	69.5	0.000564
205.02002	3.74924743	14.7547321	0.98602592	14.634	2243.25	2024.7058	70.4	69.1	68.9	69.5	0.000564
210.02002	3.74487054	14.7532329	0.98540048	14.63325	2243	2026.6923	70.3	69.1	69	69.5	0.000565
215.02002	3.74424527	14.7524832	0.98540048	14.63325	2243.25	2026.1957	70.3	69.2	68.8	69.4	0.000566
220.02002	3.74862216	14.7532329	0.98540048	14.63325	2253.5	2025.6991	70.2	69.2	68.7	69.4	0.000565
225.02002	3.74049365	14.7524832	0.98602592	14.634	2253	2024.7058	70.2	69.2	68.7	69.4	0.000565
230.02002	3.7686308	14.7532329	0.98540048	14.63325	2253.5	2028.4305	70.2	69.2	68.8	69.5	0.000565
235.02002	3.75362432	14.7524832	0.98540048	14.63325	2253.25	2028.4305	70.1	69.2	68.8	69.5	0.000566
240.02002	3.75424959	14.7554817	0.98352416	14.63325	2253.25	2028.6768	70.1	69.1	68.9	69.5	0.000565
245.02002	3.75174851	14.7524832	0.9841496	14.63325	2253.25	2029.4237	70.1	69.2	68.8	69.5	0.000566
250.02002	3.77986566	14.7539825	0.9841496	14.634	2253.25	2027.9338	70.1	69.2	68.9	69.5	0.000566
255.03	3.7623781	14.7554817	0.9841496	14.634	2253.75	2029.4237	70	69.2	68.8	69.5	0.000566
260.02002	3.75487486	14.7547321	0.98602592	14.63325	2253.5	2026.444	70	69.2	68.9	69.5	0.000566
265.02002	3.76550445	14.7562313	0.98540048	14.634	2258	2021.4778	70	69.2	68.9	69.4	0.000566
270.02002	3.73611676	14.7554817	0.98352416	14.63325	2263.25	2023.216	70.1	69.2	68.8	69.4	0.000567
275.06	3.75299905	14.7547321	0.98352416	14.634	2252.75	2023.4643	70.1	69.2	68.9	69.5	0.000567
280.02002	3.74236946	14.7554817	0.98289872	14.634	2263.25	2023.7126	70.1	69.2	68.8	69.4	0.000567
285.02002	3.73861784	14.7547321	0.98352416	14.63325	2263.25	2022.9677	70.1	69.2	68.9	69.4	0.000567
290.02002	3.7561254	14.7554817	0.9841496	14.63325	2263.75	2025.6991	70.1	69.2	68.9	69.5	0.000566
295.02002	3.75424959	14.7554817	0.98352416	14.6325	2263.25	2028.1821	70.1	69.2	69	69.5	0.000567
300.02002	3.78676363	14.7554817	0.9841496	14.63325	2263.25	2026.9406	70.1	69.2	69	69.5	0.000567
305.02002	3.74924743	14.7547321	0.98477504	14.63325	2263.75	2032.6517	70.1	69.2	69	69.5	0.000567
310.03	3.76175283	14.7562313	0.98227328	14.634	2263	2028.9271	70.1	69.2	69	69.5	0.000567
315.02002	3.76050229	14.7547321	0.98352416	14.6325	2264	2032.9	70.1	69.2	69	69.5	0.000567
320.03	3.7561254	14.7577306	0.98352416	14.6325	2263.25	2034.3898	70.1	69.2	68.8	69.4	0.000568
325.02002	3.78801417	14.7554817	0.98352416	14.63325	2263.5	2031.9068	70.1	69.2	68.8	69.4	0.000567
330.02002	3.75550013	14.7562313	0.98289872	14.634	2263.75	2030.1686	70.1	69.2	68.9	69.4	0.000567
335.02002	3.74549581	14.7554817	0.98352416	14.63325	2263.5	2026.9406	70	69.2	68.9	69.4	0.000568
340.02002	3.73424095	14.7532329	0.98352416	14.634	2263.75	2031.4101	69.9	69.2	68.9	69.5	0.000568
345.02002	3.77986566	14.7562313	0.9841496	14.63325	2263.25	2032.9	69.9	69.2	69	69.5	0.000568
350.02002	3.75800121	14.7554817	0.98352416	14.6325	2263.5	2038.8594	69.9	69.2	68.9	69.5	0.000567
355.02002	3.74737162	14.7577306	0.98477504	14.6325	2263.5	2039.6043	69.9	69.2	69	69.4	0.000568
360.02002	3.75362432	14.756981	0.98352416	14.6325	2263.5	2038.1145	70	69.2	69	69.5	0.000568
365.02002	3.74674635	14.7562313	0.98352416	14.63325	2263.5	2037.3695	70	69.2	69	69.4	0.000568
370.02002	3.75362432	14.756981	0.98352416	14.634	2263.25	2035.3631	70.1	69.2	68.9	69.4	0.000569
375.02002	3.75550013	14.756981	0.98352416	14.63325	2263.75	2038.6111	70.1	69.3	69	69.4	0.000568
380.02002	3.74424527	14.7547321	0.98289872	14.6325	2263.25	2035.6314	70.1	69.3	68.9	69.4	0.000568
385.02002	3.74487054	14.756981	0.98289872	14.6325	2263.5	2030.1686	70.1	69.2	69	69.4	0.000568
390.04001	3.74487054	14.7562313	0.98352416	14.63325	2263.75	2030.4169	70.2	69.2	69	69.5	0.000568
395.02002	3.74924743	14.7562313	0.98352416	14.6325	2263.5	2031.6585	70.2	69.3	68.9	69.4	0.000567

Flammable Gas Interlock Spoolpiece Testing

FGI22222.XLS

SECONDS	MAIN DUCT DIFF (IN H2)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
400.02002	3.75925175	14.7547321	0.98352416	14.6325	2263.75	2036.3763	70.3	69.3	68.9	69.4	0.000568
405.02002	3.74487054	14.7562313	0.98164784	14.6324	2273.25	2038.8594	70.3	69.3	68.9	69.4	0.000569
410.02002	3.75800121	14.756981	0.98289672	14.63325	2273.5	2032.6517	70.3	69.2	69	69.5	0.000569
415.02002	3.74549581	14.7547321	0.98289672	14.63325	2273.5	2033.8932	70.3	69.3	69	69.5	0.000568
420.08002	3.7498727	14.7547321	0.98164784	14.6325	2273.75	2037.8662	70.3	69.2	68.9	69.4	0.000568
425.02002	3.7561254	14.7562313	0.98164784	14.63325	2273.75	2039.6043	70.4	69.3	68.9	69.4	0.000568
430.09	3.74674635	14.7554817	0.9810224	14.6325	2263.5	2034.8865	70.4	69.3	69	69.5	0.000568
435.02002	3.7373673	14.756981	0.98164784	14.63325	2273	2035.8797	70.3	69.3	69	69.4	0.000569
440.05002	3.77050661	14.7562313	0.9810224	14.6325	2273.25	2036.6246	70.3	69.3	68.8	69.5	0.000569
445.02002	3.74299473	14.7562313	0.98289672	14.63325	2273.25	2040.3492	70.3	69.2	69	69.4	0.000569
450.07001	3.75112324	14.7554817	0.98164784	14.63325	2273.5	2041.0942	70.3	69.3	69	69.5	0.000568
455.02002	3.74737162	14.7547321	0.98164784	14.63325	2273.25	2037.8662	70.3	69.3	68.9	69.5	0.000568
460.11002	3.77425823	14.7554817	0.98164784	14.63325	2274	2041.0942	70.3	69.2	69	69.4	0.000568
465.02002	3.76812972	14.7562313	0.98164784	14.6325	2273.25	2041.3425	70.3	69.3	68.9	69.4	0.000569
470.02002	3.75174851	14.756981	0.98164784	14.6325	2273.5	2037.3695	70.3	69.3	68.8	69.5	0.000569
475.02002	3.73424095	14.7554817	0.98227328	14.63325	2273.25	2040.5975	70.3	69.3	68.9	69.5	0.000569
480.02002	3.72861352	14.7554817	0.98227328	14.6325	2273.5	2037.6178	70.2	69.3	69.1	69.4	0.00057
485.02002	3.74549581	14.7562313	0.98164784	14.63325	2273.75	2041.0942	70.2	69.3	69.1	69.4	0.000569
490.02002	3.73486622	14.7554817	0.98227328	14.6325	2273.25	2042.584	70.3	69.3	69.1	69.4	0.000568
495.02002	3.75049797	14.7562313	0.98164784	14.6325	2273.75	2039.1077	70.3	69.3	69.1	69.5	0.00057
500.02002	3.75800121	14.7562313	0.98164784	14.63325	2273.75	2041.3425	70.3	69.3	69.1	69.5	0.000569
505.02002	3.75237378	14.7562313	0.98227328	14.6325	2273	2040.5975	70.3	69.3	69.1	69.5	0.000569
510.07001	3.75550013	14.7562313	0.98164784	14.6325	2273.5	2036.8729	70.3	69.3	69.1	69.5	0.000569
515.05002	3.7373673	14.7562313	0.98164784	14.6325	2273.75	2037.1212	70.4	69.3	69	69.5	0.00057
520.02002	3.76425391	14.7554817	0.98164784	14.6325	2274	2037.6178	70.4	69.3	69.1	69.4	0.000569
525.02002	3.74612108	14.7554817	0.98164784	14.6325	2273.5	2037.8662	70.3	69.3	69	69.5	0.00057
530.02002	3.74111892	14.756981	0.98164784	14.6325	2273.25	2042.584	70.2	69.3	69	69.5	0.00057
535.02002	3.75987702	14.7554817	0.98227328	14.63175	2273.75	2030.4169	70.2	69.3	69	69.5	0.00057
540.07001	3.74549581	14.7562313	0.98164784	14.6325	2273.5	2036.128	70.2	69.3	69	69.5	0.000569
545.03	3.74612108	14.7562313	0.98164784	14.6325	2273.5	2031.4101	70.2	69.3	68.9	69.5	0.000569
550.02002	3.75862648	14.756981	0.9810224	14.63325	2273.25	2032.4034	70.2	69.3	68.9	69.5	0.00057
555.04001	3.75424959	14.7554817	0.9810224	14.63325	2273.5	2040.3492	70.1	69.3	69.1	69.5	0.00057
560.02002	3.7498727	14.7562313	0.9810224	14.6325	2273.5	2042.0874	70.1	69.3	69	69.5	0.000569
565.02002	3.76738026	14.7554817	0.98164784	14.6325	2273.25	2038.6111	70.2	69.3	68.9	69.5	0.000569
570.02002	3.75550013	14.7554817	0.98164784	14.6325	2273.5	2043.8255	70.2	69.3	68.9	69.5	0.000569
575.02002	3.75987702	14.7554817	0.98039696	14.63325	2273.5	2040.8459	70.2	69.3	68.9	69.5	0.00057
580.02002	3.75362432	14.7562313	0.98164784	14.63325	2273.75	2036.6246	70.2	69.3	69.1	69.5	0.000569
585.06	3.78988998	14.7562313	0.98227328	14.63325	2283.5	2037.8662	70.2	69.3	69	69.5	0.000569
590.02002	3.73236514	14.7562313	0.98164784	14.6324	2283.5	2041.0942	70.2	69.3	69.1	69.5	0.00057
595.02002	3.7498727	14.7547321	0.98227328	14.6325	2283.5	2040.3492	70.1	69.3	69.1	69.5	0.000571
600.05002	3.74612108	14.7554817	0.98164784	14.6325	2273.5	2033.6449	70.2	69.3	69	69.5	0.00057
605.02002	3.77988566	14.7547321	0.98164784	14.63325	2274	2040.8459	70.1	69.3	69	69.5	0.000569

Flammable Gas Interlock Spoolpiece Testing

FGI22222.XLS

SECONDS	MAIN DUCT DIFF (IN H2)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
610.02002	3.75049797	14.7554817	0.9810224	14.63325	2273.25	2036.128	70.1	69.3	69	69.5	0.000569
615.02002	3.76425391	14.7554817	0.9810224	14.63325	2273	2038.1145	70.1	69.3	68.8	69.5	0.00057
620.02002	3.74487054	14.7547321	0.9810224	14.63325	2273.75	2040.3492	70.1	69.3	68.8	69.5	0.000569
625.02002	3.73549149	14.7554817	0.98227328	14.6325	2273	2040.3492	70.1	69.3	68.9	69.5	0.00057
630.04001	3.74799689	14.7547321	0.98164784	14.63325	2273.5	2043.8255	70.1	69.4	68.8	69.5	0.000569
635.02002	3.76925607	14.7562313	0.98164784	14.6325	2273.25	2041.5908	70	69.3	69	69.5	0.000569
640.02002	3.73924311	14.756981	0.98164784	14.63325	2273.25	2041.3425	70	69.3	69	69.5	0.00057
645.06	3.76925607	14.7554817	0.98164784	14.6325	2273.5	2040.5975	70.1	69.3	69	69.5	0.000569
650.02002	3.73173987	14.7554817	0.9810224	14.63325	2273.25	2042.8323	70.1	69.3	68.9	69.5	0.00057
655.02002	3.73299041	14.7562313	0.98164784	14.63325	2273.5	2036.8729	70.1	69.3	68.8	69.5	0.00057
660.06	3.73924311	14.7577306	0.9810224	14.6325	2273.25	2034.8865	70.1	69.4	68.9	69.5	0.000569
665.02002	3.74487054	14.7562313	0.98164784	14.63325	2273.5	2040.8459	70.1	69.3	69	69.5	0.000569
670.02002	3.75550013	14.7562313	0.98164784	14.6325	2273.25	2037.8662	70.1	69.3	69.1	69.5	0.000569
675.03	3.76050229	14.756981	0.98039696	14.63325	2273.25	2037.6178	70.1	69.4	69	69.5	0.00057
680.02002	3.74549581	14.7562313	0.97914608	14.6325	2274	2035.1348	70.1	69.3	69	69.5	0.00057
685.02002	3.75424859	14.7577306	0.9810224	14.63325	2273.25	2041.8391	70.1	69.4	69	69.5	0.000569
690.03	3.73236514	14.7562313	0.97914608	14.63325	2273.5	2034.1415	70.1	69.4	68.9	69.5	0.000569
695.02002	3.75675067	14.7562313	0.98227328	14.63325	2273	2041.0942	70.2	69.4	69.1	69.5	0.00057
700.02002	3.74299473	14.7562313	0.9810224	14.63325	2273.5	2040.3492	70.2	69.4	69.1	69.5	0.000569
705.06	3.74737162	14.7554817	0.9810224	14.63325	2273.25	2040.1009	70.2	69.3	69.1	69.5	0.000569
710.06	3.75737594	14.7547321	0.97914608	14.63325	2273.75	2038.6111	70.2	69.3	69.1	69.5	0.000569
715.02002	3.78176147	14.7562313	0.9810224	14.634	2274	2031.6585	70.2	69.4	68.9	69.5	0.00057
720.03	3.74612108	14.7554817	0.97914608	14.6325	2273.25	2034.6382	70.2	69.3	69	69.5	0.00057
725.02002	3.74674635	14.7524832	0.98227328	14.63175	2273.25	2036.6246	70.2	69.3	69	69.5	0.00057
730.02002	3.77926039	14.7547321	0.97914608	14.63325	2273.5	2036.3763	70.2	69.4	68.9	69.5	0.00057
735.06	3.74174419	14.7554817	0.97977152	14.6325	2283.25	2041.8391	70.2	69.3	68.9	69.5	0.000569
740.02002	3.75112324	14.7562313	0.97977152	14.6325	2283.25	2028.6788	70.1	69.3	69.1	69.5	0.00057
745.02002	3.7686308	14.7562313	0.97914608	14.63325	2281	2027.1889	70.2	69.4	69.1	69.5	0.00057
750.04001	3.74236946	14.7547321	0.97977152	14.63175	2273.5	2027.9338	70.2	69.4	68.9	69.5	0.00057
755.03	3.7498727	14.7554817	0.97914608	14.63175	2273.25	2032.1551	70	69.3	68.9	69.5	0.000569
760.02002	3.75049797	14.7539825	0.97852064	14.63325	2273.5	2035.6314	70.1	69.4	68.9	69.5	0.000569
765.03	3.74362	14.7554817	0.97852064	14.63325	2273.25	2034.3898	70.1	69.3	68.9	69.5	0.000569
770.02002	3.76050229	14.7547321	0.97914608	14.6325	2273.25	2035.8797	70	69.4	68.9	69.5	0.000568
775.02002	3.76175283	14.7547321	0.97684432	14.6325	2273.5	2033.1483	70	69.4	69	69.5	0.00057
780.05002	3.76800553	14.7539825	0.97914608	14.63175	2273.75	2028.9271	70	69.4	69.1	69.5	0.000569
785.02002	3.7498727	14.7547321	0.97914608	14.63325	2273.5	2028.1821	70	69.4	69	69.5	0.000569
790.02002	3.73299041	14.7562313	0.97914608	14.63325	2273	2031.1618	70	69.4	69	69.5	0.000568
795.04001	3.74612108	14.7547321	0.97852064	14.6325	2273.25	2023.9609	69.9	69.4	68.9	69.5	0.00057
800.02002	3.74674635	14.7532329	0.97914608	14.6325	2274	2029.9203	69.9	69.4	69	69.5	0.000569
805.02002	3.7498727	14.7562313	0.97684432	14.63175	2273	2033.3966	69.9	69.4	69	69.5	0.000569
810.05002	3.75550013	14.7562313	0.97914608	14.6325	2273.25	2034.1415	70	69.4	69	69.5	0.000569
815.03	3.74549581	14.756981	0.97684432	14.63175	2273.25	2034.1415	70	69.4	68.9	69.5	0.000568

Flammable Gas Interlock Spoolpiece Testing

FGI22222.XLS

SECONDS	MAIN DUCT DIFF (IN H2)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
820.02002	3.76612972	14.7554817	0.97914608	14.63325	2273.25	2031.9068	70	69.4	68.9	69.5	0.000569
825.03	3.76925607	14.7562313	0.97664432	14.63325	2274	2035.1348	70	69.3	69.1	69.5	0.000569
830.02002	3.74549581	14.756981	0.97664432	14.6325	2273.5	2035.3831	70	69.4	69.1	69.5	0.000568
835.02002	3.77050661	14.7554817	0.97726976	14.6325	2273.75	2037.6178	70.2	69.4	69.1	69.5	0.000569
840.05002	3.74549581	14.756981	0.97977152	14.63325	2273.5	2037.3695	70.2	69.4	69	69.5	0.00057
845.10001	3.77363296	14.7547321	0.97726976	14.63175	2273.75	2034.6382	70.2	69.4	68.9	69.5	0.000569
850.02002	3.7498727	14.7562313	0.97601888	14.63175	2273.5	2022.4711	70.2	69.4	68.9	69.5	0.000569
855.05002	3.75174851	14.7577306	0.97852064	14.6325	2273	2027.6855	70.3	69.4	68.9	69.5	0.000569
860.04001	3.77236242	14.756981	0.97664432	14.63325	2273.5	2028.6788	70.3	69.4	69	69.5	0.000568
865.02002	3.75925175	14.7562313	0.97664432	14.63325	2273.5	2023.216	70.3	69.3	69.1	69.5	0.000569
870.03	3.74236946	14.7554817	0.97726976	14.63325	2273.75	2023.216	70.3	69.4	69	69.5	0.000569
875.02002	3.76300337	14.7562313	0.97914608	14.63325	2273	2026.444	70.3	69.4	68.9	69.5	0.000569
880.02002	3.73861784	14.7554817	0.97664432	14.6325	2273.25	2028.4305	70.3	69.4	69	69.5	0.000569
885.04001	3.74362	14.7547321	0.97726976	14.6325	2273.75	2032.9	70.3	69.4	69.1	69.5	0.000569
890.03	3.75862648	14.7562313	0.97726976	14.6325	2273	2030.9135	70.3	69.4	69	69.5	0.000569
895.06	3.74862216	14.7562313	0.97601888	14.6325	2273.5	2028.6788	70.3	69.4	68.9	69.5	0.00057
900.03	3.75299905	14.756981	0.97726976	14.63175	2273.75	2030.1686	70.3	69.4	69.1	69.5	0.000569
905.09	3.75174851	14.7554817	0.9778952	14.6325	2273.5	2028.9271	70.3	69.4	69.1	69.5	0.000569
910.02002	3.7581254	14.756981	0.97726976	14.6325	2274	2022.7194	70.3	69.4	69.1	69.6	0.000569
915.02002	3.74924743	14.7562313	0.9778952	14.6325	2273.25	2019.988	70.3	69.4	69.2	69.6	0.00057
920.02002	3.76112756	14.7562313	0.9778952	14.6325	2274	2024.7058	70.3	69.4	69.2	69.5	0.00057
925.03	3.74924743	14.756981	0.97726976	14.6325	2273.25	2027.4372	70.4	69.4	69	69.5	0.000569
930.02002	3.74549581	14.7562313	0.97726976	14.6325	2273	2025.2024	70.3	69.4	68.9	69.5	0.00057
935.03	3.76362864	14.7562313	0.708956	14.62725	2273.5	2027.4372	70.3	69.4	69	69.6	0.000569

TEST: FGI22223 22 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 2159ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP (°F)	GAS INJECT TEMP (°F)	MAIN DUCT TEMP (°F)	WEC CELL TEMP (°F)	WEC CELL (VOLTS)
0.0100098	3.76800553	14.7562313	0.382288688	14.6325	31.475	-3.349758	70.3	69.3	69	69.6	0.000235
5.0200195	3.75299905	14.7547321	0.98039696	14.63175	30.95	-3.2504348	70.3	69.1	69	69.5	0.000235
10.02002	3.76925607	14.7562313	0.97664432	14.63325	41.55	615.06132	70.4	69.3	69.1	69.6	0.000249
15.02002	3.7373673	14.7554817	0.97726976	14.63325	271.5	1293.1905	70.3	69.4	69	69.5	0.000285
20.02002	3.7561254	14.7562313	0.97726976	14.6325	541.75	1628.9029	70.4	69.4	69	69.6	0.00033
25.059998	3.74549581	14.7554817	0.97664432	14.6325	832	1774.908	70.3	69.4	69	69.5	0.00037
30.02002	3.74549581	14.7562313	0.97664432	14.6325	1072.25	1838.9714	70.3	69.4	69.1	69.5	0.000404
35.02002	3.77425823	14.7547321	0.97664432	14.63175	1263.75	1875.2244	70.3	69.4	69	69.5	0.000432
40.02002	3.74487054	14.7547321	0.97726976	14.6325	1432.25	1891.3644	70.3	69.4	69	69.5	0.000455
45.02002	3.73924311	14.7562313	0.97664432	14.63175	1572.25	1901.5451	70.4	69.4	69.1	69.5	0.000473
50.02002	3.74549581	14.7554817	0.97726976	14.631	1682.25	1914.2088	70.3	69.3	69.1	69.5	0.000488
55.02002	3.74674635	14.7562313	0.97726976	14.63325	1762.75	1927.6174	70.3	69.4	69	69.5	0.0005
60.02002	3.76925607	14.7554817	0.97664432	14.63175	1832.75	1927.6174	70.3	69.4	69	69.5	0.000509
65.02002	3.74362	14.7554817	0.97726976	14.6325	1892.5	1932.0869	70.3	69.4	69	69.5	0.000517
70.02002	3.75800121	14.7562313	0.97852064	14.6325	1943	1937.798	70.3	69.4	69	69.5	0.000523
75.02002	3.75550013	14.7554817	0.97664432	14.63325	1983	1944.7507	70.3	69.4	69.1	69.5	0.000528
80.02002	3.74924743	14.756981	0.97601888	14.63175	2012.5	1947.9787	70.3	69.4	69	69.5	0.000532
85.02002	3.74737162	14.7577306	0.97664432	14.6325	2033	1953.9381	70.3	69.4	69.1	69.6	0.000536
90.02002	3.74549581	14.7554817	0.97664432	14.6325	2063	1967.6627	70.3	69.4	69.1	69.5	0.000541
95.02002	3.75362432	14.7547321	0.97664432	14.6325	2082.75	1968.1593	70.3	69.4	69.1	69.5	0.000542
100.02002	3.74674635	14.7562313	0.97664432	14.63175	2093	1965.1119	70.3	69.4	69.1	69.5	0.000545
105.02002	3.75174851	14.7554817	0.97726976	14.6325	2112.75	1971.5679	70.3	69.4	69.1	69.5	0.000546
110.02002	3.74487054	14.7562313	0.97664432	14.6325	2132	1972.5612	70.2	69.4	69	69.6	0.000549
115.02002	3.75112324	14.756981	0.97664432	14.63325	2133.5	1972.3128	70.2	69.4	69	69.5	0.00055
120.03	3.77613404	14.756981	0.97664432	14.63325	2142.5	1973.5544	70.2	69.4	69	69.5	0.000551
125.02002	3.77238242	14.756981	0.97726976	14.6325	2153.5	1967.595	70.2	69.4	69	69.5	0.000552
130.02002	3.76362864	14.7554817	0.97726976	14.63325	2163.25	1977.5273	70.2	69.3	69.1	69.5	0.000553
135.02002	3.75737594	14.7562313	0.97726976	14.63175	2172.75	1977.279	70.2	69.4	69	69.5	0.000555
140.02002	3.73968638	14.756981	0.97664432	14.63325	2173.25	1983.9833	70.2	69.4	68.9	69.5	0.000556
145.02002	3.74674635	14.7547321	0.97726976	14.6325	2183.25	1985.9698	70.2	69.4	68.9	69.5	0.000556
150.05002	3.75299905	14.756981	0.97726976	14.63175	2183.5	1993.1707	70.2	69.4	68.9	69.5	0.000557
155.02002	3.76550445	14.7577306	0.97664432	14.6325	2193.5	1994.4123	70.2	69.4	69.1	69.5	0.000558
160.02002	3.72548717	14.7554817	0.97726976	14.6325	2203	1983.9833	70.2	69.4	69.1	69.6	0.000558
165.02002	3.74924743	14.7562313	0.97726976	14.6325	2203	1988.9495	70.3	69.4	68.9	69.5	0.000558
170.02002	3.75800121	14.7562313	0.97726976	14.6325	2203.25	1987.2113	70.3	69.4	68.9	69.6	0.000559
175.02002	3.7561254	14.7562313	0.97664432	14.6325	2203	1992.4258	70.3	69.4	68.9	69.5	0.000558
180.02002	3.74799889	14.756981	0.97664432	14.6325	2213.25	1994.4123	70.3	69.4	69	69.6	0.00056
185.02002	3.77425823	14.756981	0.97664432	14.6325	2213.25	2002.6064	70.3	69.4	69	69.5	0.00056

Flammable Gas Interlock Spoolpiece Testing

FGI2223.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP (°F)	GAS INJECT TEMP (°F)	MAIN DUCT TEMP (°F)	WEC CELL TEMP (°F)	WEC CELL (VOLTS)
190.02002	3.75174851	14.7562313	0.97664432	14.6325	2213	2006.331	70.3	69.4	69.1	69.5	0.00056
195.02002	3.7498727	14.7562313	0.97601888	14.6325	2213.25	2006.5793	70.3	69.4	69.1	69.5	0.000561
200.02002	3.75174851	14.756981	0.97664432	14.6325	2223	2003.5997	70.4	69.4	69.1	69.6	0.000562
205.02002	3.77550877	14.7577306	0.97664432	14.6325	2213.75	2002.3581	70.4	69.4	69.2	69.5	0.000561
210.02002	3.7498727	14.7577306	0.97726976	14.6325	2223.25	1999.6267	70.4	69.4	69.1	69.5	0.000561
215.02002	3.74549581	14.756981	0.97664432	14.6325	2223	2004.5929	70.4	69.4	69.2	69.6	0.000562
220.02002	3.74362	14.7577306	0.97664432	14.6325	2223.25	2009.3107	70.3	69.4	69.1	69.5	0.000562
225.02002	3.7498727	14.7577306	0.97726976	14.6325	2223.5	2010.5523	70.3	69.4	69	69.6	0.000562
230.02002	3.75550013	14.756981	0.97601888	14.63175	2223	2011.0489	70.4	69.4	69	69.6	0.000563
235.02002	3.73924311	14.7577306	0.97664432	14.6325	2223.25	2018.4981	70.3	69.4	69.1	69.5	0.000562
240.02002	3.76612972	14.7562313	0.97601888	14.63175	2233.25	2016.2634	70.3	69.4	69.1	69.5	0.000562
245.02002	3.74487054	14.7562313	0.97726976	14.6325	2233	2017.7532	70.4	69.4	69.1	69.6	0.000563
250.02002	3.73861784	14.756981	0.97726976	14.63175	2233.25	2015.0218	70.3	69.4	69	69.6	0.000563
255.02002	3.76362864	14.7554817	0.97726976	14.6325	2233.25	2018.9947	70.3	69.4	69.2	69.5	0.000564
260.02002	3.73048933	14.7562313	0.97726976	14.6325	2233	2014.2769	70.3	69.4	69.2	69.6	0.000563
265.02002	3.74612108	14.7539825	0.97726976	14.63175	2233.25	2018.4981	70.3	69.4	69.2	69.5	0.000564
270.02002	3.76612972	14.7547321	0.9778952	14.63175	2233	2018.0015	70.4	69.5	69.2	69.5	0.000564
275.02002	3.7498727	14.7562313	0.97726976	14.63175	2233	2014.0286	70.4	69.5	69.2	69.5	0.000564
280.02002	3.74236946	14.7562313	0.97726976	14.6325	2243.25	2013.2837	70.4	69.4	69.1	69.6	0.000564
285.02002	3.75112324	14.7562313	0.97726976	14.6325	2243	2019.7397	70.4	69.4	69.1	69.5	0.000564
290.02002	3.74924743	14.756981	0.97726976	14.6325	2243.25	2019.7397	70.3	69.4	69.9	69.6	0.000564
295.02002	3.7561254	14.756981	0.97726976	14.6325	2243.25	2006.331	70.4	69.4	69.9	69.6	0.000565
300.02002	3.76362864	14.7562313	0.97726976	14.63175	2243	2007.076	70.3	69.4	69.9	69.6	0.000565
305.03	3.7686308	14.7554817	0.97726976	14.63175	2243.25	2012.0421	70.3	69.4	69.1	69.6	0.000565
310.02002	3.74862216	14.7562313	0.97664432	14.631	2243.25	2010.0557	70.3	69.5	69.1	69.6	0.000564
315.02002	3.73799257	14.7562313	0.97664432	14.6325	2243.25	2011.2972	70.3	69.4	69.1	69.6	0.000565
320.02002	3.74549581	14.7562313	0.97664432	14.6325	2243.25	2019.7397	70.4	69.5	69.1	69.6	0.000565
325.02002	3.74487054	14.7562313	0.97726976	14.63175	2243.25	2012.2904	70.4	69.5	69.1	69.6	0.000565
330.02002	3.75174851	14.7554817	0.97664432	14.63175	2243.5	2009.0624	70.4	69.5	69	69.6	0.000564
335.02002	3.78613836	14.7554817	0.97726976	14.63175	2243.5	2013.7803	70.3	69.5	69.1	69.6	0.000565
340.02002	3.7561254	14.7562313	0.97726976	14.63175	2243.5	2015.0218	70.3	69.4	69	69.5	0.000565
345.02002	3.73861784	14.7562313	0.9778952	14.63175	2243.5	2021.9744	70.3	69.5	69	69.6	0.000565
350.02002	3.76675499	14.7554817	0.97726976	14.63175	2243.25	2021.2295	70.3	69.5	69	69.6	0.000565
355.02002	3.74612108	14.7554817	0.97601888	14.63175	2253.75	2019.2431	70.3	69.4	69	69.6	0.000565
360.02002	3.75362432	14.756981	0.97726976	14.631	2243.5	2021.9744	70.3	69.4	69.1	69.6	0.000565
365.02002	3.73674203	14.756981	0.97664432	14.63175	2253.5	2022.7194	70.3	69.5	69	69.5	0.000565
370.03	3.74799689	14.7554817	0.97664432	14.6325	2253.25	2022.7194	70.4	69.4	68.9	69.5	0.000565
375.02002	3.74549581	14.7554817	0.97664432	14.63175	2253.5	2025.9474	70.3	69.5	68.9	69.6	0.000565
380.02002	3.74924743	14.756981	0.97726976	14.63175	2253.75	2020.9812	70.2	69.5	69	69.6	0.000565
385.02002	3.74924743	14.7562313	0.974768	14.6325	2243.75	2019.988	70.2	69.5	68.9	69.6	0.000565
390.02002	3.74862216	14.7562313	0.97664432	14.63175	2243.25	2024.4575	70.2	69.5	69.1	69.6	0.000565
395.02002	3.74612108	14.756981	0.97414256	14.6325	2243	2017.7532	70.2	69.5	69.1	69.6	0.000565

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP (°F)	GAS INJECT TEMP (°F)	MAIN DUCT TEMP (°F)	WEC CELL TEMP (°F)	WEC CELL (VOLTS)
400.03	3.75112324	14.7554817	0.97726976	14.63175	2253	2017.7532	70.1	69.5	69.2	69.7	0.000567
405.02002	3.74049365	14.7562313	0.974768	14.6325	2254	2021.2295	70.2	69.5	69.1	69.6	0.000566
410.05002	3.74799689	14.7562313	0.97664432	14.6325	2253.5	2018.7464	70.2	69.5	69.1	69.6	0.000566
415.02002	3.74924743	14.7554817	0.974768	14.6325	2253.75	2020.2363	70.2	69.5	69.1	69.6	0.000566
420.06	3.76675499	14.7554817	0.97726976	14.63325	2253.25	2024.9541	70.2	69.5	69.1	69.6	0.000566
425.02002	3.74799689	14.756981	0.97414256	14.634	2253.25	2023.4643	70.2	69.5	69.1	69.6	0.000567
430.02002	3.75424659	14.756981	0.97601888	14.63325	2253.75	2020.4846	70.2	69.5	69.1	69.6	0.000565
435.02002	3.74049365	14.7562313	0.97414256	14.63325	2253.25	2016.2634	70.2	69.5	69.1	69.6	0.000565
440.07001	3.76800553	14.756981	0.97664432	14.63325	2253.5	2014.2769	70.2	69.5	69.1	69.6	0.000566
445.02002	3.76925607	14.7562313	0.97726976	14.63325	2253.5	2016.5117	70.2	69.5	69	69.6	0.000566
450.10001	3.75550013	14.7562313	0.97539344	14.6325	2254	2005.8344	70.2	69.5	69	69.6	0.000567
455.02002	3.75112324	14.7554817	0.97726976	14.63325	2253.5	2006.5793	70.3	69.5	69	69.6	0.000566
460.02002	3.73799257	14.756981	0.97726976	14.63325	2253.25	2008.0692	70.3	69.5	69	69.6	0.000566
465.02002	3.74424527	14.7562313	0.97726976	14.63325	2253.5	2009.559	70.3	69.5	69	69.6	0.000566
470.02002	3.74236946	14.7562313	0.97726976	14.6325	2253.5	2015.2701	70.3	69.5	69	69.6	0.000566
475.02002	3.75925175	14.756981	0.97726976	14.6325	2253.5	2015.2701	70.2	69.5	69.1	69.6	0.000565
480.02002	3.73861784	14.756981	0.9778952	14.63325	2253.25	2016.2634	70.3	69.5	69.1	69.6	0.000565
485.02002	3.74737162	14.7562313	0.97539344	14.6325	2253.5	2016.0151	70.2	69.5	69.1	69.6	0.000566
490.02002	3.74924743	14.7562313	0.974768	14.6325	2253.75	2014.7735	70.1	69.5	69.1	69.6	0.000566
495.02002	3.73861784	14.7577306	0.974768	14.63325	2253	2016.76	70.2	69.5	69.1	69.6	0.000566
500.02002	3.7623781	14.7562313	0.97726976	14.63325	2253.5	2012.2904	70.3	69.5	69.1	69.6	0.000566
505.02002	3.77926039	14.756981	0.97539344	14.6325	2253.25	2016.2634	70.3	69.5	69	69.6	0.000565
510.02002	3.75800121	14.756981	0.97664432	14.6325	2253	2017.2566	70.3	69.5	68.9	69.6	0.000565
515.07001	3.75112324	14.7562313	0.97539344	14.6325	2253.5	2014.0286	70.3	69.5	69	69.6	0.000567
520.02002	3.75174851	14.7562313	0.97726976	14.63325	2253	2014.5252	70.3	69.5	68.9	69.6	0.000566
525.06	3.76988134	14.756981	0.974768	14.6325	2253.5	2003.848	70.3	69.5	69	69.6	0.000567
530.02002	3.76487918	14.7562313	0.974768	14.63325	2253.25	1997.392	70.2	69.5	69.1	69.6	0.000567
535.02002	3.74674635	14.7562313	0.97539344	14.63325	2263.25	2005.3378	70.2	69.5	69.1	69.6	0.000566
540.02002	3.73674203	14.7562313	0.97664432	14.63175	2263.75	2013.2837	70.1	69.5	69	69.5	0.000566
545.06	3.74487054	14.7562313	0.97664432	14.6325	2263.25	2012.787	70.1	69.5	69.1	69.6	0.000567
550.02002	3.7498727	14.7562313	0.97539344	14.6325	2263.5	2012.5387	70.1	69.5	69.1	69.6	0.000567
555.05002	3.74487054	14.7577306	0.97539344	14.6325	2264	2009.0624	70.1	69.5	69	69.6	0.000567
560.02002	3.75550013	14.7562313	0.974768	14.63175	2263.5	2010.0557	70.1	69.5	69.1	69.6	0.000567
565.02002	3.75362432	14.756981	0.97601888	14.6325	2263.25	2009.3107	70.2	69.5	69	69.6	0.000566
570.02002	3.74737162	14.7562313	0.974768	14.63175	2263.5	2008.0692	70.3	69.5	69	69.6	0.000567
575.05002	3.74924743	14.7562313	0.974768	14.6325	2255.5	2014.2769	70.3	69.5	69.1	69.6	0.000567
580.02002	3.75174851	14.756981	0.97539344	14.63325	2263.5	2013.0354	70.3	69.5	69	69.6	0.000566
585.06	3.75987702	14.7562313	0.97664432	14.6325	2263.5	2010.5523	70.5	69.5	69.2	69.6	0.000566
590.07001	3.74924743	14.7562313	0.974768	14.63175	2263	2010.0557	70.5	69.5	69	69.6	0.000568
595.02002	3.74424527	14.7547321	0.97539344	14.6325	2263.5	2013.0354	70.5	69.5	69	69.6	0.000566
600.03	3.75112324	14.7554817	0.974768	14.6325	2264	2010.0557	70.5	69.5	69.1	69.6	0.000566
605.02002	3.76300337	14.7554817	0.97539344	14.6325	2263	2011.5455	70.4	69.5	69	69.6	0.000566

Flammable Gas Interlock Spoolpiece Testing

FGI22223.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP (°F)	GAS INJECT TEMP (°F)	MAIN DUCT TEMP (°F)	WEC CELL TEMP (°F)	WEC CELL (VOLTS)
610.02002	3.75550013	14.7562313	0.974768	14.6325	2264	2010.0557	70.4	69.5	69	69.6	0.000566
615.02002	3.76425391	14.7599794	0.97664432	14.634	2263.5	2007.5728	70.4	69.5	69	69.6	0.000567
620.03	3.7561254	14.756981	0.97539344	14.6325	2263.25	2004.0963	70.4	69.5	69.1	69.6	0.000565
625.02002	3.7498727	14.756981	0.97601888	14.63325	2263.5	2009.559	70.5	69.5	69.2	69.6	0.000565
630.04001	3.76487918	14.756981	0.97539344	14.6325	2263.25	2010.8006	70.5	69.5	69.1	69.6	0.000567
635.02002	3.74799698	14.7562313	0.97414256	14.63175	2263.75	2008.0692	70.4	69.5	69.1	69.6	0.000567
640.02002	3.74487054	14.7554817	0.974768	14.634	2261	2010.0557	70.4	69.5	69.1	69.5	0.000567
645.05002	3.75550013	14.756981	0.974768	14.63325	2263.5	2010.0557	70.4	69.5	69	69.6	0.000567
650.04001	3.74674635	14.756981	0.97539344	14.6325	2263.5	2007.3243	70.3	69.5	69.1	69.6	0.000566
655.02002	3.75174851	14.7584802	0.974768	14.63325	2263.5	2009.0624	70.3	69.5	69.2	69.6	0.000567
660.06	3.75987702	14.7562313	0.97601888	14.6325	2263.75	2013.532	70.3	69.5	69.1	69.6	0.000568
665.02002	3.76050229	14.756981	0.974768	14.63175	2263.25	2013.2837	70.2	69.5	69.1	69.6	0.000567
670.02002	3.74737162	14.7577306	0.97601888	14.63325	2264	2008.8141	70.3	69.5	69.1	69.6	0.000567
675.06	3.75800121	14.7562313	0.97539344	14.6325	2263.75	2000.62	70.4	69.5	69.1	69.6	0.000567
680.02002	3.74299473	14.7562313	0.974768	14.63325	2263.5	1999.6267	70.3	69.6	69.1	69.5	0.000567
685.02002	3.76175283	14.7592298	0.974768	14.63325	2263.75	1999.875	70.3	69.5	69	69.5	0.000566
690.02002	3.74549581	14.7554817	0.97539344	14.63325	2263.5	2008.5658	70.3	69.5	69	69.6	0.000567
695.02002	3.77238242	14.7554817	0.97539344	14.63325	2263.75	2011.7938	70.3	69.5	69	69.6	0.000568
700.02002	3.76175283	14.7562313	0.97289168	14.63325	2263.5	2002.1098	70.3	69.5	69.1	69.6	0.000567
705.03	3.75987702	14.7577306	0.97414256	14.634	2263.75	2001.3649	70.3	69.5	69.1	69.6	0.000567
710.05002	3.75112324	14.7577306	0.974768	14.6325	2264	2003.3513	70.2	69.5	69.1	69.6	0.000567
715.02002	3.7498727	14.7562313	0.97539344	14.63175	2263.25	2008.0692	70.2	69.5	69.1	69.6	0.000567
720.04001	3.73988838	14.756981	0.97414256	14.6325	2263.25	2007.076	70.3	69.5	69.1	69.6	0.000567
725.02002	3.72611244	14.7577306	0.97539344	14.6325	2263.5	2002.8547	70.3	69.5	69.1	69.6	0.000567
730.02002	3.75800121	14.756981	0.97351712	14.63325	2263.75	2005.8344	70.3	69.5	69.1	69.6	0.000567
735.07001	3.74487054	14.756981	0.974768	14.6325	2263.75	2003.848	70.3	69.5	69.1	69.5	0.000567
740.02002	3.74549581	14.7562313	0.974768	14.63325	2263.5	2001.3649	70.2	69.6	69	69.6	0.000568
745.02002	3.74549581	14.7562313	0.974768	14.6325	2263.5	2003.5997	70.2	69.5	69.1	69.6	0.000567
750.04001	3.76425391	14.7554817	0.97414256	14.63325	2263.5	1998.8818	70.2	69.6	69.2	69.6	0.000567
755.06	3.75049797	14.756981	0.974768	14.634	2263.25	2003.5997	70.3	69.5	69.1	69.6	0.000568
760.02002	3.75487486	14.756981	0.974768	14.63325	2263.5	2000.62	70.4	69.5	69.1	69.6	0.000568
765.03	3.73799257	14.756981	0.97539344	14.63325	2263.5	1998.8818	70.4	69.6	69.2	69.6	0.000569
770.02002	3.74549581	14.7554817	0.974768	14.6325	2263.5	2001.6132	70.4	69.6	69.2	69.6	0.000567
775.03	3.76612972	14.7562313	0.97289168	14.6325	2263	2003.5997	70.4	69.6	69	69.6	0.000567
780.02002	3.75925175	14.7554817	0.974768	14.63325	2263.75	2003.3513	70.4	69.6	69.1	69.6	0.000567
785.08002	3.74737162	14.7554817	0.974768	14.63325	2264	2004.0963	70.4	69.6	69.1	69.6	0.000566
790.02002	3.73924311	14.7562313	0.97414256	14.63175	2263.75	2003.5997	70.3	69.6	69.1	69.5	0.000567
795.02002	3.74862216	14.756981	0.97226624	14.6325	2263.5	1993.6673	70.4	69.6	69.1	69.6	0.000566
800.06	3.75049797	14.7562313	0.97226624	14.63325	2263.5	1999.875	70.5	69.6	69	69.6	0.000568
805.02002	3.77175715	14.7562313	0.97539344	14.63325	2263.5	2002.6064	70.4	69.6	69.1	69.6	0.000567
810.02002	3.76550445	14.7554817	0.97351712	14.63325	2263.5	2000.8683	70.5	69.6	69	69.5	0.000567
815.07001	3.76362864	14.7547321	0.97289168	14.63325	2263.25	1998.6335	70.5	69.6	69.2	69.6	0.000567

Flammable Gas Interlock Spoolpiece Testing

FGI22223.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP (°F)	GAS INJECT TEMP (°F)	MAIN DUCT TEMP (°F)	WEC CELL TEMP (°F)	WEC CELL (VOLTS)
820.02002	3.74487054	14.7554817	0.97226624	14.6325	2263.5	1993.9156	70.5	69.6	69	69.6	0.000567
825.02002	3.7686308	14.7562313	0.97351712	14.6325	2263.25	1998.3852	70.4	69.6	69.1	69.6	0.000568
830.02002	3.74674635	14.7554817	0.97226624	14.63325	2263.75	2003.3513	70.4	69.6	69	69.6	0.000568
835.05002	3.74737162	14.7547321	0.97289168	14.63325	2263.25	1999.3784	70.3	69.6	69.2	69.6	0.000567
840.02002	3.76425391	14.7562313	0.97351712	14.63325	2263.75	1988.2046	70.4	69.6	68.9	69.6	0.000567
845.02002	3.75112324	14.7554817	0.97289168	14.6325	2263.5	1986.4664	70.3	69.6	69.2	69.6	0.000567
850.02002	3.75299905	14.7562313	0.97351712	14.63175	2263.75	1991.9292	70.3	69.6	69.1	69.6	0.000568
855.02002	3.7498727	14.7554817	0.97226624	14.63175	2263.25	1993.9156	70.4	69.6	69.1	69.6	0.000567
860.04001	3.74549581	14.756981	0.97351712	14.63325	2263.5	1996.1504	70.3	69.6	69.2	69.6	0.000568
865.04001	3.75174851	14.7562313	0.97289168	14.63325	2263.5	2000.1233	70.2	69.6	69	69.6	0.000568
870.02002	3.73861784	14.7554817	0.97351712	14.63325	2263.25	1988.7012	70.2	69.6	69.2	69.6	0.000567
875.04001	3.76112756	14.7532329	0.97289168	14.6325	2263.75	1988.9495	70.1	69.6	69	69.6	0.000567
880.06	3.73861784	14.7547321	0.97289168	14.6325	2264	1996.8953	70.1	69.6	69.1	69.6	0.000567
885.02002	3.75112324	14.7584802	0.97289168	14.6325	2263.5	2002.6064	70.1	69.6	69.1	69.6	0.000567
890.05002	3.74424527	14.7554817	0.97226624	14.634	2263.75	1998.8818	70.2	69.6	69	69.6	0.000567
895.02002	3.74487054	14.7562313	0.97226624	14.6325	2263.25	1997.392	70.2	69.6	69	69.6	0.000568
900.02002	3.74924743	14.7562313	0.97226624	14.63325	2263.75	1998.6335	70.1	69.6	68.9	69.6	0.000567
905.04001	3.75550013	14.7547321	0.97289168	14.6325	2263.75	2002.1098	70.2	69.6	69.1	69.6	0.000567
910.02002	3.77300769	14.7592298	0.97289168	14.634	2263.5	2002.6064	70.2	69.6	68.9	69.6	0.000567
915.02002	3.76175283	14.756981	0.97289168	14.63325	2263.5	2003.103	70.3	69.6	68.9	69.6	0.000568
920.04001	3.7623781	14.7554817	0.97226624	14.6325	2263.5	2000.1233	70.3	69.6	69	69.6	0.000568

TEST: FGI22224 22 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 4355ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP (°F)	GAS INJECT TEMP (°F)	MAIN DUCT TEMP (°F)	WEC CELL TEMP (°F)	WEC CELL (VOLTS)
0.019999	3.76175283	14.7599794	0.430259936	14.67	21.55	-3.473912	70.4	69.4	69.1	69.7	0.000235
5.019999	3.73924311	14.7614787	1.98923168	14.69625	21.725	-1.7854176	70.4	69.5	69.2	69.7	0.000235
10.019999	3.7748835	14.7599794	1.99048256	14.6955	121.375	1571.0471	70.4	69.6	69.1	69.7	0.000266
15.019999	3.76175283	14.7599794	1.991108	14.6965	563.25	2921.346	70.4	69.6	69.1	69.7	0.000343
20.019999	3.76362864	14.7599794	1.99360976	14.69775	1121.75	3552.0483	70.4	69.6	69	69.6	0.000432
25.029999	3.75424959	14.7592298	1.99298432	14.69625	1702.75	3834.1262	70.4	69.5	69	69.7	0.000515
30.019999	3.77863512	14.7592298	1.99486064	14.6985	2182.25	3962.7498	70.3	69.5	69	69.7	0.000583
35.019999	3.74924743	14.7599794	1.99486064	14.69925	2623.5	4028.0548	70.3	69.5	69.2	69.6	0.000639
40.019999	3.74924743	14.7584802	1.99486064	14.69925	2957.5	4060.3348	70.4	69.6	69.1	69.6	0.000684
45.019999	3.75925175	14.7599794	1.99548608	14.69775	3203.75	4091.3733	70.4	69.5	69.2	69.7	0.00072
50.019999	3.77238242	14.7607291	1.9973624	14.69625	3414	4093.3598	70.3	69.6	69.1	69.6	0.000749
55.019999	3.73861784	14.7584802	1.9973624	14.697	3583.75	4093.3598	70.4	69.5	69.2	69.6	0.000773
60.019999	3.75737594	14.7607291	1.9973624	14.6985	3724	4106.5201	70.4	69.5	69.2	69.7	0.000792
65.019999	3.75174851	14.7599794	1.99986416	14.697	3824.25	4121.9152	70.4	69.6	69.2	69.6	0.000809
70.019999	3.75362432	14.7599794	1.9973624	14.6985	3934.5	4132.5924	70.4	69.6	69.2	69.7	0.000821
75.019999	3.74362	14.7599794	1.99673696	14.69625	4014.25	4155.6851	70.4	69.6	69.2	69.7	0.000832
80.019999	3.75675067	14.7599794	2.00111504	14.69625	4094.25	4172.57	70.4	69.6	69.2	69.7	0.000839
85.019999	3.75487486	14.7599794	1.99986416	14.6955	4124.75	4188.9584	70.4	69.6	69.2	69.7	0.000848
90.019999	3.74674635	14.7599794	2.0004896	14.69625	4164.5	4180.7642	70.5	69.6	69.1	69.6	0.000853
95.019999	3.73924311	14.7592298	2.0004896	14.69625	4205	4187.7168	70.4	69.6	69.1	69.7	0.00086
100.019999	3.75049797	14.7599794	2.00236592	14.6985	4234.75	4201.6221	70.4	69.6	69.1	69.6	0.000863
105.019999	3.74299473	14.7599794	2.00174048	14.69625	4264.75	4212.7959	70.3	69.6	69.1	69.7	0.000869
110.019999	3.75362432	14.7592298	2.00174048	14.6955	4294.75	4224.2181	70.3	69.6	69.2	69.7	0.000873
115.019999	3.75299905	14.7577306	2.00236592	14.6955	4315	4228.191	70.4	69.6	69.1	69.7	0.000875
120.03	3.76300337	14.7584802	2.00236592	14.69625	4335	4240.6064	70.4	69.6	69.2	69.7	0.000878
125.019999	3.74424527	14.7584802	2.00111504	14.6955	4355	4252.5252	70.5	69.6	69.1	69.7	0.000881
130.06	3.73296041	14.7592298	2.00174048	14.69625	4365	4257.7397	70.5	69.6	69.1	69.7	0.000882
135.019999	3.7561254	14.7584802	2.00174048	14.69625	4385	4252.7735	70.4	69.6	69.2	69.7	0.000884
140.019999	3.75967702	14.7599794	2.00236592	14.69625	4394.75	4265.9338	70.4	69.6	69.3	69.7	0.000886
145.019999	3.75424959	14.7607291	2.00111504	14.69625	4405	4262.7058	70.3	69.6	69.3	69.7	0.000888
150.019999	3.75550013	14.7592298	2.00236592	14.6955	4414.75	4262.2092	70.2	69.6	69.2	69.6	0.00089
155.019999	3.73611676	14.7592298	2.00174048	14.69625	4425.25	4268.1686	70.2	69.6	69.2	69.7	0.00089
160.019999	3.75049797	14.7592298	2.00174048	14.69325	4435.25	4274.6246	70.3	69.6	69.2	69.6	0.000891
165.019999	3.75299905	14.7584802	2.00174048	14.697	4445.25	4280.8323	70.3	69.6	69.2	69.7	0.000892
170.019999	3.73238514	14.7592298	2.00111504	14.69625	4445.25	4277.6043	70.4	69.6	69	69.6	0.000893
175.019999	3.72661352	14.7577306	2.00111504	14.69625	4455.25	4288.0333	70.3	69.6	69.1	69.7	0.000894
180.019999	3.7561254	14.7607291	2.00111504	14.697	4465.25	4283.812	70.3	69.6	69.1	69.6	0.000894
185.019999	3.73924311	14.7592298	2.00174048	14.697	4465.25	4289.2748	70.3	69.6	69.2	69.6	0.000896

Flammable Gas Interlock Spoolpiece Testing

FGI22224.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP (°F)	GAS INJECT TEMP (°F)	MAIN DUCT TEMP (°F)	WEC CELL TEMP (°F)	WEC CELL (VOLTS)
190.01999	3.77300769	14.7599794	2.00174048	14.69625	4475.25	4283.812	70.3	69.7	69.1	69.6	0.000897
195.01999	3.74236946	14.7584802	2.00111504	14.6955	4475.25	4277.356	70.4	69.7	69.1	69.7	0.000897
200.01999	3.73674203	14.7592298	2.00174048	14.69625	4485.25	4262.0739	70.4	69.7	69.1	69.6	0.000898
205.01999	3.74487054	14.7599794	2.00236592	14.6955	4485.25	4280.3357	70.3	69.7	69.2	69.7	0.000898
210.01999	3.79426687	14.7592298	2.00111504	14.697	4485	4290.5163	70.4	69.7	69.2	69.7	0.000898
215.01999	3.73861784	14.7592298	2.00174048	14.6955	4485.25	4290.268	70.4	69.7	69.3	69.7	0.000899
220.01999	3.74236946	14.7599794	2.00236592	14.69625	4495.25	4300.4487	70.5	69.7	69.2	69.6	0.000899
225.01999	3.74924743	14.7599794	2.00174048	14.697	4495.25	4305.4148	70.5	69.7	69.3	69.7	0.000901
230.01999	3.74424527	14.7592298	2.00236592	14.69625	4502.25	4309.3877	70.5	69.7	69.2	69.7	0.000901
235.01999	3.74924743	14.7592298	2.00174048	14.69625	4504.75	4306.9047	70.6	69.7	69.2	69.7	0.000902
240.01999	3.77300769	14.7607291	2.00174048	14.69625	4505.25	4310.8776	70.6	69.7	69.2	69.6	0.000902
245.03998	3.74924743	14.7584802	2.00174048	14.697	4515.75	4321.3065	70.5	69.7	69.3	69.7	0.000903
250.01999	3.76175283	14.7584802	2.00111504	14.6965	4515	4326.2727	70.5	69.7	69.1	69.6	0.000903
255.01999	3.74424527	14.7584802	1.99986416	14.6955	4525.75	4327.2659	70.4	69.8	69.1	69.6	0.000904
260.01999	3.74549581	14.7592298	2.00174048	14.69625	4525.5	4331.7355	70.3	69.8	69.2	69.7	0.000904
265.01999	3.74924743	14.7584802	2.00174048	14.69625	4526	4321.0582	70.4	69.8	69.1	69.7	0.000905
270.03	3.74487054	14.7584802	2.00236592	14.697	4535.5	4329.5007	70.3	69.8	69.2	69.7	0.000904
275.03998	3.72548717	14.7592298	2.00236592	14.697	4535.25	4333.2253	70.3	69.8	69.2	69.7	0.000905
280.01999	3.75362432	14.7584802	2.0004896	14.694	4535.75	4338.4398	70.4	69.8	69.2	69.7	0.000905
285.01999	3.75049797	14.7584802	2.00111504	14.69625	4535.25	4338.9364	70.4	69.8	69.2	69.7	0.000905
290.01999	3.74299473	14.7599794	2.0004896	14.697	4536	4330.4939	70.4	69.8	69.3	69.7	0.000905
295.01999	3.74799689	14.7607291	2.00174048	14.69625	4535.5	4324.0379	70.4	69.8	69.2	69.6	0.000904
300.01999	3.75925175	14.7584802	2.00111504	14.6955	4535.5	4331.2388	70.4	69.8	69.2	69.7	0.000905
305.01999	3.74487054	14.7607291	1.99986416	14.69625	4535.5	4332.7287	70.4	69.8	69.2	69.7	0.000905
310.01999	3.75675067	14.7607291	2.00174048	14.69625	4535.5	4341.1712	70.5	69.9	69.2	69.7	0.000906
315.01999	3.74924743	14.7599794	2.00174048	14.697	4536	4341.4195	70.6	69.8	69.2	69.7	0.000905
320.01999	3.75737594	14.7584802	2.0004896	14.69625	4545.25	4327.0176	70.6	69.8	69.2	69.7	0.000905
325.01999	3.74737162	14.7599794	2.0004896	14.697	4545.5	4335.4601	70.5	69.9	69.3	69.7	0.000906
330.01999	3.75675067	14.7584802	2.00174048	14.69625	4545.25	4324.7828	70.6	69.8	69.3	69.7	0.000907
335.01999	3.75987702	14.7592298	1.99798784	14.697	4545.5	4338.9364	70.7	69.9	69.3	69.7	0.000906
340.01999	3.74424527	14.7607291	1.99923872	14.69625	4545.25	4334.2185	70.7	69.9	69.3	69.8	0.000907
345.01999	3.75112324	14.7607291	2.00111504	14.69625	4555.5	4338.6881	70.6	69.9	69.3	69.7	0.000907
350.01999	3.76550445	14.7607291	2.00111504	14.697	4555.5	4350.1103	70.6	69.9	69.3	69.7	0.000907
355.01999	3.73799257	14.7592298	1.9973624	14.697	4554.75	4341.4195	70.6	69.9	69.3	69.7	0.000908
360.01999	3.74487054	14.7592298	1.9973624	14.69625	4555.5	4330.4939	70.6	69.9	69.2	69.7	0.000908
365.01999	3.73986838	14.7599794	1.99923872	14.6955	4565.75	4321.0582	70.6	69.9	69.2	69.7	0.000909
370.01999	3.73674203	14.7607291	1.99861328	14.69625	4565	4334.9635	70.6	69.9	69.2	69.7	0.000909
375.01999	3.74549581	14.7607291	1.99986416	14.6955	4566	4342.9093	70.6	69.9	69.2	69.7	0.000909
380.01999	3.74862216	14.7607291	1.99923872	14.69325	4565.25	4343.1576	70.6	70	69.3	69.7	0.000909
385.01999	3.73861784	14.7599794	1.9973624	14.694	4565	4341.6678	70.6	70	69.3	69.7	0.00091
390.06	3.74362	14.7599794	1.99861328	14.697	4565.75	4328.5075	70.6	69.9	69.2	69.7	0.000909
395.01999	3.74799689	14.7599794	1.99923872	14.697	4565.5	4324.7828	70.6	69.9	69.2	69.7	0.000909

Flammable Gas Interlock Spoolpiece Testing

FGI22224.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP (°F)	GAS INJECT TEMP (°F)	MAIN DUCT TEMP (°F)	WEC CELL TEMP (°F)	WEC CELL (VOLTS)
400.01999	3.74362	14.7607291	1.99923872	14.69625	4565.5	4337.4465	70.5	70	69.3	69.7	0.000909
405.01999	3.74737162	14.7592298	1.99673696	14.697	4565.5	4337.4465	70.5	70	69.4	69.7	0.00091
410.01999	3.75737594	14.7614787	1.9973624	14.69625	4565.75	4342.1644	70.5	70	69.3	69.7	0.000909
415.01999	3.74612108	14.7607291	1.99984416	14.6965	4565.5	4346.1373	70.5	70	69.3	69.7	0.000908
420.01999	3.77425823	14.7592298	1.99673696	14.69625	4565.5	4338.4398	70.5	70	69.3	69.7	0.000909
425.09	3.74612108	14.7607291	1.9973624	14.6965	4565.5	4342.4127	70.4	70	69.2	69.7	0.000909
430.01999	3.75487486	14.7607291	1.99923872	14.69325	4565.5	4348.8687	70.5	70	69.2	69.7	0.000909
435.06998	3.74487054	14.7599794	1.9973624	14.69775	4565.25	4350.6069	70.5	70	69.2	69.7	0.000909
440.01999	3.75362432	14.7599794	1.99673696	14.69625	4565.25	4335.2118	70.5	70	69.4	69.7	0.000909
445.01999	3.74549581	14.7599794	1.99798784	14.694	4565.25	4336.7016	70.5	70	69.3	69.7	0.000909
450.01999	3.74737162	14.756981	1.9973624	14.694	4565.5	4345.3924	70.6	70	69.3	69.7	0.00091
455.01999	3.80177011	14.7584802	1.99673696	14.69625	4565.5	4349.6136	70.7	70	69.3	69.7	0.00091
460.01999	3.74924743	14.7584802	1.99966416	14.694	4565.5	4352.8416	70.7	70	69.3	69.7	0.00091
465.01999	3.75112324	14.7592298	1.9973624	14.69325	4575.75	4356.318	70.7	70.1	69.2	69.7	0.000911
470.01999	3.74549581	14.7599794	1.99673696	14.697	4575.5	4350.6069	70.7	70.1	69.2	69.7	0.00091
475.01999	3.73299041	14.7599794	1.99673696	14.69475	4575.75	4351.3518	70.7	70.1	69.2	69.7	0.00091
480.01999	3.74549581	14.7599794	1.99673696	14.697	4576	4334.2185	70.7	70	69.2	69.7	0.000911
485.01999	3.75487486	14.7599794	1.9973624	14.697	4575.5	4331.2388	70.6	70.1	69.3	69.7	0.00091
490.01999	3.74924743	14.7614787	1.99611152	14.69775	4575.25	4328.2591	70.7	70.1	69.3	69.7	0.000911
495.01999	3.74487054	14.7599794	1.99798784	14.697	4575.5	4346.1373	70.7	70.1	69.4	69.7	0.000911
500.01999	3.73861784	14.7592298	1.9973624	14.69625	4575.25	4340.9229	70.7	70.1	69.4	69.7	0.000912
505.01999	3.75550013	14.7614787	1.99673696	14.69475	4575.5	4335.2118	70.7	70.1	69.3	69.7	0.000911
510.01999	3.75174851	14.7607291	1.99798784	14.697	4576	4336.4533	70.6	70.1	69.3	69.7	0.000911
515.01999	3.76050229	14.7592298	1.9973624	14.69625	4575.75	4326.0244	70.6	70.1	69.3	69.7	0.000912
520.01999	3.74924743	14.7607291	1.99673696	14.69475	4576	4338.9364	70.6	70.1	69.3	69.7	0.000912
525.01999	3.7623781	14.7599794	1.99673696	14.69775	4575.75	4340.4262	70.5	70.1	69.1	69.7	0.000912
530.01999	3.72673771	14.7599794	1.99673696	14.69775	4575.75	4340.4262	70.5	70.1	69.1	69.7	0.000912
535.01999	3.74862216	14.7614787	1.99673696	14.69475	4577.25	4334.7152	70.5	70.1	69.1	69.7	0.000912
540.01999	3.73236514	14.7614787	1.99673696	14.697	4585.75	4346.3856	70.5	70.1	69.2	69.7	0.000912
545.01999	3.75550013	14.7599794	1.9973624	14.697	4585.75	4337.4465	70.5	70.1	69.2	69.7	0.000912
550.06998	3.78051093	14.7607291	1.9973624	14.69475	4585.75	4339.6813	70.5	70.1	69.2	69.7	0.000913
555.01999	3.76863308	14.7607291	1.99673696	14.69325	4585.75	4345.6407	70.5	70.1	69.2	69.7	0.000913
560.03	3.74487054	14.7607291	1.9973624	14.694	4586	4336.205	70.6	70.1	69.4	69.7	0.000913
565.01999	3.74549581	14.7607291	1.9973624	14.69625	4586	4345.889	70.5	70.1	69.3	69.8	0.000913
570.01999	3.74799689	14.7577306	1.9973624	14.694	4586	4339.433	70.5	70.1	69.3	69.7	0.000912
575.04998	3.78551309	14.7592298	1.9973624	14.697	4586	4340.9229	70.5	70.1	69.2	69.8	0.000913
580.01999	3.74487054	14.7599794	1.9973624	14.694	4585.75	4350.3586	70.5	70.1	69.1	69.7	0.000913
585.01999	3.74049365	14.7592298	1.99673696	14.69625	4585.5	4343.4059	70.5	70.1	69.1	69.7	0.000912
590.01999	3.74862216	14.7584802	1.99798784	14.694	4586	4348.3721	70.5	70.1	69.3	69.7	0.000911
595.03998	3.77300789	14.7592298	1.99673696	14.697	4585.25	4334.9635	70.5	70.1	69.2	69.7	0.000911
600.01999	3.73799257	14.7599794	1.99673696	14.69625	4586	4330.7422	70.5	70.2	69.4	69.8	0.000912
605.01999	3.75174851	14.7592298	1.9973624	14.697	4585.75	4329.9973	70.5	70.2	69.2	69.7	0.000912

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP (°F)	GAS INJECT TEMP (°F)	MAIN DUCT TEMP (°F)	WEC CELL TEMP (°F)	WEC CELL (VOLTS)
610.06	3.73299041	14.7592298	1.99673696	14.697	4585.75	4336.205	70.4	70.2	69.3	69.7	0.000912
615.01999	3.74111892	14.7577306	1.99673696	14.697	4585.75	4331.4872	70.2	70.2	69.1	69.7	0.000912
620.01999	3.76612972	14.7592298	1.99673696	14.697	4586	4324.7828	70.2	70.2	69.1	69.8	0.000911
625.04999	3.74487054	14.7584802	1.99673696	14.6955	4585.5	4313.3607	70.3	70.2	69.2	69.8	0.000912
630.01999	3.74111892	14.7584802	1.9973624	14.69625	4586	4321.5548	70.4	70.2	69.2	69.8	0.000913
635.01999	3.7498727	14.7577306	1.9973624	14.69325	4585.75	4335.9567	70.4	70.2	69.2	69.7	0.000912
640.03998	3.74049365	14.7584802	1.99673696	14.69625	4585.75	4330.2456	70.4	70.2	69.1	69.7	0.000913
645.06	3.74549581	14.7592298	1.9973624	14.69325	4595.25	4337.6949	70.4	70.2	69.1	69.7	0.000913
650.01999	3.74424527	14.7599794	1.9973624	14.69475	4595.25	4333.2253	70.5	70.2	69.3	69.8	0.000913
655.04999	3.74924743	14.7592298	1.9973624	14.6955	4595.5	4337.9432	70.5	70.2	69.2	69.8	0.000913
660.01999	3.75737594	14.7592298	1.99673696	14.6925	4596	4348.1238	70.5	70.2	69.1	69.7	0.000913
665.01999	3.73924311	14.7599794	1.9973624	14.694	4585.75	4338.6881	70.5	70.2	69.1	69.7	0.000912
670.01999	3.76550445	14.7584802	1.99673696	14.69625	4585.5	4341.9161	70.5	70.2	69.1	69.8	0.000913
675.01999	3.74299473	14.7584802	1.99673696	14.69325	4585.75	4340.4262	70.5	70.2	69.1	69.8	0.000913
680.01999	3.75800121	14.7599794	1.9973624	14.694	4585.25	4338.9364	70.6	70.2	69.1	69.8	0.000913
685.06998	3.77863512	14.7592298	1.99673696	14.694	4585.75	4345.1441	70.5	70.2	69.2	69.7	0.000913
690.01999	3.74862216	14.7599794	1.9973624	14.697	4586	4334.2185	70.6	70.2	69.2	69.7	0.000913
695.01999	3.73611676	14.7599794	1.9973624	14.69625	4586	4329.9973	70.5	70.2	69.2	69.7	0.000913
700.01999	3.77238242	14.7599794	1.99798784	14.69325	4585.75	4335.9567	70.5	70.2	69.1	69.7	0.000913
705.01999	3.74924743	14.7592298	1.99673696	14.694	4586	4331.9838	70.5	70.2	69.1	69.7	0.000914
710.01999	3.74424527	14.7599794	1.9973624	14.69475	4595.25	4330.2456	70.5	70.2	69.1	69.7	0.000914
715.04999	3.76175283	14.7592298	1.9973624	14.697	4595.5	4339.9296	70.6	70.2	69.3	69.7	0.000914
720.01999	3.7623781	14.7592298	1.9973624	14.694	4596	4332.2321	70.5	70.2	69.2	69.8	0.000914
725.01999	3.75112324	14.7599794	1.9973624	14.6975	4595.75	4329.0041	70.5	70.2	69.2	69.8	0.000914
730.03	3.73861784	14.7592298	1.99673696	14.69625	4595.5	4328.5075	70.5	70.2	69.3	69.8	0.000914
735.01999	3.74612108	14.7599794	1.99673696	14.69325	4595.75	4325.2795	70.5	70.2	69.3	69.8	0.000915
740.01999	3.74924743	14.7607291	1.9973624	14.6955	4595.25	4328.2591	70.4	70.2	69.3	69.8	0.000915
745.06	3.76925607	14.7607291	1.9973624	14.69325	4596	4324.0379	70.5	70.2	69.2	69.8	0.000915
750.01999	3.75550013	14.7599794	1.9973624	14.694	4596	4317.3336	70.5	70.2	69.2	69.8	0.000915
755.01999	3.74924743	14.7599794	1.9973624	14.694	4604.25	4323.0447	70.5	70.2	69.3	69.7	0.000915
760.06998	3.74924743	14.7592298	1.99673696	14.69325	4606	4322.2998	70.5	70.3	69.4	69.7	0.000914
765.01999	3.75424959	14.7592298	1.99548608	14.694	4605.75	4328.2591	70.5	70.2	69.3	69.8	0.000915
770.01999	3.75362432	14.7592298	1.99548608	14.69325	4605.5	4321.8031	70.6	70.3	69.2	69.7	0.000915
775.03998	3.74174419	14.7607291	1.99673696	14.694	4605.5	4334.7152	70.6	70.2	69.4	69.7	0.000916
780.01999	3.74862216	14.7592298	1.99611152	14.69325	4605.75	4336.4533	70.6	70.2	69.3	69.7	0.000915
785.01999	3.75049797	14.7577306	1.99548608	14.694	4606	4336.9499	70.5	70.3	69.3	69.8	0.000916
790.01999	3.75737594	14.7599794	1.99548608	14.69325	4605.75	4344.6475	70.5	70.3	69.4	69.8	0.000916
795.04999	3.76175283	14.7607291	1.99548608	14.6955	4605.75	4331.7355	70.5	70.3	69.2	69.8	0.000916
800.01999	3.76175283	14.7592298	1.99486064	14.6925	4605.5	4319.3201	70.5	70.3	69.3	69.7	0.000915
805.01999	3.73924311	14.7599794	1.99611152	14.69325	4606	4332.7287	70.5	70.3	69.2	69.7	0.000915
810.01999	3.74924743	14.7592298	1.99486064	14.69325	4606.25	4327.2659	70.6	70.3	69.2	69.8	0.000914
815.01999	3.7498727	14.7592298	1.99548608	14.69325	4606	4316.0921	70.6	70.3	69.2	69.7	0.000914

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP (°F)	GAS INJECT TEMP (°F)	MAIN DUCT TEMP (°F)	WEC CELL TEMP (°F)	WEC CELL (VOLTS)
820.03	3.79051525	14.7599794	1.99548608	14.69325	4605.75	4304.1733	70.6	70.3	69.3	69.8	0.000915
825.01999	3.75675067	14.7592298	1.99548608	14.69325	4605.75	4309.3877	70.6	70.3	69.3	69.8	0.000915
830.01999	3.73861784	14.7607291	1.99548608	14.69325	4605.5	4320.8099	70.4	70.3	69.3	69.8	0.000915
835.06998	3.72986406	14.7592298	1.99548608	14.6965	4605.75	4317.3336	70.4	70.3	69.2	69.8	0.000916
840.04999	3.7561254	14.7599794	1.99548608	14.6965	4605.75	4333.2253	70.3	70.3	69.2	69.8	0.000915
845.01999	3.74487054	14.7584802	1.99486064	14.6965	4606	4333.2253	70.4	70.3	69	69.8	0.000916
850.03	3.75424959	14.7592298	1.99548608	14.69325	4605.75	4338.4398	70.3	70.3	69.2	69.7	0.000916
855.01999	3.73674203	14.7607291	1.9942352	14.6925	4605.75	4319.5684	70.3	70.4	69.2	69.8	0.000915
860.01999	3.74549581	14.7599794	1.9942352	14.6965	4605.75	4320.5616	70.3	70.3	69.2	69.7	0.000915
865.03	3.74111892	14.7607291	1.9942352	14.69625	4605.75	4334.4688	70.3	70.4	69.1	69.8	0.000915
870.01999	3.76425391	14.7599794	1.99486064	14.69325	4605.75	4324.5345	70.2	70.3	69	69.7	0.000915
875.01999	3.74487054	14.7599794	1.99486064	14.6965	4605.75	4311.1259	70.2	70.4	69.1	69.7	0.000915
880.01999	3.73299041	14.7607291	1.99548608	14.69325	4605.75	4304.6699	70.3	70.4	69.2	69.8	0.000915
885.01999	3.75862648	14.7599794	1.9942352	14.69325	4605.75	4318.0785	70.3	70.3	69.2	69.7	0.000915
890.01999	3.7748835	14.7592298	1.99548608	14.69625	4605.75	4313.609	70.3	70.3	69.2	69.8	0.000915
895.03	3.73924311	14.7607291	1.9942352	14.69625	4605.75	4322.0514	70.3	70.4	69.2	69.7	0.000915
900.01999	3.75800121	14.7599794	1.99486064	14.694	4605.5	4335.2118	70.3	70.4	69.1	69.7	0.000915
905.01999	3.74487054	14.7584802	1.99486064	14.69625	4605.75	4327.5142	70.3	70.4	69.2	69.7	0.000915
910.06	3.75550013	14.7592298	1.99486064	14.69325	4605.25	4321.5548	70.4	70.4	69.3	69.7	0.000915
915.01999	3.74487054	14.7592298	1.99548608	14.69625	4605.75	4322.0514	70.4	70.4	69.2	69.7	0.000915
920.01999	3.74862216	14.7599794	1.99548608	14.69625	4606	4325.5278	70.4	70.3	69.2	69.8	0.000916
925.03998	3.7373673	14.7599794	1.99548608	14.6965	4605.75	4318.8234	70.3	70.4	69.1	69.8	0.000916

TEST: FGI22225 22 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 4373ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP (°F)	GAS INJECT TEMP (°F)	MAIN DUCT TEMP (°F)	WEC CELL TEMP (°F)	WEC CELL (VOLTS)
0.0099792	3.74924743	14.7614787	0.33775736	14.71875	51.075	-3.6228968	70.5	69.9	69.2	69.9	0.000238
5.0299988	3.75550013	14.7592298	1.99360976	14.69775	51.225	-3.0021268	70.5	69.7	69.2	69.8	0.000238
10.019989	3.76612972	14.7592298	1.99548608	14.69625	120.875	1542.74	70.5	70	69.2	69.8	0.000268
15.019989	3.76675499	14.7592298	1.99486064	14.69625	551.75	2932.51988	70.4	70	69.2	69.8	0.000343
20.019989	3.73861784	14.7584802	1.9942352	14.697	1162.5	3585.0733	70.3	69.9	69.2	69.8	0.000432
25.019989	3.76175283	14.7599794	1.99548608	14.69925	1762.75	3864.1715	70.4	69.9	69.2	69.8	0.000513
30.019989	3.74924743	14.7607291	1.99486064	14.69925	2243.5	3987.33226	70.4	69.9	69.2	69.8	0.000583
35.289978	3.74049365	14.7607291	1.9973624	14.7	2653.5	4036.74556	70.4	69.9	69.2	69.8	0.000642
40.019989	3.73861784	14.7607291	1.9973624	14.7	2953.75	4075.4816	70.4	69.9	69.1	69.8	0.000685
45.019989	3.73424095	14.7599794	1.99923872	14.69625	3234	4106.2718	70.4	69.9	69.2	69.8	0.000722
50.019989	3.74924743	14.7614787	1.9973624	14.69925	3422	4123.40505	70.4	69.9	69.2	69.8	0.000752
55.019989	3.72611244	14.7599794	1.99673696	14.69925	3604.25	4133.83398	70.4	69.9	69.1	69.8	0.000775
60.019989	3.73236514	14.7592298	1.99861328	14.69925	3754.25	4138.05522	70.4	69.9	69.1	69.7	0.000795
65.019989	3.73611676	14.7614787	1.99861328	14.6985	3854.5	4154.44355	70.5	69.9	69.2	69.8	0.000811
70.019989	3.76800553	14.7592298	1.99923872	14.6985	3948.75	4176.54296	70.5	69.9	69.2	69.8	0.000824
75.019989	3.73299041	14.7599794	2.00111504	14.69625	4024.75	4190.94482	70.4	69.9	69.2	69.8	0.000836
80.019989	3.75737594	14.7592298	1.99923872	14.6985	4096	4185.97866	70.4	69.9	69.2	69.8	0.000844
85.019989	3.74299473	14.7592298	2.00174048	14.6985	4149.5	4191.68975	70.4	69.9	69.2	69.8	0.000851
90.019989	3.75174851	14.7607291	2.00174048	14.7	4185	4194.66944	70.3	69.9	69.2	69.8	0.000858
95.019989	3.74924743	14.7599794	2.00111504	14.6985	4230.25	4194.91775	70.5	69.9	69.2	69.8	0.000862
100.01999	3.73924311	14.7592298	2.00174048	14.6985	4255	4199.6356	70.5	69.9	69	69.8	0.000867
105.01999	3.73361568	14.7599794	2.00111504	14.6985	4285	4204.85007	70.5	69.9	69	69.8	0.000871
110.01999	3.72986406	14.7599794	2.00111504	14.6985	4315	4221.98332	70.4	69.9	69	69.8	0.000875
115.01999	3.74549581	14.7607291	2.00111504	14.69925	4325.25	4244.57935	70.5	69.9	69.2	69.8	0.000878
120.01999	3.75987702	14.7592298	2.00111504	14.697	4345	4251.78028	70.4	69.9	69.1	69.8	0.00088
125.01999	3.74362	14.7599794	2.00111504	14.69925	4375.5	4253.02182	70.4	69.9	69.2	69.8	0.000883
130.01999	3.74487054	14.7614787	2.00174048	14.6985	4394.75	4236.38519	70.5	69.9	69.1	69.9	0.000886
135.01999	3.75174851	14.7607291	2.00174048	14.69925	4404.5	4215.52732	70.5	69.9	69.3	69.8	0.000888
140.01999	3.74674635	14.7599794	2.00111504	14.69775	4415.25	4229.92918	70.5	69.9	69.3	69.8	0.000889
145.01999	3.73611676	14.7592298	2.00174048	14.6985	4424.5	4254.26336	70.5	69.9	69.2	69.8	0.000891
150.01999	3.74049365	14.7592298	2.00174048	14.69775	4435.5	4264.19568	70.5	69.9	69.2	69.8	0.000892
155.01999	3.72861352	14.7614787	2.00111504	14.6985	4445.25	4264.6923	70.4	70	69.2	69.8	0.000893
160.01999	3.75424959	14.7607291	2.00111504	14.69925	4455	4271.64492	70.5	70	69.2	69.8	0.000895
165.01999	3.74299473	14.7607291	2.0004896	14.69925	4465.25	4288.03325	70.5	70	69.1	69.8	0.000895
170.01999	3.75049797	14.7599794	2.00174048	14.7	4465.25	4287.78494	70.4	70	69.1	69.8	0.000896
175.01999	3.74924743	14.7599794	2.00174048	14.6985	4475.25	4288.5434	70.5	70	69.1	69.8	0.000897
180.01999	3.74487054	14.7599794	2.00174048	14.6985	4485.25	4282.32217	70.6	70	69.2	69.8	0.000898
185.01999	3.74299473	14.7607291	2.00174048	14.69925	4485.5	4293.99264	70.5	70	69.2	69.8	0.000898

Flammable Gas Interlock Spoolpiece Testing

FGI22225.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP (°F)	GAS INJECT TEMP (°F)	MAIN DUCT TEMP (°F)	WEC CELL TEMP (°F)	WEC CELL (VOLTS)
190.01999	3.73924311	14.7599794	2.00111504	14.69625	4485.25	4277.60432	70.5	70	69.3	69.8	0.000897
195.01999	3.75174851	14.7599794	2.00174048	14.69925	4495.25	4279.83909	70.6	70	69.3	69.8	0.000899
200.01999	3.73986838	14.7599794	2.00174048	14.69925	4495.25	4289.77141	70.6	70	69.3	69.8	0.0009
205.01999	3.74612108	14.7629779	2.00111504	14.6985	4505.25	4295.48249	70.6	70	69.3	69.8	0.0009
210.01999	3.73236514	14.7614787	2.00111504	14.6985	4505.5	4294.73757	70.7	70	69.3	69.8	0.000901
215.01999	3.78613836	14.7599794	2.00174048	14.69625	4515.25	4290.26802	70.5	70	69.3	69.8	0.000903
220.01999	3.73986838	14.7599794	2.00174048	14.69925	4515.25	4289.77141	70.5	70.1	69.3	69.8	0.000903
225.01999	3.72798825	14.7592298	2.00111504	14.6985	4526	4273.8797	70.5	70	69.2	69.7	0.000903
230.01999	3.76050229	14.7599794	2.00236592	14.69925	4525.25	4285.05356	70.5	70	69.2	69.7	0.000904
235.01999	3.74487054	14.7584802	2.00111504	14.69925	4525.5	4292.7511	70.5	70.1	69.2	69.7	0.000904
240.01999	3.72986406	14.7599794	2.00174048	14.6985	4535.5	4289.5231	70.5	70.1	69.2	69.8	0.000905
245.01999	3.76800553	14.7607291	2.00111504	14.69625	4535.5	4289.02648	70.5	70.1	69.2	69.8	0.000905
250.01999	3.75112324	14.7584802	2.00174048	14.69625	4535.25	4299.45542	70.5	70	69.3	69.8	0.000906
255.01999	3.7623781	14.7584802	2.00174048	14.697	4545.5	4299.95204	70.5	70	69.3	69.8	0.000906
260.01999	3.77926039	14.7577306	2.00174048	14.69625	4545.75	4283.06709	70.5	70.1	69.4	69.8	0.000907
265.01999	3.75174851	14.7584802	2.00174048	14.6985	4554.75	4288.28156	70.5	70.1	69.4	69.8	0.000909
270.01999	3.75174851	14.7599794	2.0004896	14.69925	4555.5	4288.77818	70.4	70.1	69.4	69.8	0.000908
275.01999	3.73924311	14.7592298	2.00236592	14.6985	4555.75	4279.59078	70.5	70.1	69.3	69.8	0.000908
280.03	3.75174851	14.7599794	2.00174048	14.69625	4555	4276.61108	70.6	70.1	69.2	69.8	0.000908
285.03	3.72611244	14.7584802	1.99986416	14.69925	4555.25	4292.5028	70.5	70.1	69.2	69.8	0.000909
290.01999	3.75424959	14.7607291	2.00174048	14.69925	4555.25	4295.7308	70.5	70.1	69.2	69.7	0.000908
295.01999	3.76175283	14.7607291	1.99986416	14.7	4555	4300.20034	70.4	70.1	69.2	69.8	0.000908
300.01999	3.76550445	14.7607291	2.00174048	14.7	4563.25	4310.38097	70.4	70.1	69.3	69.8	0.000909
305.01999	3.74924743	14.7607291	2.00236592	14.69925	4565.5	4299.95204	70.4	70.1	69.2	69.8	0.000909
310.01999	3.76050229	14.7592298	1.99923872	14.69925	4565.5	4297.46896	70.4	70.1	69.3	69.8	0.000908
315.03	3.74737162	14.7599794	2.00174048	14.69925	4565.5	4288.77818	70.3	70.1	69.3	69.8	0.00091
320.01999	3.73861784	14.7592298	2.00111504	14.7	4565.75	4287.53664	70.3	70.1	69.3	69.8	0.000909
325.01999	3.73299041	14.7614787	2.0004896	14.69625	4565	4289.5231	70.3	70.2	69.2	69.8	0.000909
330.01999	3.74111892	14.7607291	2.00174048	14.6985	4565.5	4296.22742	70.4	70.1	69.3	69.8	0.000909
335.01999	3.74612108	14.7607291	1.99923872	14.6985	4565.25	4291.75787	70.4	70.1	69.3	69.8	0.00091
340.01999	3.73299041	14.7592298	2.00111504	14.69925	4565.5	4306.40804	70.3	70.2	69.3	69.8	0.00091
345.03	3.7561254	14.7599794	2.00111504	14.69925	4566	4307.15297	70.4	70.2	69.1	69.7	0.00091
350.01999	3.75424959	14.7592298	2.00174048	14.697	4575.5	4304.9182	70.4	70.1	69.1	69.8	0.000911
355.01999	3.74299473	14.7607291	1.99923872	14.69625	4575.5	4303.67666	70.5	70.1	69.2	69.8	0.000911
360.01999	3.73236514	14.7599794	1.99861328	14.69925	4576	4296.97234	70.5	70.1	69.2	69.8	0.000911
365.01999	3.74737162	14.7592298	1.99673696	14.7	4575.75	4292.00618	70.6	70.2	69.3	69.8	0.000912
370.01999	3.73799257	14.7592298	1.99923872	14.6985	4576	4293.74434	70.5	70.1	69.2	69.8	0.000912
375.01999	3.73986838	14.7577306	1.99861328	14.69925	4575.75	4302.93173	70.6	70.2	69.3	69.8	0.000911
380.01999	3.73861784	14.7592298	1.9973624	14.69925	4585.25	4295.23418	70.6	70.2	69.3	69.8	0.000912
385.01999	3.7561254	14.7592298	1.99923872	14.6985	4585.75	4296.97234	70.6	70.2	69.3	69.8	0.000913
390.01999	3.74424527	14.7592298	1.99986416	14.69925	4586	4302.93173	70.6	70.2	69.3	69.8	0.000912
395.01999	3.75987702	14.7584802	1.99986416	14.7	4585.75	4304.66989	70.5	70.2	69.3	69.8	0.000913

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP (°F)	GAS INJECT TEMP (°F)	MAIN DUCT TEMP (°F)	WEC CELL TEMP (°F)	WEC CELL (VOLTS)
400.01999	3.73236514	14.7592298	1.99986416	14.69925	4585.5	4301.44188	70.6	70.2	69.3	69.8	0.000912
405.01999	3.75112324	14.7584802	1.9973624	14.69625	4585.5	4298.9588	70.5	70.2	69.3	69.8	0.000913
410.01999	3.74924743	14.7584802	1.99673696	14.697	4585.25	4302.68342	70.6	70.2	69.3	69.8	0.000914
415.01999	3.77550877	14.7599794	2.0004896	14.69925	4585.5	4297.96557	70.5	70.2	69.3	69.8	0.000913
420.01999	3.7811362	14.7599794	1.99861328	14.69925	4586	4293.49603	70.5	70.2	69.3	69.8	0.000913
425.01999	3.74362	14.7592298	1.99986416	14.6955	4585.75	4298.46219	70.6	70.2	69.2	69.8	0.000912
430.01999	3.74737162	14.7607291	1.99923872	14.6985	4586	4295.7308	70.5	70.2	69.3	69.8	0.000912
435.10999	3.74549581	14.7584802	1.99986416	14.6985	4585.75	4311.87082	70.6	70.2	69.3	69.8	0.000913
440.01999	3.73299041	14.7592298	1.99986416	14.6985	4585.25	4307.40128	70.6	70.3	69.2	69.8	0.000913
445.01999	3.76612972	14.7607291	1.99673696	14.69625	4585.5	4302.68342	70.6	70.2	69.3	69.8	0.000911
450.01999	3.74924743	14.7599794	1.9973624	14.69925	4586	4294.95858	70.5	70.2	69.3	69.8	0.000913
455.01999	3.74549581	14.7599794	1.99798784	14.69925	4585.75	4287.78494	70.5	70.2	69.3	69.8	0.000913
460.01999	3.73924311	14.7599794	1.99798784	14.6985	4586	4295.97911	70.5	70.2	69.2	69.8	0.000913
465.01999	3.74111892	14.7599794	1.9973624	14.69775	4595.5	4303.92496	70.5	70.3	69.2	69.8	0.000913
470.01999	3.73924311	14.7599794	1.9973624	14.69925	4585.75	4297.96557	70.5	70.3	69.3	69.8	0.000913
475.01999	3.75800121	14.7607291	1.9973624	14.6985	4595.75	4306.40804	70.5	70.3	69.3	69.8	0.000914
480.01999	3.75362432	14.7599794	1.9973624	14.6985	4595.75	4318.07852	70.5	70.3	69.3	69.8	0.000913
485.01999	3.74049365	14.7584802	1.99986416	14.69925	4596	4319.07175	70.3	70.3	69.3	69.8	0.000914
490.01999	3.74487054	14.7592298	1.99673696	14.6955	4595.5	4319.07175	70.4	70.2	69.4	69.8	0.000914
495.01999	3.75737594	14.7592298	1.99986416	14.6985	4595.75	4322.05145	70.4	70.3	69.3	69.8	0.000915
500.01999	3.74236946	14.7599794	1.99986416	14.7	4595.25	4315.84375	70.5	70.3	69.4	69.8	0.000915
505.01999	3.74862216	14.7599794	1.99861328	14.69625	4595.75	4323.7696	70.5	70.3	69.3	69.7	0.000914
510.01999	3.74862216	14.7614787	1.9973624	14.69625	4596	4319.56837	70.5	70.3	69.3	69.8	0.000914
515.01999	3.73236514	14.7607291	1.99861328	14.6985	4605.75	4316.58867	70.5	70.3	69.3	69.8	0.000916
520.01999	3.73361568	14.7607291	1.9973624	14.7	4605.5	4315.34713	70.5	70.3	69.2	69.8	0.000915
525.01999	3.75487486	14.7599794	1.99923872	14.6985	4595.75	4321.30652	70.6	70.3	69.2	69.8	0.000914
530.04999	3.75112324	14.7599794	1.99923872	14.697	4595.75	4320.80991	70.6	70.3	69.4	69.8	0.000915
535.01999	3.7373673	14.7607291	1.99611152	14.6985	4595.75	4303.42835	70.6	70.3	69.2	69.8	0.000915
540.01999	3.77175715	14.7607291	1.99673696	14.697	4596.25	4307.89789	70.6	70.3	69.2	69.8	0.000915
545.01999	3.78551308	14.7592298	1.99923872	14.69925	4605.75	4310.38097	70.6	70.3	69.2	69.8	0.000915
550.01999	3.7498727	14.7607291	1.99673696	14.69925	4606	4316.83698	70.6	70.3	69.2	69.8	0.000915
555.01999	3.74487054	14.7599794	1.9973624	14.6985	4606	4329.9973	70.6	70.3	69.1	69.8	0.000915
560.01999	3.74862216	14.7592298	1.99673696	14.6985	4605.5	4322.54806	70.6	70.3	69.3	69.8	0.000916
565.01999	3.74299473	14.7592298	1.99673696	14.697	4605.75	4319.56837	70.6	70.3	69.3	69.8	0.000915
570.01999	3.76800553	14.7599794	1.99673696	14.69925	4605.75	4321.05822	70.6	70.3	69.3	69.8	0.000915
575.01999	3.73299041	14.7607291	1.99798784	14.69625	4605.75	4321.55483	70.6	70.3	69.2	69.8	0.000915
580.01999	3.75174851	14.7599794	1.9973624	14.697	4607.75	4312.11913	70.6	70.3	69.2	69.8	0.000916
585.01999	3.74487054	14.7607291	1.9973624	14.6985	4616	4316.83698	70.6	70.3	69.2	69.8	0.000916
590.09	3.806147	14.7599794	1.99798784	14.697	4615.5	4319.32006	70.6	70.4	69.1	69.8	0.000915
595.09	3.73986838	14.7592298	1.9973624	14.6985	4616	4326.27268	70.5	70.3	69.2	69.8	0.000916
600.01999	3.74549581	14.7599794	1.99673696	14.6985	4606	4326.02438	70.5	70.4	69.2	69.8	0.000915
605.03	3.74487054	14.7592298	1.99798784	14.69625	4605.5	4337.94316	70.5	70.3	69.3	69.8	0.000916

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP (°F)	GAS INJECT TEMP (°F)	MAIN DUCT TEMP (°F)	WEC CELL TEMP (°F)	WEC CELL (VOLTS)
610.01999	3.74424527	14.7607291	1.9973624	14.6985	4606	4341.17116	70.5	70.4	69.3	69.8	0.000915
615.01999	3.74924743	14.7599794	1.99673696	14.697	4606	4334.71516	70.5	70.4	69.4	69.8	0.000915
620.06	3.7498727	14.7599794	1.9973624	14.6955	4605.75	4333.97023	70.5	70.4	69.4	69.8	0.000916
625.01999	3.7686308	14.7607291	1.99673696	14.69925	4605.5	4336.205	70.5	70.3	69.2	69.8	0.000917
630.01999	3.75362432	14.7584802	1.99673696	14.69625	4605.75	4319.32006	70.5	70.4	69.2	69.8	0.000916
635.03	3.75487486	14.7584802	1.9973624	14.69625	4615.5	4319.07175	70.5	70.4	69.3	69.8	0.000916
640.01999	3.7561254	14.7592298	1.99673696	14.6955	4616	4333.72192	70.5	70.4	69.3	69.8	0.000916
645.01999	3.74674635	14.7599794	1.9973624	14.6985	4606	4336.70162	70.5	70.4	69.3	69.8	0.000916
650.06	3.75237378	14.7592298	1.9973624	14.69625	4615.75	4341.66778	70.4	70.4	69.3	69.8	0.000917
655.01999	3.74924743	14.7584802	1.9973624	14.6985	4615.75	4347.13056	70.5	70.4	69.2	69.8	0.000917
660.01999	3.75550013	14.7584802	1.99798784	14.6985	4615.5	4341.66778	70.4	70.4	69.3	69.8	0.000917
665.03998	3.74737162	14.7599794	1.9973624	14.6985	4615.5	4326.52099	70.5	70.4	69.4	69.8	0.000917
670.01999	3.7811362	14.7592298	1.99488064	14.69925	4626	4321.55483	70.5	70.4	69.2	69.8	0.000918
675.01999	3.75550013	14.7599794	1.99488064	14.69925	4625.75	4325.77607	70.5	70.4	69.2	69.8	0.000918
680.01999	3.7561254	14.7599794	1.99488064	14.69625	4625.25	4331.48715	70.5	70.4	69.3	69.8	0.000918
685.01999	3.74862216	14.7599794	1.9973624	14.69625	4625.5	4323.04468	70.5	70.4	69.4	69.8	0.000918
690.01999	3.74111892	14.7599794	1.9973624	14.6985	4625.5	4330.74223	70.5	70.4	69.4	69.8	0.000918
695.03	3.74487054	14.7607291	1.9973624	14.69625	4625.5	4342.4127	70.5	70.4	69.3	69.8	0.000917
700.01999	3.7561254	14.7592298	1.99673696	14.69625	4626	4350.35856	70.5	70.4	69.3	69.8	0.000918
705.01999	3.73924311	14.7599794	1.9973624	14.697	4625.75	4339.68132	70.4	70.4	69.3	69.8	0.000918
710.03998	3.73924311	14.7592298	1.99798784	14.694	4626	4334.46685	70.3	70.4	69.3	69.8	0.000918
715.01999	3.73924311	14.7599794	1.99548608	14.69625	4615.75	4346.63394	70.3	70.4	69.3	69.8	0.000917
720.01999	3.74236946	14.7607291	1.99673696	14.6955	4615.75	4337.19824	70.3	70.5	69.2	69.8	0.000917
725.06	3.7561254	14.7592298	1.99673696	14.6985	4615.5	4335.21177	70.3	70.4	69.3	69.8	0.000918
730.01999	3.72548717	14.7607291	1.99488064	14.6955	4616	4339.43301	70.3	70.4	69.2	69.8	0.000917
735.01999	3.74549581	14.7599794	1.99488064	14.6955	4616	4352.09672	70.3	70.4	69.3	69.8	0.000918
740.03998	3.74049365	14.7599794	1.9973624	14.694	4615.25	4351.10348	70.3	70.4	69.4	69.8	0.000918
745.03	3.75800121	14.7592298	1.9973624	14.6955	4615.75	4347.13056	70.4	70.4	69.4	69.8	0.000917
750.01999	3.75800121	14.7592298	1.99673696	14.69625	4615.5	4351.35179	70.3	70.4	69.3	69.8	0.000917
755.01999	3.74487054	14.7599794	1.99673696	14.697	4616	4340.17793	70.4	70.4	69.2	69.8	0.000917
760.01999	3.74737162	14.7599794	1.99798784	14.69625	4625.75	4343.40594	70.4	70.5	69.3	69.8	0.000918
765.03	3.76988134	14.7599794	1.99488064	14.694	4625.5	4345.88902	70.4	70.4	69.1	69.8	0.000918
770.01999	3.74924743	14.7599794	1.99488064	14.697	4625.75	4340.17793	70.4	70.4	69.3	69.8	0.000918
775.01999	3.74111892	14.7592298	1.9942352	14.697	4625.75	4344.15086	70.4	70.5	69.3	69.8	0.000917
780.03998	3.77238242	14.7614787	1.99488064	14.69475	4625.75	4339.92962	70.4	70.5	69.1	69.8	0.000918
785.01999	3.73236514	14.7599794	1.9942352	14.697	4625.75	4333.97023	70.4	70.4	69.1	69.8	0.000919
790.01999	3.73486622	14.7614787	1.99488064	14.69775	4626	4336.205	70.4	70.5	69.2	69.8	0.000918
795.06	3.74111892	14.7599794	1.99673696	14.697	4625.75	4352.09672	70.5	70.4	69.2	69.8	0.000918
800.01999	3.74174419	14.7592298	1.99488064	14.69325	4625.75	4341.91609	70.5	70.5	69.1	69.8	0.000918
805.01999	3.75925175	14.7599794	1.9942352	14.697	4626	4345.14409	70.5	70.5	69.1	69.8	0.000919
810.04999	3.74924743	14.7577306	1.99548608	14.69625	4626	4337.94316	70.4	70.4	69.1	69.8	0.000918
815.01999	3.74924743	14.7584802	1.99673696	14.697	4625.75	4329.25238	70.2	70.5	69.2	69.8	0.000918

Flammable Gas Interlock Spoolpiece Testing

FGI22225.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP (°F)	GAS INJECT TEMP (°F)	MAIN DUCT TEMP (°F)	WEC CELL TEMP (°F)	WEC CELL (VOLTS)
820.01999	3.73861784	14.7599794	1.9973624	14.697	4625.75	4346.63394	70.1	70.5	69.3	69.8	0.000918
825.03998	3.73173987	14.7607291	1.99673696	14.6955	4625.75	4343.90255	70.2	70.5	69.2	69.8	0.000918
830.01999	3.73424095	14.7592298	1.9973624	14.69925	4625.75	4328.50746	70.2	70.4	69.1	69.8	0.000919
835.01999	3.73361568	14.7577306	1.9973624	14.697	4625.75	4325.27945	70.2	70.5	69.1	69.8	0.000919
840.03998	3.72861352	14.7577306	1.99673696	14.69625	4626	4328.01084	70.3	70.4	69.1	69.8	0.000918
845.03	3.73299041	14.7599794	1.99673696	14.697	4626	4342.1644	70.4	70.5	69.1	69.8	0.000919
850.01999	3.75550013	14.7607291	1.99673696	14.69625	4632.25	4346.88225	70.3	70.5	69.2	69.8	0.000919
855.03998	3.75299905	14.7614787	1.99673696	14.697	4635.75	4333.97023	70.3	70.5	69.3	69.8	0.00092
860.01999	3.74737162	14.7599794	1.9973624	14.69475	4635.25	4326.7693	70.4	70.5	69.3	69.8	0.000919
865.01999	3.74737162	14.7599794	1.99673696	14.697	4635.75	4330.24561	70.4	70.5	69.3	69.9	0.00092
870.03	3.74799689	14.7599794	1.9973624	14.69475	4636	4324.03791	70.4	70.5	69.2	69.8	0.00092
875.01999	3.76425391	14.7599794	1.99798784	14.694	4635.75	4338.68808	70.5	70.5	69.2	69.8	0.00092
880.01999	3.75800121	14.7607291	1.99548608	14.69475	4635.75	4343.15763	70.5	70.5	69.2	69.8	0.00092
885.01999	3.74924743	14.7599794	1.99611152	14.69475	4635.5	4333.47362	70.5	70.5	69.3	69.8	0.00092
890.01999	3.74549581	14.7599794	1.99488064	14.697	4635.5	4337.44654	70.4	70.5	69.2	69.8	0.000919
895.01999	3.74487054	14.7599794	1.9973624	14.69625	4635.5	4336.70162	70.5	70.5	69.2	69.8	0.000919
900.07001	3.75424959	14.7584802	1.99798784	14.697	4635.75	4348.3721	70.5	70.5	69.3	69.9	0.00092
905.01999	3.74737162	14.7592298	1.99488064	14.697	4635.5	4338.19147	70.6	70.5	69.2	69.8	0.000919
910.01999	3.76175283	14.7584802	1.99673696	14.697	4636	4325.77607	70.5	70.5	69.2	69.9	0.000921
915.01999	3.75925175	14.7599794	1.99548608	14.697	4635.75	4334.21854	70.5	70.5	69.2	69.8	0.000919
920.01999	3.73361568	14.7599794	1.9942352	14.69625	4636	4329.9973	70.5	70.5	69.2	69.8	0.00092
925.01999	3.74236946	14.7592298	1.9942352	14.69775	4635.75	4323.7896	70.5	70.5	69.3	69.9	0.000921
930.06	3.75550013	14.7599794	1.99548608	14.697	4635.5	4327.76253	70.5	70.5	69.2	69.8	0.00092
935.07001	3.75862648	14.7599794	1.9973624	14.69625	4635.75	4331.98377	70.6	70.5	69.2	69.8	0.00092
940.10001	3.7686308	14.7584802	1.9964432	16.593	4635.75	4348.6204	70.5	70.6	69.2	69.8	0.00092

TEST: FGI22226 22 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 4377ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.01001	3.768631	14.75998	0.654543	14.7225	41.2	-3.72222	70.5	70.1	69.2	69.8	0.000238
5.019989	3.748622	14.75548	1.977974	14.69325	41.1	-1.98406	70.6	70.1	69.3	69.9	0.000239
10.01999	3.773008	14.75698	1.978599	14.69325	121.375	1655.72	70.5	70.3	69.3	69.8	0.00027
15.01999	3.733616	14.75698	1.977974	14.69325	577.25	2999.315	70.4	70.3	69.3	69.9	0.000347
20.01999	3.752374	14.75623	1.978599	14.694	1182	3625.299	70.4	70.3	69.3	69.8	0.000436
25.01999	3.745496	14.75698	1.977974	14.694	1762.75	3877.58	70.5	70.2	69.2	69.8	0.000518
30.01999	3.744871	14.75848	1.977974	14.6955	2243	3973.675	70.5	70.2	69.2	69.8	0.000586
35.01999	3.762378	14.75773	1.977974	14.6925	2623	4036.994	70.5	70.2	69.3	69.8	0.000643
40.01999	3.760502	14.75623	1.979225	14.69325	2953.75	4074.24	70.5	70.2	69.3	69.8	0.000689
45.01999	3.762378	14.75998	1.980476	14.69325	3269.75	4084.917	70.5	70.2	69.3	69.8	0.000726
50.01999	3.759877	14.75623	1.981101	14.69325	3463.5	4108.755	70.5	70.2	69.2	69.8	0.000754
55.01999	3.744871	14.75773	1.981101	14.69325	3619.25	4131.599	70.5	70.2	69.2	69.8	0.000779
60.01999	3.749247	14.75548	1.979225	14.69325	3754.5	4154.444	70.6	70.2	69.3	69.8	0.000798
65.01999	3.759252	14.75698	1.97985	14.69325	3864	4198.394	70.6	70.2	69.3	69.8	0.000813
70.01999	3.752999	14.75698	1.97985	14.694	3964.5	4194.918	70.6	70.2	69.3	69.8	0.000826
75.13998	3.74362	14.75623	1.980476	14.69325	4044.25	4182.006	70.6	70.2	69.3	69.8	0.000836
80.01999	3.768631	14.75998	1.97985	14.69325	4104	4193.428	70.6	70.2	69.3	69.8	0.000845
85.01999	3.73299	14.75698	1.980476	14.69325	4154.75	4204.602	70.5	70.2	69.3	69.8	0.000852
90.01999	3.732365	14.75623	1.982352	14.69325	4194.75	4226.949	70.6	70.2	69.3	69.9	0.00086
95.01999	3.726112	14.75698	1.982352	14.69625	4234.5	4229.433	70.6	70.2	69.3	69.8	0.000864
100.02	3.745496	14.75623	1.981726	14.69325	4274.75	4234.647	70.7	70.2	69.3	69.8	0.000869
105.02	3.744871	14.75623	1.981726	14.694	4305	4240.11	70.7	70.2	69.4	69.9	0.000873
110.02	3.759252	14.75548	1.982352	14.69325	4324.75	4251.78	70.7	70.2	69.4	69.8	0.000876
115.02	3.72111	14.75623	1.981726	14.694	4345	4257.988	70.7	70.2	69.4	69.9	0.00088
120.02	3.756125	14.75998	1.981726	14.697	4365.25	4267.92	70.8	70.1	69.3	69.8	0.000882
125.05	3.73174	14.75773	1.982352	14.69325	4385.25	4274.376	70.7	70.1	69.3	69.8	0.000885
130.02	3.730489	14.75773	1.981726	14.697	4395	4283.564	70.7	70.1	69.3	69.8	0.000886
135.02	3.751749	14.75623	1.981726	14.694	4415.25	4274.376	70.7	70.1	69.3	69.7	0.000888
140.02	3.742995	14.75548	1.983603	14.69325	4424.5	4279.591	70.7	70.1	69.3	69.8	0.00089
145.02	3.762378	14.75773	1.984228	14.69325	4435.25	4289.523	70.7	70.1	69.3	69.7	0.000892

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.01001	3.768631	14.75998	0.654543	14.7225	41.2	-3.72222	70.5	70.1	69.2	69.8	0.000238
150.02	3.751749	14.75548	1.982977	14.69325	4445	4290.516	70.7	70.1	69.3	69.8	0.000893
155.02	3.739243	14.75623	1.983603	14.694	4454.75	4287.785	70.7	70.1	69.2	69.8	0.000894
160.02	3.736742	14.75923	1.984228	14.694	4465.25	4289.523	70.8	70.1	69.2	69.8	0.000895
165.02	3.749247	14.75623	1.984228	14.694	4475	4282.074	70.7	70.1	69.2	69.9	0.000897
170.02	3.734866	14.75623	1.984854	14.69325	4475.25	4278.101	70.8	70.1	69.3	69.8	0.000897
175.02	3.732365	14.75623	1.984228	14.69475	4485.25	4294.986	70.8	70.1	69.4	69.9	0.000898
180.02	3.753624	14.75623	1.984854	14.69325	4494.5	4284.805	70.8	70.1	69.5	69.8	0.0009
185.02	3.761753	14.75473	1.984228	14.694	4495.25	4294.241	70.8	70.1	69.4	69.8	0.0009
190.02	3.750498	14.75698	1.983603	14.694	4505.25	4303.677	70.8	70.1	69.3	69.8	0.000901
195.02	3.747997	14.75698	1.983603	14.69325	4505.75	4306.905	70.8	70.1	69.4	69.8	0.000901
200.02	3.764879	14.75623	1.984228	14.69325	4515.25	4313.361	70.8	70.1	69.4	69.8	0.000903
205.02	3.734241	14.75698	1.984228	14.694	4515.75	4309.884	70.8	70.1	69.3	69.8	0.000904
210.02	3.739243	14.75623	1.983603	14.69475	4525.5	4307.65	70.8	70.1	69.2	69.8	0.000903
215.02	3.744871	14.75698	1.984854	14.694	4525.25	4308.146	70.8	70.1	69.3	69.8	0.000904
220.02	3.761753	14.75698	1.984228	14.694	4535.5	4305.911	70.8	70.1	69.3	69.8	0.000905
225.02	3.742369	14.75623	1.984228	14.69325	4535.25	4310.878	70.8	70.1	69.4	69.8	0.000907
230.02	3.740494	14.75698	1.983603	14.69325	4545.5	4315.099	70.8	70.1	69.4	69.8	0.000905
235.02	3.736742	14.75773	1.984854	14.69325	4545.25	4318.823	70.7	70.1	69.4	69.8	0.000907
240.02	3.749247	14.75848	1.983603	14.69325	4545	4306.408	70.8	70.1	69.3	69.8	0.000908
245.02	3.756751	14.75773	1.984228	14.694	4545.75	4309.884	70.8	70.1	69.4	69.8	0.000907
250.02	3.741119	14.75623	1.984854	14.694	4545.5	4317.83	70.8	70.1	69.4	69.8	0.000908
255.02	3.768631	14.75698	1.983603	14.69475	4555.5	4322.548	70.8	70.1	69.4	69.8	0.000908
260.02	3.746121	14.75773	1.984854	14.69475	4555.5	4327.266	70.8	70.1	69.4	69.8	0.000909
265.02	3.745496	14.75773	1.984228	14.69325	4565.5	4331.487	70.8	70.1	69.4	69.8	0.00091
270.02	3.752999	14.75773	1.984854	14.694	4564.75	4331.239	70.8	70.1	69.4	69.8	0.00091
275.03	3.76613	14.75923	1.984854	14.69475	4565	4327.018	70.8	70.1	69.3	69.8	0.000909
280.02	3.744871	14.75773	1.984854	14.694	4575.5	4325.776	70.8	70.1	69.3	69.8	0.00091
285.02	3.741119	14.75698	1.985479	14.694	4575.5	4320.81	70.8	70.1	69.4	69.8	0.00091
290.02	3.739243	14.75848	1.984854	14.69475	4575.75	4320.313	70.7	70.1	69.3	69.8	0.00091
295.03	3.7555	14.75548	1.984228	14.694	4575.75	4318.823	70.7	70.1	69.2	69.8	0.00091
300.02	3.737993	14.75698	1.984228	14.694	4575.25	4323.045	70.6	70.1	69.3	69.8	0.000911
305.02	3.769256	14.75548	1.984228	14.694	4575.5	4334.963	70.7	70.1	69.3	69.8	0.000912
310.03	3.747372	14.75548	1.984854	14.694	4575.75	4330.742	70.6	70.1	69.3	69.9	0.000911

SECONDS	MAIN DUCT	MAIN DUCT	GAS INJECT	GAS INJECT	NEWPORT	SMC	AMBIENT	GAS INJECT	MAIN DUCT	WEC CELL	WEC CELL
	DIFF (IN H2O)	ABS (PSIA)	DIFF (IN H2O)	ABS (PSIA)	(PPM)	(PPM)	TEMP.(F)	TEMP. (F)	TEMP. (F)	TEMP. (F)	(VOLTS)
0.01001	3.768631	14.75998	0.654543	14.7225	41.2	-3.72222	70.5	70.1	69.2	69.8	0.000238
315.02	3.7555	14.75548	1.984228	14.69475	4585.25	4323.293	70.6	70.1	69.3	69.8	0.000911
320.02	3.758001	14.75548	1.986104	14.694	4586	4322.548	70.6	70.1	69.2	69.8	0.000912
325.02	3.744871	14.75623	1.984228	14.69475	4586	4328.011	70.5	70.1	69.2	69.9	0.000912
330.02	3.759877	14.75773	1.986104	14.694	4585.5	4320.313	70.5	70.1	69.2	69.8	0.000912
335.04	3.7555	14.75698	1.98673	14.694	4585.75	4317.582	70.4	70.1	69.3	69.8	0.000912
340.04	3.744871	14.75698	1.985479	14.694	4586	4327.266	70.3	70.1	69.3	69.9	0.000912
345.02	3.753624	14.75623	1.98673	14.694	4585	4311.623	70.3	70.1	69.2	69.8	0.000913
350.09	3.742369	14.75623	1.987355	14.69325	4585.5	4312.616	70.3	70.1	69.3	69.9	0.000913
355.02	3.756125	14.75698	1.98673	14.69325	4585.75	4314.851	70.3	70.1	69.3	69.8	0.000913
360.02	3.756125	14.75698	1.98673	14.69325	4595.25	4320.81	70.5	70.1	69.3	69.8	0.000914
365.02	3.744871	14.75623	1.986104	14.694	4595.75	4322.796	70.5	70.1	69.3	69.8	0.000913
370.02	3.749247	14.75698	1.987355	14.694	4595.5	4322.548	70.6	70.1	69.3	69.8	0.000914
375.02	3.740494	14.75698	1.98673	14.69325	4595.25	4324.038	70.6	70.1	69.4	69.8	0.000914
380.02	3.778635	14.75773	1.98673	14.69325	4595.75	4323.541	70.5	70.1	69.4	69.8	0.000914
385.02	3.737367	14.75623	1.988606	14.694	4605.75	4308.146	70.6	70.1	69.4	69.8	0.000914
390.04	3.745496	14.75698	1.988606	14.694	4605.75	4310.133	70.7	70.1	69.4	69.8	0.000914
395.02	3.749247	14.75773	1.989232	14.69475	4605.5	4326.273	70.6	70.1	69.4	69.8	0.000915
400.02	3.751123	14.75548	1.986104	14.69325	4605.5	4332.48	70.7	70.2	69.3	69.8	0.000915
405.02	3.748622	14.75698	1.98673	14.694	4605.5	4330.742	70.6	70.1	69.4	69.9	0.000914
410.03	3.754875	14.75623	1.988606	14.69325	4606	4321.307	70.5	70.1	69.4	69.8	0.000914
415.02	3.753624	14.75698	1.988606	14.694	4606	4313.112	70.5	70.1	69.4	69.9	0.000915
420.03	3.751749	14.75548	1.987355	14.69325	4605.25	4321.058	70.5	70.1	69.5	69.9	0.000915
425.02	3.774884	14.75548	1.988606	14.694	4605.5	4328.756	70.6	70.1	69.5	69.8	0.000915
430.1	3.791766	14.75698	1.988606	14.694	4605.75	4319.072	70.6	70.1	69.3	69.8	0.000915
435.02	3.758001	14.75623	1.989232	14.694	4605.5	4308.891	70.6	70.1	69.5	69.8	0.000916
440.05	3.76813	14.75548	1.988606	14.694	4605.25	4312.119	70.6	70.1	69.4	69.9	0.000915
445.02	3.753624	14.75623	1.989232	14.694	4606	4317.085	70.7	70.1	69.4	69.8	0.000916
450.09	3.749873	14.75623	1.987355	14.69025	4605	4316.837	70.8	70.1	69.4	69.9	0.000917
455.02	3.739243	14.75623	1.988606	14.69325	4605.75	4315.347	70.8	70.1	69.4	69.9	0.000916
460.02	3.746121	14.75698	1.989232	14.694	4605.75	4317.085	70.8	70.1	69.4	69.8	0.000916
465.02	3.7555	14.75773	1.987981	14.691	4615.5	4316.099	70.9	70.2	69.4	69.8	0.000916
470.02	3.756125	14.75623	1.987981	14.69325	4616	4305.167	70.9	70.1	69.5	69.9	0.000918
475.02	3.74362	14.75623	1.987981	14.69175	4616	4304.173	70.9	70.1	69.4	69.9	0.000918

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.01001	3.768631	14.75998	0.654543	14.7225	41.2	-3.72222	70.5	70.1	69.2	69.8	0.000238
480.02	3.747997	14.75773	1.987981	14.694	4616	4305.663	70.9	70.1	69.4	69.9	0.000918
485.02	3.744871	14.75773	1.987981	14.69325	4616	4311.126	70.8	70.1	69.4	69.9	0.000917
490.02	3.738618	14.75398	1.987981	14.6925	4615.75	4310.629	70.8	70.1	69.5	69.8	0.000918
495.02	3.764254	14.75698	1.988606	14.69175	4615.5	4320.065	70.8	70.1	69.5	69.9	0.000917
500.02	3.766755	14.75698	1.987981	14.6925	4615.75	4334.467	70.8	70.1	69.5	69.9	0.000916
505.02	3.746746	14.75848	1.988606	14.69475	4615.25	4324.783	70.8	70.1	69.5	69.9	0.000917
510.06	3.74362	14.75623	1.989232	14.6925	4616	4314.602	70.7	70.1	69.5	69.9	0.000916
515.02	3.739243	14.75623	1.987981	14.69175	4615.75	4320.065	70.6	70.1	69.4	69.9	0.000917
520.02	3.732365	14.75698	1.989857	14.69475	4615.25	4323.79	70.6	70.1	69.4	69.9	0.000917
525.03	3.744871	14.75848	1.989232	14.69475	4615.5	4315.844	70.6	70.1	69.2	69.8	0.000916
530.02	3.765504	14.75698	1.988606	14.69175	4615.75	4317.83	70.7	70.1	69.3	69.9	0.000917
535.02	3.747372	14.75773	1.987981	14.691	4615.25	4318.079	70.7	70.1	69.4	69.9	0.000916
540.09	3.749873	14.75698	1.988606	14.691	4615.5	4320.562	70.7	70.1	69.5	69.9	0.000916
545.05	3.746121	14.75698	1.987981	14.69325	4615.75	4310.381	70.7	70.1	69.4	69.9	0.000917
550.02	3.73299	14.75773	1.988606	14.691	4615.25	4324.286	70.6	70.1	69.5	69.9	0.000917
555.05	3.766755	14.75698	1.988606	14.691	4615.75	4322.051	70.6	70.1	69.4	69.9	0.000917
560.02	3.744871	14.75848	1.989232	14.69175	4616	4314.602	70.6	70.1	69.4	69.9	0.000918
565.02	3.741119	14.75623	1.988606	14.694	4615.75	4316.837	70.6	70.2	69.4	69.9	0.000919
570.02	3.741119	14.75623	1.991108	14.691	4626	4317.334	70.6	70.1	69.4	69.8	0.000918
575.02	3.744871	14.75623	1.990483	14.69325	4625.5	4312.119	70.7	70.1	69.3	69.8	0.000917
580.02	3.744871	14.75623	1.990483	14.69175	4625.5	4313.361	70.7	70.1	69.2	69.8	0.000919
585.04	3.736742	14.75548	1.991108	14.69475	4625.5	4311.871	70.7	70.1	69.4	69.9	0.000919
590.06	3.745496	14.75548	1.989232	14.691	4625.5	4312.119	70.8	70.1	69.4	69.8	0.000919
595.02	3.751123	14.75698	1.989232	14.694	4626	4302.932	70.7	70.2	69.5	69.9	0.000919
600.02	3.739243	14.75548	1.988606	14.69475	4636	4289.026	70.7	70.2	69.5	69.9	0.000919
605.02	3.744871	14.75698	1.988606	14.691	4635.75	4294.986	70.7	70.1	69.5	69.9	0.000919
610.02	3.749873	14.75773	1.988606	14.694	4635.5	4292.503	70.7	70.1	69.4	69.8	0.000918
615.02	3.784888	14.75623	1.988606	14.691	4635.5	4300.2	70.6	70.1	69.4	69.8	0.000919
620.02	3.738618	14.75623	1.988606	14.69025	4635.5	4309.139	70.6	70.2	69.4	69.9	0.00092
625.02	3.749247	14.75548	1.987981	14.69325	4635.25	4308.146	70.6	70.2	69.4	69.9	0.00092
630.02	3.73299	14.75548	1.990483	14.691	4635.75	4316.589	70.6	70.2	69.3	69.8	0.000921
635.02	3.759252	14.75623	1.988606	14.691	4635.75	4304.67	70.6	70.1	69.3	69.9	0.00092
640.02	3.739243	14.75623	1.989232	14.691	4635.25	4305.167	70.5	70.2	69.2	69.9	0.00092

SECONDS	MAIN DUCT	MAIN DUCT	GAS INJECT	GAS INJECT	NEWPORT	SMC	AMBIENT	GAS INJECT	MAIN DUCT	WEC CELL	WEC CELL
	DIFF (IN H2O)	ABS (PSIA)	DIFF (IN H2O)	ABS (PSIA)	(PPM)	(PPM)	TEMP.(F)	TEMP. (F)	TEMP. (F)	TEMP. (F)	(VOLTS)
0.01001	3.768631	14.75998	0.654543	14.7225	41.2	-3.72222	70.5	70.1	69.2	69.8	0.000238
645.02	3.758001	14.75698	1.991108	14.69175	4635.5	4320.81	70.4	70.1	69.3	69.9	0.000921
650.02	3.733616	14.75698	1.990483	14.69325	4635.75	4327.763	70.6	70.1	69.3	69.9	0.00092
655.02	3.747372	14.75773	1.990483	14.691	4635.25	4327.018	70.5	70.1	69.4	69.9	0.00092
660.05	3.749873	14.75698	1.990483	14.691	4635.75	4324.783	70.6	70.2	69.3	69.9	0.00092
665.02	3.723611	14.75698	1.991733	14.69325	4635.5	4311.623	70.6	70.1	69.4	69.9	0.00092
670.02	3.747372	14.75548	1.991733	14.69175	4635.25	4314.354	70.6	70.2	69.4	69.9	0.000921
675.03	3.751749	14.75623	1.991108	14.691	4635.5	4306.408	70.7	70.2	69.4	69.9	0.000921
680.02	3.736117	14.75323	1.991733	14.69175	4635.5	4299.952	70.7	70.1	69.4	69.9	0.000919
685.02	3.729864	14.75623	1.991733	14.694	4635.5	4301.69	70.7	70.2	69.4	69.9	0.00092
690.02	3.744245	14.75623	1.991108	14.69025	4636	4287.288	70.7	70.1	69.4	69.9	0.000919
695.08	3.760502	14.75548	1.990483	14.69025	4635.5	4302.683	70.7	70.2	69.4	69.9	0.00092
700.02	3.744871	14.75623	1.991108	14.691	4635.75	4311.623	70.7	70.2	69.4	69.9	0.000919
705.06	3.744871	14.75698	1.991108	14.694	4635.5	4305.663	70.7	70.2	69.3	69.9	0.00092
710.02	3.737983	14.75548	1.991108	14.69325	4635.75	4310.629	70.7	70.2	69.2	69.8	0.000921
715.02	3.749247	14.75548	1.991108	14.691	4635.5	4309.388	70.7	70.2	69.2	69.8	0.000921
720.03	3.753624	14.75473	1.991108	14.691	4646.25	4300.945	70.7	70.2	69.4	69.8	0.000921
725.02	3.741119	14.75548	1.992984	14.691	4646	4293.744	70.8	70.2	69.4	69.9	0.000921
730.02	3.747997	14.75623	1.991733	14.691	4646	4294.489	70.7	70.2	69.4	69.8	0.000921
735.05	3.764879	14.75698	1.992984	14.69025	4646	4296.227	70.7	70.1	69.4	69.9	0.000921
740.09	3.742369	14.75623	1.991108	14.69175	4646	4311.126	70.7	70.1	69.3	69.9	0.00092
745.02	3.749873	14.75623	1.99361	14.691	4646	4313.857	70.7	70.2	69.3	69.9	0.000921
750.02	3.747372	14.75698	1.991108	14.69175	4646	4303.677	70.7	70.1	69.3	69.8	0.000921
755.02	3.744871	14.75623	1.991733	14.691	4646	4294.241	70.7	70.1	69.3	69.8	0.000921
760.02	3.744245	14.75698	1.990483	14.691	4645.75	4297.221	70.7	70.1	69.3	69.9	0.000921
765.02	3.747997	14.75698	1.991733	14.691	4646	4301.194	70.7	70.2	69.3	69.8	0.000921
770.03	3.749873	14.75698	1.991733	14.691	4646	4310.878	70.7	70.2	69.4	69.9	0.000921
775.02	3.7555	14.75773	1.992359	14.691	4645.25	4306.656	70.6	70.1	69.5	69.9	0.00092
780.02	3.770507	14.75698	1.991108	14.691	4646	4315.099	70.6	70.2	69.4	69.9	0.000921
785.07	3.730489	14.75548	1.991733	14.691	4645.75	4321.555	70.4	70.2	69.4	69.8	0.000921
790.09	3.742995	14.75773	1.991108	14.691	4646.25	4312.616	70.5	70.1	69.3	69.9	0.000923
795.02	3.739868	14.75773	1.992984	14.691	4646	4303.428	70.6	70.2	69.3	69.9	0.000921
800.03	3.746121	14.75698	1.992984	14.69175	4645.75	4306.656	70.5	70.2	69.2	69.8	0.00092
805.02	3.759877	14.75773	1.992359	14.69175	4646	4297.221	70.5	70.2	69.3	69.9	0.000921

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.01001	3.768631	14.75998	0.654543	14.7225	41.2	-3.72222	70.5	70.1	69.2	69.8	0.000238
810.02	3.741744	14.75773	1.992984	14.69175	4645.75	4298.214	70.4	70.2	69.2	69.9	0.00092
815.02	3.73174	14.75848	1.99361	14.691	4646	4301.194	70.5	70.2	69.3	69.9	0.000921
820.02	3.747997	14.75398	1.99361	14.6925	4645.75	4306.905	70.5	70.2	69.4	69.8	0.000921
825.02	3.751749	14.75548	1.992984	14.69175	4646	4303.677	70.5	70.2	69.4	69.8	0.000921
830.03	3.738618	14.75623	1.991733	14.69175	4646	4305.167	70.6	70.2	69.4	69.8	0.000922
835.02	3.740494	14.75473	1.991108	14.69175	4645.5	4303.428	70.6	70.2	69.4	69.8	0.000922
840.02	3.749873	14.75548	1.991733	14.69175	4646	4294.241	70.6	70.2	69.4	69.8	0.000922
845.06	3.759877	14.75698	1.992984	14.691	4646	4292.999	70.6	70.2	69.4	69.8	0.000922
850.02	3.749247	14.75698	1.99361	14.691	4646.25	4286.792	70.5	70.1	69.4	69.9	0.000921
855.02	3.744871	14.75623	1.99361	14.691	4645.75	4292.999	70.5	70.2	69.3	69.9	0.000922
860.02	3.746746	14.75698	1.992984	14.694	4645.75	4301.69	70.6	70.2	69.5	69.8	0.000922
865.02	3.744871	14.75773	1.994235	14.69175	4656.25	4301.69	70.6	70.2	69.4	69.8	0.000922
870.02	3.761753	14.75773	1.992984	14.69175	4655.75	4278.101	70.5	70.2	69.4	69.8	0.000922
875.04	3.756125	14.75698	1.992984	14.69175	4655.5	4287.785	70.5	70.2	69.3	69.8	0.000923
880.02	3.751123	14.75698	1.992984	14.69175	4655.75	4289.771	70.5	70.2	69.4	69.8	0.000922
885.02	3.747997	14.75398	1.992984	14.69175	4656	4294.738	70.5	70.2	69.5	69.9	0.000922
890.05	3.737993	14.75698	1.992984	14.69175	4656.25	4290.765	70.5	70.2	69.4	69.9	0.000922
895.09	3.740494	14.75548	1.992984	14.691	4656.25	4296.227	70.5	70.2	69.4	69.9	0.000923
900.02	3.742369	14.75773	1.992984	14.69175	4656	4303.925	70.5	70.2	69.3	69.8	0.000921
905.06	3.742995	14.75848	1.992984	14.69175	4656.25	4306.905	70.6	70.2	69.4	69.8	0.000923
910.07	3.738618	14.75773	1.99361	14.691	4656	4311.623	70.5	70.2	69.2	69.9	0.000923
915.02	3.749247	14.75698	1.99361	14.69175	4656	4300.945	70.6	70.2	69.3	69.9	0.000923
920.02	3.758001	14.75698	1.992984	14.69175	4655.5	4308.146	70.5	70.2	69.3	69.9	0.000922
925.02	3.736742	14.75923	1.99361	14.69175	4655.75	4312.367	70.6	70.2	69.4	69.9	0.000922
930.17	3.737993	14.75473	1.992359	14.69175	4656.25	4319.072	70.6	70.2	69.2	69.8	0.000922
935.02	3.749247	14.75698	1.992984	14.69175	4655.75	4311.374	70.6	70.2	69.4	69.8	0.000922

TEST: FGI22227 22 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 6432ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.009979	3.746746	14.75398	0.217298	14.655	51.225	~3.2493	70.4	69.9	69.5	69.8	0.00024
5.019989	3.737993	14.75548	2.961165	14.7585	51.35	10.18303	70.5	69.9	69.4	69.8	0.000241
10.01999	3.7555	14.75473	2.958664	14.75925	200.575	2399.899	70.4	69.9	69.5	69.8	0.000286
15.01999	3.764254	14.75473	2.959289	14.7585	882.5	4415.415	70.5	69.9	69.5	69.8	0.000399
20.01999	3.725487	14.75473	2.961165	14.7585	1773.25	5366.683	70.5	69.9	69.5	69.9	0.000533
25.01999	3.739868	14.75473	2.963042	14.76	2573.25	5748.084	70.6	69.9	69.4	69.8	0.000654
30.01999	3.759877	14.75473	2.962416	14.7585	3344.75	5919.417	70.6	69.9	69.4	69.8	0.000757
35.01999	3.73299	14.75548	2.966794	14.75925	3942.5	5988.695	70.6	69.9	69.4	69.8	0.000841
40.01999	3.724237	14.75398	2.966169	14.7585	4374.25	6074.609	70.7	69.9	69.4	69.8	0.000908
45.01999	3.786764	14.75398	2.966169	14.75925	4803.75	6112.6	70.6	69.9	69.4	69.8	0.000962
50.01999	3.742369	14.75323	2.96742	14.75925	5135	6133.458	70.6	69.9	69.3	69.8	0.001006
55.01999	3.747372	14.75473	2.968045	14.7585	5365.5	6169.463	70.6	69.9	69.4	69.8	0.001042
60.01999	3.744871	14.75398	2.968671	14.75925	5575.5	6186.845	70.7	69.9	69.3	69.8	0.001069
65.01999	3.732365	14.75248	2.968671	14.7585	5745.75	6188.334	70.7	69.9	69.4	69.8	0.001092
70.01999	3.749247	14.75323	2.968671	14.75925	5865.75	6222.104	70.7	69.9	69.3	69.8	0.001111
75.01999	3.742995	14.75398	2.968671	14.7585	5965.75	6248.177	70.7	70	69.4	69.8	0.001127
80.01999	3.745496	14.75398	2.969922	14.75925	6066	6253.143	70.7	70	69.4	69.8	0.001139
85.01999	3.751123	14.75323	2.970547	14.75775	6146.25	6286.913	70.7	70	69.5	69.8	0.00115
90.01999	3.721736	14.75398	2.971172	14.7585	6206.25	6309.509	70.7	70	69.5	69.8	0.001159
95.01999	3.7555	14.75473	2.970547	14.75925	6266.25	6319.193	70.6	70	69.5	69.8	0.001167
100.02	3.747372	14.75398	2.970547	14.7585	6316.5	6325.649	70.6	70	69.3	69.8	0.001174
105.02	3.736742	14.75548	2.971172	14.7585	6366.25	6318.448	70.7	70	69.4	69.8	0.001179
110.02	3.717359	14.75398	2.971172	14.7585	6396.5	6340.051	70.7	70	69.4	69.8	0.001185
115.02	3.73299	14.75398	2.971172	14.7585	6436.75	6362.15	70.7	70	69.4	69.8	0.00119
120.02	3.757376	14.75173	2.971172	14.75925	6466.5	6373.324	70.7	70	69.3	69.8	0.001194
125.02	3.732365	14.75473	2.969296	14.75925	6497	6375.807	70.7	70	69.3	69.8	0.001198
130.02	3.749247	14.75323	2.970547	14.76	6506.5	6395.672	70.7	70	69.4	69.8	0.001201
135.02	3.744871	14.75323	2.968671	14.7585	6526.5	6383.504	70.6	70.1	69.6	69.8	0.001203
140.02	3.737993	14.75323	2.970547	14.76	6555.5	6378.042	70.7	70.1	69.4	69.8	0.001205
145.02	3.745496	14.75398	2.971172	14.76	6576.75	6347.996	70.7	70.1	69.5	69.8	0.001209

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.009979	3.746746	14.75398	0.217298	14.655	51.225	-3.32493	70.4	69.9	69.5	69.8	0.00024
150.02	3.751749	14.75398	2.971798	14.7585	6586.25	6379.532	70.7	70.1	69.4	69.8	0.001211
155.02	3.749247	14.75623	2.971172	14.76	6596.75	6404.859	70.7	70.1	69.6	69.8	0.001213
160.02	3.734866	14.75548	2.968045	14.7585	6607	6401.631	70.7	70.1	69.6	69.9	0.001214
165.02	3.732365	14.75473	2.970547	14.75925	6617	6394.678	70.6	70.1	69.6	69.8	0.001216
170.02	3.749247	14.75623	2.968671	14.75925	6635.75	6410.073	70.7	70.1	69.6	69.8	0.001219
175.02	3.736742	14.75398	2.969296	14.75925	6647.25	6397.41	70.6	70.1	69.4	69.8	0.00122
180.02	3.729864	14.75398	2.969922	14.75925	6656.75	6405.107	70.7	70.2	69.5	69.8	0.001221
185.02	3.74362	14.75473	2.969296	14.75925	6667	6424.724	70.7	70.2	69.4	69.8	0.001223
190.02	3.726112	14.75398	2.969296	14.75925	6667.25	6442.85	70.7	70.2	69.3	69.8	0.001224
195.02	3.73174	14.75473	2.969296	14.7585	6677	6447.568	70.7	70.2	69.4	69.8	0.001224
200.02	3.747997	14.75323	2.968671	14.75925	6687	6450.299	70.7	70.2	69.3	69.8	0.001226
205.02	3.728614	14.75473	2.96742	14.75925	6687.25	6457.997	70.8	70.2	69.4	69.9	0.001226
210.02	3.734866	14.75548	2.968045	14.75925	6687.25	6417.771	70.8	70.2	69.3	69.8	0.001226
215.02	3.738618	14.75623	2.968671	14.7585	6697.25	6441.112	70.8	70.2	69.3	69.8	0.001227
220.02	3.747997	14.75398	2.969296	14.75925	6697.25	6443.595	70.7	70.2	69.4	69.9	0.001227
225.02	3.744245	14.75398	2.966169	14.75925	6707	6432.421	70.7	70.2	69.4	69.9	0.001228
230.02	3.732365	14.75398	2.966794	14.75925	6707.25	6440.615	70.8	70.3	69.5	69.8	0.001229
235.02	3.73299	14.75398	2.96742	14.75925	6707.5	6456.755	70.8	70.3	69.5	69.9	0.001229
240.02	3.726738	14.75398	2.96742	14.75925	6717.25	6461.225	70.8	70.3	69.5	69.9	0.001231
245.02	3.732365	14.75473	2.966169	14.76	6727.5	6462.466	70.9	70.3	69.3	69.8	0.001232
250.02	3.741119	14.75398	2.96742	14.7585	6727	6474.882	70.8	70.3	69.4	69.8	0.001232
255.02	3.741744	14.75473	2.96742	14.75925	6737.25	6497.478	70.8	70.3	69.4	69.8	0.001233
260.02	3.754875	14.75398	2.966169	14.76	6737.25	6486.304	70.8	70.3	69.4	69.8	0.001234
265.02	3.734241	14.75473	2.966794	14.75925	6747	6477.117	70.9	70.3	69.3	69.8	0.001234
270.02	3.741119	14.75548	2.966794	14.7585	6747.5	6466.688	70.9	70.3	69.4	69.8	0.001233
275.02	3.749247	14.75398	2.966169	14.75925	6747.25	6481.338	70.8	70.3	69.3	69.8	0.001234
280.02	3.738618	14.75473	2.966169	14.75925	6747	6473.392	70.8	70.3	69.4	69.8	0.001235
285.04	3.726112	14.75548	2.966169	14.75925	6747	6486.056	70.8	70.4	69.4	69.9	0.001235
290.04	3.747372	14.75398	2.966794	14.75925	6757.5	6474.634	70.8	70.4	69.3	69.8	0.001234
295.02	3.727988	14.75473	2.966794	14.75925	6757.75	6487.546	70.8	70.4	69.4	69.8	0.001236
300.02	3.736117	14.75548	2.96742	14.75925	6766.25	6508.403	70.8	70.4	69.4	69.8	0.001237
305.03	3.741119	14.75398	2.96742	14.75925	6767.5	6498.719	70.8	70.4	69.3	69.8	0.001237
310.02	3.753624	14.75398	2.966794	14.75925	6767	6489.035	70.8	70.4	69.4	69.9	0.001238

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.009979	3.746746	14.75398	0.217298	14.655	51.225	-3.32493	70.4	69.9	69.5	69.8	0.00024
315.02	3.734866	14.75473	2.966794	14.7585	6777.25	6476.123	70.8	70.4	69.4	69.8	0.001239
320.02	3.738618	14.75473	2.966794	14.7585	6778	6477.117	70.8	70.4	69.3	69.9	0.001238
325.02	3.741744	14.75398	2.96742	14.76	6777	6473.392	70.8	70.4	69.4	69.9	0.001239
330.02	3.763629	14.75473	2.966794	14.7585	6778	6473.64	70.8	70.4	69.3	69.9	0.001239
335.04	3.749873	14.75248	2.968045	14.75925	6787.75	6483.076	70.8	70.4	69.4	69.9	0.00124
340.02	3.734241	14.75473	2.966169	14.75925	6787.5	6503.437	70.8	70.4	69.5	69.8	0.001241
345.02	3.744871	14.75548	2.966794	14.75925	6787.5	6501.202	70.9	70.4	69.5	69.9	0.001241
350.02	3.746121	14.75548	2.966169	14.75925	6797.5	6499.713	70.9	70.4	69.4	69.8	0.001241
355.02	3.737993	14.75398	2.966794	14.75925	6798	6506.665	70.9	70.4	69.5	69.8	0.001241
360.02	3.75425	14.75548	2.966794	14.75925	6797.25	6480.841	70.9	70.4	69.4	69.9	0.001242
365.02	3.749247	14.75548	2.96742	14.75925	6808	6501.699	70.8	70.5	69.4	69.8	0.001242
370.02	3.732365	14.75548	2.96742	14.7585	6807.5	6459.238	70.6	70.4	69.2	69.8	0.001243
375.02	3.741119	14.75473	2.966169	14.7585	6807.25	6465.694	70.6	70.4	69.2	69.8	0.001242
380.02	3.747372	14.75473	2.96742	14.76	6807.5	6468.922	70.6	70.4	69.2	69.9	0.001243
385.02	3.739868	14.75398	2.966794	14.75925	6807.5	6475.875	70.6	70.5	69.2	69.9	0.001243
390.02	3.733616	14.75473	2.966169	14.75925	6817.75	6502.196	70.6	70.5	69.3	69.9	0.001244
395.02	3.747372	14.75473	2.966794	14.75925	6817.75	6514.859	70.6	70.5	69.4	69.9	0.001245
400.02	3.736742	14.75398	2.966794	14.7585	6817.75	6516.846	70.5	70.5	69.4	69.9	0.001245
405.05	3.756751	14.75548	2.966169	14.75925	6822	6516.598	70.6	70.5	69.3	69.9	0.001245
410.02	3.734241	14.75248	2.966169	14.7585	6828	6514.859	70.7	70.5	69.4	69.8	0.001245
415.02	3.746746	14.75398	2.965544	14.75925	6817.75	6502.444	70.8	70.5	69.5	69.9	0.001244
420.02	3.752374	14.75398	2.966794	14.75775	6827.25	6511.135	70.8	70.5	69.3	69.8	0.001245
425.02	3.738618	14.75473	2.966169	14.75925	6827.75	6512.625	70.8	70.5	69.4	69.9	0.001245
430.02	3.741119	14.75473	2.964293	14.75925	6828	6505.175	70.8	70.5	69.3	69.8	0.001245
435.02	3.749873	14.75548	2.965544	14.75925	6827.75	6496.733	70.8	70.5	69.3	69.8	0.001245
440.02	3.7555	14.75473	2.966169	14.7585	6827.25	6504.182	70.7	70.5	69.4	69.9	0.001245
445.04	3.751123	14.75623	2.966169	14.75925	6827.75	6519.577	70.8	70.5	69.4	69.8	0.001245
450.02	3.741119	14.75473	2.966794	14.7585	6827.75	6498.968	70.8	70.6	69.4	69.9	0.001245
455.06	3.738618	14.75623	2.966169	14.7585	6828	6477.117	70.8	70.6	69.4	69.9	0.001245
460.02	3.744871	14.75548	2.965544	14.75925	6828.25	6491.022	70.7	70.5	69.5	69.9	0.001247
465.02	3.751749	14.75473	2.963667	14.75925	6834.75	6489.035	70.7	70.6	69.4	69.9	0.001246
470.02	3.751123	14.75548	2.962416	14.75925	6838	6493.753	70.6	70.6	69.4	69.9	0.001246
475.04	3.742369	14.75523	2.966794	14.75925	6837.5	6485.807	70.7	70.6	69.3	69.9	0.001247

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.009979	3.746746	14.75398	0.217298	14.655	51.225	-3.32493	70.4	69.9	69.5	69.8	0.00024
480.02	3.748622	14.75173	2.966169	14.7585	6837.75	6486.056	70.6	70.6	69.4	69.8	0.001247
485.02	3.741744	14.75173	2.965544	14.7585	6837.25	6486.485	70.7	70.6	69.4	69.9	0.001247
490.02	3.739868	14.75323	2.961791	14.75925	6837.75	6485.988	70.7	70.6	69.4	69.8	0.001246
495.08	3.754875	14.75473	2.966169	14.7585	6837.75	6517.342	70.7	70.6	69.4	69.9	0.001246
500.02	3.729239	14.75398	2.963042	14.7585	6838	6479.103	70.7	70.6	69.3	69.8	0.001247
505.1	3.735491	14.75323	2.966169	14.7585	6837.75	6476.123	70.7	70.6	69.4	69.9	0.001247
510.02	3.725487	14.75473	2.966169	14.75925	6838	6482.828	70.8	70.6	69.3	69.9	0.001247
515.02	3.727988	14.75548	2.966794	14.75925	6847.5	6493.753	70.8	70.6	69.4	69.9	0.001247
520.02	3.736117	14.75473	2.966169	14.75925	6847.75	6494.995	70.8	70.6	69.3	69.9	0.001247
525.02	3.748622	14.75398	2.965544	14.7585	6848	6515.356	70.8	70.6	69.3	69.9	0.001249
530.05	3.736742	14.75173	2.966794	14.75925	6847.75	6491.518	70.7	70.6	69.2	69.8	0.001249
535.02	3.746746	14.75248	2.966794	14.7585	6858	6483.821	70.8	70.6	69.4	69.9	0.00125
540.02	3.7555	14.75473	2.966169	14.76	6858	6451.044	70.8	70.6	69.4	69.9	0.00125
545.05	3.719234	14.75098	2.96742	14.75925	6858.25	6448.313	70.9	70.6	69.5	69.9	0.00125
550.02	3.733616	14.75548	2.966794	14.75925	6857.75	6484.453	70.8	70.7	69.4	69.9	0.00125
555.02	3.725487	14.75473	2.966169	14.75925	6858	6476.372	70.9	70.6	69.3	69.9	0.001251
560.03	3.759252	14.75098	2.966794	14.7585	6858.25	6489.284	70.9	70.6	69.5	69.8	0.001251
565.03	3.748622	14.75398	2.966169	14.7585	6867.75	6483.076	70.8	70.6	69.4	69.9	0.001251
570.02	3.752999	14.75473	2.966794	14.76	6868	6486.236	70.8	70.7	69.4	69.9	0.001252
575.05	3.739868	14.75248	2.968045	14.75925	6868.25	6511.631	70.8	70.7	69.4	69.9	0.001251
580.02	3.734241	14.75548	2.96742	14.7585	6867.5	6517.342	70.8	70.7	69.3	69.9	0.001251
585.02	3.738618	14.75398	2.966794	14.75925	6868	6489.713	70.8	70.7	69.4	69.9	0.001251
590.02	3.740494	14.75398	2.968045	14.75925	6868	6511.135	70.7	70.7	69.3	69.9	0.001251
595.02	3.752999	14.75398	2.966794	14.75925	6867.75	6509.397	70.7	70.7	69.3	69.9	0.001252
600.02	3.753624	14.75473	2.966794	14.75925	6868.25	6524.543	70.7	70.7	69.4	69.9	0.001252
605.03	3.738618	14.75173	2.965544	14.75775	6867.75	6500.706	70.7	70.7	69.4	69.9	0.001253
610.07	3.753624	14.75323	2.966169	14.75925	6877.75	6500.706	70.7	70.7	69.3	69.9	0.001254
615.02	3.761128	14.75323	2.965544	14.75925	6877.75	6497.974	70.7	70.7	69.4	69.9	0.001254
620.02	3.751749	14.75323	2.966169	14.75925	6878.25	6488.042	70.7	70.7	69.4	69.8	0.001254
625.02	3.736742	14.75248	2.965544	14.75925	6884.75	6486.056	70.7	70.7	69.4	69.8	0.001254
630.02	3.746746	14.75323	2.966169	14.75925	6888	6513.121	70.8	70.7	69.4	69.9	0.001254
635.05	3.742369	14.75323	2.966794	14.75925	6887.75	6500.706	70.7	70.7	69.5	69.9	0.001254
640.07	3.754875	14.75398	2.966169	14.75925	6887.5	6477.613	70.8	70.7	69.4	69.9	0.001254

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.009979	3.746746	14.75398	0.217298	14.655	51.225	-3.32493	70.4	69.9	69.5	69.8	0.00024
645.02	3.746746	14.75398	2.968169	14.75925	6887.75	6487.546	70.8	70.7	69.4	69.9	0.001253
650.02	3.745496	14.75473	2.965544	14.75925	6878.25	6494.498	70.8	70.7	69.5	69.9	0.001252
655.02	3.751123	14.75473	2.968169	14.75925	6878.25	6475.627	70.8	70.7	69.5	69.9	0.001253
660.02	3.761753	14.75398	2.968169	14.75925	6877.75	6486.801	70.8	70.7	69.5	69.9	0.001253
665.02	3.730489	14.75098	2.968169	14.75925	6878.25	6489.532	70.8	70.8	69.5	69.9	0.001253
670.02	3.77801	14.75323	2.968169	14.7585	6877.75	6499.464	70.8	70.7	69.4	69.9	0.001253
675.02	3.744871	14.75398	2.966794	14.75925	6887.75	6490.277	70.8	70.7	69.5	69.9	0.001254
680.09	3.768006	14.75323	2.966794	14.76	6888.25	6485.559	70.8	70.7	69.5	69.8	0.001252
685.02	3.734866	14.75098	2.966794	14.7585	6883.5	6483.076	70.8	70.7	69.5	69.9	0.001253
690.02	3.758001	14.75323	2.966794	14.75925	6888	6477.365	70.7	70.8	69.4	69.9	0.001254
695.1	3.739243	14.75398	2.96742	14.7585	6887.75	6486.304	70.7	70.8	69.4	69.9	0.001255
700.04	3.737993	14.75473	2.968169	14.75925	6887.75	6485.311	70.8	70.8	69.4	69.9	0.001254
705.02	3.732365	14.75248	2.966794	14.75925	6887.5	6470.909	70.8	70.8	69.4	69.9	0.001256
710.02	3.742995	14.75323	2.966794	14.75925	6887.5	6481.586	70.9	70.8	69.4	69.9	0.001255
715.06	3.751123	14.75398	2.968169	14.75775	6887.75	6494.002	70.9	70.8	69.4	69.9	0.001255
720.02	3.744245	14.75173	2.96742	14.7585	6898	6487.546	70.8	70.8	69.4	69.9	0.001255
725.02	3.764254	14.75398	2.968045	14.7585	6897.75	6457.997	70.8	70.8	69.5	69.9	0.001256
730.02	3.729864	14.75098	2.964918	14.75925	6898	6466.439	70.7	70.8	69.5	69.9	0.001256
735.02	3.750498	14.75323	2.966794	14.75925	6898.25	6487.297	70.7	70.8	69.4	69.9	0.001257
740.02	3.738618	14.75398	2.968671	14.75925	6897.75	6483.821	70.7	70.8	69.4	69.8	0.001256
745.06	3.739868	14.75023	2.968671	14.75925	6898	6482.083	70.7	70.8	69.4	69.9	0.001257
750.02	3.750498	14.75323	2.968671	14.75925	6898	6470.412	70.7	70.8	69.4	69.8	0.001256
755.02	3.742369	14.75398	2.968671	14.75925	6898.25	6477.862	70.7	70.8	69.4	69.9	0.001256
760.06	3.726112	14.75323	2.969296	14.7585	6908.25	6489.78	70.5	70.8	69.4	69.9	0.001258
765.08	3.748622	14.75173	2.968045	14.76	6908.25	6480.593	70.4	70.8	69.3	69.9	0.001258
770.02	3.741119	14.75473	2.969296	14.75925	6908	6505.92	70.4	70.8	69.4	69.9	0.001257
775.03	3.744871	14.75023	2.969296	14.75925	6908	6489.532	70.4	70.8	69.4	69.8	0.001257
780.02	3.740494	14.75248	2.968671	14.7585	6908.25	6482.579	70.4	70.8	69.4	69.9	0.001257
785.02	3.73174	14.75173	2.968671	14.7585	6907.75	6467.433	70.4	70.8	69.4	69.9	0.001257
790.03	3.744871	14.75173	2.968045	14.75925	6907.75	6471.405	70.4	70.8	69.4	69.8	0.001256
795.02	3.741744	14.75173	2.970547	14.75925	6908.25	6453.279	70.5	70.8	69.3	69.8	0.001256
800.02	3.736117	14.75323	2.968671	14.76075	6907.75	6485.062	70.5	70.9	69.4	69.9	0.001256
805.03	3.749247	14.75173	2.970547	14.75925	6898	6489.78	70.6	70.8	69.4	69.9	0.001255

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP. (F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.009979	3.746746	14.75398	0.217298	14.655	51.225	-3.32493	70.4	69.9	69.5	69.8	0.00024
810.02	3.748622	14.75548	2.969922	14.75775	6898	6505.672	70.6	70.8	69.5	69.9	0.001257
815.02	3.736117	14.75248	2.968671	14.75925	6898	6504.43	70.6	70.8	69.4	70	0.001256
820.03	3.7555	14.75548	2.971172	14.75925	6897.75	6508.403	70.7	70.8	69.4	69.9	0.001256
825.02	3.768006	14.75473	2.970547	14.7585	6908.5	6493.505	70.8	70.8	69.4	69.9	0.001257
830.02	3.741119	14.75173	2.971172	14.75925	6908.25	6470.909	70.9	70.8	69.5	69.8	0.001257
835.04	3.757376	14.75548	2.971172	14.75925	6908.25	6472.647	70.9	70.8	69.5	69.9	0.001257
840.1	3.747997	14.75248	2.969922	14.7585	6908.25	6498.719	70.8	70.9	69.5	69.9	0.001257
845.02	3.736742	14.75248	2.971172	14.7585	6908	6498.223	70.9	70.9	69.4	69.9	0.001258
850.03	3.738618	14.75623	2.970547	14.7585	6908.25	6494.498	70.9	70.9	69.5	69.9	0.001257
855.02	3.725487	14.75098	2.971798	14.76	6908.25	6475.13	70.9	70.9	69.4	69.9	0.001259
860.02	3.732365	14.75248	2.973049	14.75925	6918.25	6476.868	70.8	70.9	69.4	69.9	0.001258
865.02	3.737993	14.75173	2.972423	14.7585	6918	6470.164	70.9	70.8	69.4	69.9	0.001259
870.04	3.751749	14.75173	2.971798	14.7585	6917.75	6476.62	70.9	70.9	69.5	69.9	0.00126
875.02	3.748622	14.75398	2.973049	14.75925	6918.25	6494.002	70.9	70.9	69.4	69.9	0.00126
880.02	3.73174	14.75248	2.971798	14.7585	6928.25	6497.23	70.9	70.9	69.4	69.9	0.001259
885.02	3.775509	14.75473	2.972423	14.75925	6928	6471.405	70.8	70.9	69.4	69.9	0.00126
890.02	3.734866	14.75248	2.972423	14.7585	6928	6477.862	70.7	70.9	69.4	69.9	0.00126
895.04	3.744871	14.75623	2.973674	14.7585	6927.75	6493.008	70.8	70.9	69.5	69.9	0.00126
900.03	3.73174	14.75248	2.972423	14.7585	6927.75	6484.566	70.8	70.9	69.5	69.9	0.001261
905.02	3.745496	14.75173	2.973049	14.75925	6928	6484.566	70.8	70.9	69.5	69.9	0.00126
910.03	3.737993	14.75398	2.972423	14.7585	6928	6481.09	70.8	70.9	69.4	69.9	0.001261
915.05	3.756125	14.75473	2.972423	14.75925	6928.25	6472.647	70.8	70.9	69.4	69.9	0.001261
920.02	3.723611	14.75323	2.972423	14.75925	6928.5	6481.09	70.8	70.9	69.4	69.9	0.001262
925.04	3.732365	14.75173	2.973049	14.75925	6928.5	6487.794	70.8	70.9	69.3	69.9	0.00126

TEST: FGI22228 22 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 6665ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP (F)	WEC CELL (VOLTS)
0.009979	3.7555	14.75098	-0.0033	14.58225	71.625	-3.57324	70.5	69.8	69.4	69.8	0.000242
5.019989	3.74362	14.75248	2.962416	14.75925	71.025	-2.82831	70.5	70.1	69.5	69.8	0.000242
10.19	3.745496	14.75173	2.961165	14.75625	200.725	2444.098	70.6	70	69.5	69.8	0.000288
15.01999	3.749247	14.75173	2.963042	14.757	865	4430.065	70.6	69.9	69.5	69.8	0.000397
20.01999	3.744871	14.75248	2.96742	14.75775	1767	5382.327	70.5	69.9	69.6	69.8	0.000531
25.01999	3.747372	14.75173	2.970547	14.75925	2602.25	5768.197	70.6	69.9	69.6	69.8	0.000654
30.01999	3.734866	14.75248	2.973049	14.76	3349.75	5948.221	70.6	69.9	69.5	69.8	0.000758
35.01999	3.740494	14.75173	2.973049	14.75925	3913.5	6041.336	70.6	69.9	69.6	69.8	0.000842
40.01999	3.740494	14.75248	2.973049	14.7585	4434.5	6088.515	70.5	69.9	69.5	69.8	0.000911
45.01999	3.788014	14.75173	2.972423	14.75925	4831	6115.828	70.5	69.9	69.5	69.8	0.000966
50.01999	3.756125	14.75248	2.974925	14.76	5124.25	6150.343	70.5	70	69.5	69.8	0.00101
55.01999	3.73174	14.75173	2.976801	14.75925	5384.25	6168.221	70.4	69.9	69.4	69.8	0.001045
60.01999	3.741744	14.75173	2.979303	14.75925	5603.5	6183.368	70.5	69.9	69.4	69.8	0.001073
65.01999	3.752999	14.75098	2.979929	14.75925	5745.5	6208.944	70.5	69.9	69.3	69.8	0.001097
70.01999	3.738618	14.75173	2.979929	14.75925	5896	6206.957	70.5	70	69.3	69.8	0.001116
75.01999	3.752999	14.75098	2.979303	14.7585	6016.25	6201.495	70.6	70	69.4	69.8	0.001132
80.01999	3.744245	14.75173	2.979929	14.7585	6096.25	6229.057	70.7	70	69.4	69.8	0.001145
85.01999	3.744245	14.75248	2.978052	14.7585	6186	6244.452	70.6	70	69.4	69.8	0.001155
90.01999	3.737993	14.75248	2.980554	14.7585	6256.75	6263.82	70.6	70	69.5	69.8	0.001168
95.01999	3.749247	14.75248	2.980554	14.7585	6316.25	6267.161	70.6	70	69.5	69.8	0.001174
100.02	3.746746	14.75173	2.981805	14.75925	6356.5	6313.233	70.7	70	69.4	69.8	0.00118
105.02	3.744871	14.75248	2.979303	14.7585	6396.25	6321.427	70.6	70	69.5	69.8	0.001187
110.02	3.732365	14.75248	2.98118	14.75925	6436.75	6285.919	70.7	70	69.4	69.8	0.001191
115.02	3.738618	14.75173	2.981805	14.7585	6476.25	6300.321	70.7	70	69.4	69.8	0.001197
120.02	3.723611	14.75173	2.98118	14.75925	6506.75	6322.917	70.7	70	69.5	69.8	0.001201
125.11	3.791766	14.75248	2.98118	14.75925	6537	6339.057	70.7	70	69.5	69.9	0.001204
130.02	3.742369	14.75323	2.98118	14.76	6556.75	6353.459	70.7	70.1	69.4	69.8	0.001207
135.02	3.75425	14.74948	2.98118	14.757	6577	6353.956	70.7	70.1	69.4	69.8	0.00121
140.02	3.762378	14.75248	2.98118	14.76	6597	6378.042	70.6	70.1	69.4	69.8	0.001212
145.02	3.757376	14.74948	2.98118	14.75925	6606.5	6388.967	70.7	70.1	69.4	69.8	0.001215

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP (F)	WEC CELL (VOLTS)
0.009979	3.7555	14.75098	-0.0033	14.58225	71.625	-3.57324	70.5	69.8	69.4	69.8	0.000242
150.02	3.756125	14.75248	2.98243	14.7585	6627.25	6389.216	70.6	70.1	69.4	69.8	0.001217
155.02	3.746746	14.75098	2.983681	14.75925	6636.75	6388.719	70.7	70.1	69.4	69.8	0.001218
160.02	3.751123	14.75248	2.983056	14.75925	6647.25	6396.913	70.7	70.1	69.5	69.9	0.001219
165.02	3.737993	14.75248	2.983681	14.76	6656.75	6390.954	70.6	70.1	69.5	69.9	0.001222
170.02	3.744871	14.75248	2.983681	14.75925	6667.25	6403.866	70.7	70.1	69.5	69.8	0.001224
175.02	3.729864	14.75173	2.983056	14.75925	6687	6426.71	70.7	70.1	69.5	69.9	0.001227
180.02	3.746746	14.75248	2.983681	14.75925	6697	6423.73	70.7	70.2	69.4	69.8	0.001228
185.02	3.747372	14.75173	2.985558	14.75925	6717.5	6440.367	70.7	70.2	69.4	69.8	0.00123
190.02	3.761753	14.75248	2.984932	14.75925	6717	6417.274	70.6	70.2	69.4	69.8	0.001231
195.08	3.739243	14.74948	2.985558	14.76	6726.75	6402.128	70.6	70.2	69.4	69.8	0.001231
200.02	3.756125	14.75248	2.985558	14.76	6737.25	6417.771	70.6	70.2	69.3	69.8	0.001234
205.02	3.751123	14.75323	2.985558	14.76	6737.25	6440.615	70.7	70.2	69.4	69.8	0.001233
210.02	3.732365	14.75248	2.986183	14.76	6747	6435.649	70.7	70.2	69.5	69.9	0.001234
215.02	3.75425	14.75173	2.988059	14.75925	6757.25	6430.683	70.8	70.2	69.6	69.8	0.001235
220.02	3.737367	14.75323	2.988059	14.75925	6757.75	6434.159	70.8	70.2	69.6	69.8	0.001236
225.02	3.741119	14.75323	2.989936	14.75925	6767	6435.401	70.8	70.3	69.5	69.8	0.001238
230.02	3.756125	14.75248	2.992437	14.75925	6777.5	6417.771	70.8	70.2	69.5	69.8	0.001238
235.02	3.738618	14.75248	2.991812	14.75925	6777.75	6430.435	70.7	70.3	69.4	69.8	0.00124
240.02	3.73299	14.75398	2.991812	14.76	6787	6442.105	70.7	70.3	69.5	69.8	0.00124
245.02	3.756125	14.75248	2.991187	14.76	6787.75	6457.004	70.7	70.3	69.5	69.8	0.001241
250.02	3.730489	14.75398	2.993688	14.75925	6797.25	6429.441	70.6	70.3	69.4	69.8	0.001242
255.02	3.744871	14.75173	2.99619	14.76	6807.25	6420.751	70.6	70.3	69.4	69.8	0.001244
260.02	3.751749	14.75398	2.99619	14.76	6817	6459.735	70.6	70.3	69.4	69.8	0.001246
265.04	3.765504	14.75323	2.996816	14.7585	6827.5	6478.606	70.6	70.3	69.4	69.8	0.001246
270.04	3.753624	14.75323	3.000568	14.75925	6828	6468.674	70.6	70.3	69.5	69.9	0.001247
275.02	3.7555	14.75398	3.001819	14.75925	6837.5	6492.263	70.7	70.3	69.4	69.8	0.001248
280.02	3.748622	14.75323	3.00307	14.75925	6838	6481.338	70.7	70.3	69.6	69.8	0.001248
285.02	3.751123	14.75248	3.002444	14.7585	6847.75	6480.345	70.6	70.3	69.5	69.8	0.001249
290.03	3.738618	14.75398	3.003695	14.7585	6847.5	6486.801	70.6	70.3	69.5	69.9	0.001251
295.02	3.74362	14.75398	3.006197	14.75925	6858	6504.43	70.6	70.4	69.4	69.9	0.001251
300.02	3.75425	14.75323	3.009324	14.75925	6857.5	6485.311	70.7	70.4	69.5	69.9	0.001252
305.02	3.742995	14.75248	3.008073	14.7585	6867	6464.453	70.7	70.4	69.5	69.9	0.001253
310.03	3.751749	14.75323	3.010575	14.7585	6877.25	6447.32	70.7	70.4	69.5	69.9	0.001254

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP (F)	WEC CELL (VOLTS)
0.00979	3.7555	14.75098	-0.0033	14.58225	71.625	-3.57324	70.5	69.8	69.4	69.8	0.00242
315.02	3.7555	14.75398	3.013077	14.7585	6877.75	6461.97	70.7	70.4	69.5	69.9	0.001254
320.03	3.76613	14.75248	3.014953	14.75925	6887.5	6497.23	70.7	70.4	69.5	69.8	0.001256
325.02	3.736742	14.75248	3.015579	14.76	6898	6527.026	70.7	70.4	69.5	69.8	0.001255
330.03	3.751123	14.75398	3.017455	14.7585	6898	6534.972	70.8	70.4	69.4	69.9	0.001257
335.02	3.741119	14.74948	3.01808	14.7585	6907	6524.295	70.7	70.5	69.5	69.8	0.001258
340.02	3.742995	14.75323	3.021833	14.76	6908	6501.202	70.7	70.5	69.4	69.9	0.001259
345.03	3.768631	14.75398	3.021208	14.7585	6917.75	6506.665	70.7	70.5	69.5	69.9	0.001259
350.02	3.744245	14.75098	3.023709	14.7585	6927.75	6517.839	70.7	70.4	69.5	69.8	0.001261
355.02	3.742995	14.75398	3.02496	14.7615	6927.75	6534.724	70.7	70.5	69.5	69.9	0.001262
360.02	3.749247	14.75023	3.025586	14.75925	6937.5	6543.167	70.7	70.5	69.3	69.8	0.001262
365.04	3.732365	14.74948	3.027462	14.7615	6938	6559.307	70.7	70.5	69.4	69.9	0.001263
370.02	3.769881	14.75098	3.029964	14.75775	6947.25	6555.582	70.7	70.5	69.4	69.8	0.001262
375.02	3.732365	14.75248	3.032466	14.7615	6948	6573.708	70.7	70.6	69.4	69.9	0.001264
380.02	3.751749	14.75173	3.03184	14.7615	6947.75	6587.614	70.8	70.5	69.4	69.9	0.001264
385.02	3.757376	14.75098	3.034967	14.75925	6957.75	6593.325	70.9	70.5	69.4	69.8	0.001264
390.02	3.740494	14.75248	3.036218	14.76075	6957.75	6573.46	70.9	70.5	69.4	69.9	0.001266
395.02	3.7555	14.74948	3.037469	14.7615	6968	6553.099	70.8	70.5	69.5	69.9	0.001267
400.02	3.747372	14.74948	3.038095	14.763	6967.75	6575.943	70.8	70.5	69.4	69.9	0.001267
405.02	3.732365	14.75023	3.039971	14.7615	6978	6587.862	70.8	70.5	69.5	69.9	0.001269
410.02	3.737993	14.75173	3.044349	14.76375	6988	6593.076	70.8	70.6	69.4	69.9	0.00127
415.02	3.737993	14.74874	3.044349	14.76375	6987.75	6615.424	70.8	70.6	69.6	69.9	0.001273
420.02	3.747372	14.75248	3.046851	14.7645	6998	6613.438	70.8	70.6	69.5	69.9	0.001273
425.02	3.774258	14.75248	3.048727	14.7645	7008	6601.271	70.8	70.6	69.6	69.9	0.001274
430.02	3.744871	14.75398	3.048727	14.76375	7017.5	6617.411	70.8	70.6	69.6	69.9	0.001275
435.09	3.738618	14.74948	3.051229	14.7645	7018	6629.578	70.8	70.6	69.4	69.8	0.001275
440.02	3.749873	14.75023	3.050603	14.76375	7028	6623.618	70.7	70.6	69.4	69.9	0.001276
445.05	3.761753	14.75248	3.055807	14.76375	7028	6652.67	70.7	70.6	69.5	69.9	0.001276
450.02	3.760502	14.75023	3.055807	14.76375	7038	6621.632	70.7	70.6	69.5	69.9	0.001276
455.1	3.740494	14.75023	3.058109	14.76375	7038.25	6597.546	70.7	70.6	69.5	69.8	0.001278
460.02	3.744245	14.74948	3.057483	14.763	7048.5	6631.564	70.7	70.6	69.6	69.9	0.001279
465.02	3.732365	14.75398	3.061236	14.7645	7048	6649.691	70.8	70.7	69.5	69.9	0.001279
470.02	3.746746	14.75248	3.061861	14.76525	7058.25	6635.537	70.8	70.6	69.5	69.9	0.00128
475.02	3.745496	14.74874	3.063112	14.7645	7057.75	6643.731	70.8	70.7	69.4	69.8	0.001281

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP (F)	WEC CELL (VOLTS)
0.009979	3.7555	14.75098	-0.0033	14.58225	71.625	-3.57324	70.5	69.8	69.4	69.8	0.000242
480.02	3.753624	14.75173	3.065614	14.7645	7067.5	6662.106	70.7	70.6	69.4	69.8	0.001281
485.02	3.7555	14.75023	3.06749	14.7645	7068.25	6661.113	70.7	70.7	69.6	69.8	0.001281
490.02	3.808648	14.75248	3.068741	14.76675	7077.75	6656.643	70.7	70.7	69.6	69.9	0.001282
495.02	3.761753	14.75323	3.071868	14.76675	7077.75	6677.005	70.7	70.7	69.5	69.9	0.001283
500.02	3.739243	14.75023	3.071868	14.766	7078	6681.971	70.7	70.6	69.6	69.9	0.001283
505.02	3.751123	14.75323	3.07437	14.76675	7078	6687.682	70.8	70.7	69.6	69.9	0.001284
510.02	3.739868	14.75023	3.076246	14.7675	7088.25	6678.494	70.7	70.7	69.6	69.8	0.001285
515.07	3.7555	14.75098	3.078123	14.766	7097.75	6685.199	70.7	70.7	69.5	69.9	0.001286
520.02	3.745496	14.75098	3.079999	14.76675	7098.25	6717.727	70.7	70.7	69.6	69.9	0.001286
525.02	3.742995	14.75023	3.079999	14.766	7108.25	6692.896	70.7	70.7	69.6	69.9	0.001287
530.04	3.768006	14.75023	3.081875	14.76675	7108.25	6688.427	70.7	70.7	69.4	69.9	0.001288
535.02	3.759877	14.75023	3.084377	14.766	7118.25	6705.063	70.7	70.7	69.6	69.8	0.00129
540.02	3.737367	14.75248	3.086253	14.766	7127.75	6704.567	70.7	70.7	69.7	69.9	0.00129
545.04	3.760502	14.75098	3.086253	14.766	7127.75	6729.398	70.8	70.8	69.5	69.9	0.001291
550.02	3.76738	14.75398	3.08813	14.766	7138.25	6724.928	70.8	70.7	69.5	69.9	0.001292
555.02	3.746746	14.75098	3.090632	14.766	7148	6719.465	70.8	70.7	69.5	69.9	0.001294
560.02	3.745496	14.75173	3.090632	14.766	7148	6734.612	70.8	70.8	69.5	69.9	0.001295
565.04	3.751749	14.75398	3.093759	14.76675	7157.75	6732.874	70.8	70.8	69.6	69.9	0.001295
570.02	3.737993	14.75023	3.09501	14.766	7158.5	6747.524	70.7	70.8	69.4	69.9	0.001296
575.03	3.740494	14.75098	3.097511	14.766	7158	6747.524	70.6	70.8	69.6	69.8	0.001295
580.05	3.759877	14.75173	3.096886	14.766	7168	6771.362	70.6	70.8	69.5	69.9	0.001296
585.02	3.752374	14.75098	3.099388	14.76525	7168	6756.215	70.6	70.8	69.5	69.9	0.001297
590.04	3.766755	14.75323	3.101889	14.766	7178.5	6768.878	70.6	70.8	69.5	69.9	0.001297
595.02	3.746873	14.75248	3.10314	14.766	7178	6772.355	70.6	70.8	69.4	69.9	0.001299
600.02	3.751123	14.75023	3.10314	14.766	7188.5	6787.75	70.6	70.8	69.4	69.9	0.0013
605.05	3.724237	14.75173	3.105017	14.7675	7188.5	6770.368	70.7	70.8	69.4	69.9	0.0013
610.09	3.742369	14.75098	3.109395	14.76675	7198	6776.079	70.7	70.8	69.4	69.9	0.001301
615.02	3.742995	14.74948	3.108769	14.766	7198.25	6764.657	70.8	70.8	69.6	69.9	0.001302
620.06	3.760502	14.75248	3.109395	14.766	7208.25	6769.375	70.7	70.8	69.4	69.9	0.001303
625.02	3.739243	14.75173	3.111271	14.766	7218	6783.032	70.7	70.8	69.5	69.8	0.001303
630.02	3.741119	14.75023	3.113773	14.766	7218	6794.703	70.8	70.8	69.5	69.9	0.001305
635.02	3.742995	14.75098	3.116275	14.766	7218.5	6804.883	70.8	70.8	69.5	69.9	0.001304
640.02	3.742369	14.74948	3.116275	14.766	7228	6812.084	70.8	70.8	69.4	69.8	0.001306

Flammable Gas Interlock Spoolpiece Testing

FGI22228.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP (F)	WEC CELL (VOLTS)
0.009979	3.7555	14.75098	-0.0033	14.58225	71.625	-3.57324	70.5	69.8	69.4	69.8	0.000242
645.02	3.751123	14.74874	3.118151	14.766	7227.75	6817.299	70.8	70.9	69.4	69.9	0.001305
650.02	3.723611	14.74948	3.120027	14.76675	7238.5	6804.387	70.8	70.9	69.5	69.9	0.001307
655.1	3.729239	14.74874	3.122529	14.76675	7238	6814.071	70.9	70.8	69.6	69.9	0.001309
660.02	3.752999	14.75023	3.12378	14.76675	7248.25	6817.05	70.8	70.8	69.5	69.9	0.001308
665.02	3.758626	14.75023	3.125656	14.76825	7248.5	6813.822	70.7	70.9	69.5	69.9	0.001308
670.08	3.752999	14.75173	3.126282	14.769	7258.25	6822.761	70.6	70.8	69.5	69.9	0.001309
675.02	3.726112	14.75023	3.126282	14.769	7258	6834.432	70.5	70.8	69.6	69.9	0.001309
680.06	3.774258	14.75098	3.130034	14.769	7258.25	6813.574	70.5	70.8	69.4	69.9	0.001308
685.02	3.77801	14.74799	3.131285	14.769	7258	6828.721	70.4	70.9	69.5	69.8	0.00131
690.02	3.744871	14.74874	3.131911	14.76825	7268	6808.608	70.2	70.8	69.9	69.9	0.001311
695.02	3.736742	14.75098	3.134412	14.76825	7268.25	6796.937	70.3	70.9	69.5	69.9	0.001311
700.06	3.742995	14.75023	3.136914	14.769	7268	6832.694	70.3	70.9	69.4	69.9	0.001312
705.02	3.734241	14.74874	3.13879	14.769	7278	6840.639	70.5	70.9	69.5	69.9	0.001312
710.02	3.744245	14.74874	3.140667	14.769	7278.25	6838.405	70.6	70.9	69.4	70	0.001314
715.06	3.742369	14.75173	3.141292	14.772	7288.5	6836.915	70.7	70.9	69.4	69.9	0.001315
720.02	3.744871	14.74874	3.14567	14.772	7288	6869.443	70.8	70.9	69.6	69.9	0.001315
725.05	3.744871	14.75098	3.144419	14.772	7298	6877.886	70.9	70.9	69.6	69.9	0.001316
730.02	3.745496	14.74874	3.146296	14.77125	7298.25	6884.342	70.9	70.9	69.6	69.9	0.001317
735.02	3.747372	14.74724	3.149423	14.77125	7308.5	6878.631	70.8	70.9	69.6	69.9	0.001318
740.02	3.744871	14.74948	3.150048	14.772	7318.5	6872.423	70.8	70.9	69.6	69.9	0.001318
745.02	3.747997	14.74948	3.151925	14.77125	7318.75	6885.583	70.8	70.9	69.6	69.9	0.001319
750.02	3.742995	14.74724	3.153801	14.77125	7328.5	6921.836	70.9	70.9	69.5	69.9	0.00132
755.05	3.746746	14.74724	3.155052	14.77125	7328.25	6907.434	70.9	70.9	69.5	69.9	0.00132
760.07	3.76613	14.75323	3.155677	14.7705	7328.5	6901.972	70.9	70.9	69.5	69.9	0.001319
765.02	3.74362	14.75098	3.158179	14.77125	7328.25	6909.669	70.9	70.9	69.5	69.9	0.00132
770.05	3.734866	14.74799	3.160055	14.77125	7332	6906.938	70.8	70.9	69.6	69.9	0.001321
775.04	3.727988	14.75098	3.161306	14.772	7338.5	6895.516	70.8	70.9	69.5	69.9	0.001322
780.02	3.74362	14.75098	3.161932	14.76975	7339	6907.434	70.8	70.9	69.6	69.9	0.001323
785.03	3.746746	14.74948	3.16631	14.772	7348	6932.513	70.7	70.9	69.6	69.9	0.001324
790.02	3.739868	14.75098	3.16631	14.77125	7358.75	6912.152	70.7	70.9	69.5	69.9	0.001323
795.02	3.733616	14.74724	3.168812	14.7705	7358.5	6923.574	70.6	70.9	69.4	69.9	0.001323
800.02	3.752999	14.75173	3.168186	14.7735	7358	6891.791	70.6	70.9	69.4	69.9	0.001324
805.02	3.749673	14.75098	3.172564	14.77125	7358.5	6917.367	70.7	70.9	69.4	69.9	0.001325

SECONDS	MAIN DUCT	MAIN DUCT	GAS INJECT	GAS INJECT	NEWPORT	SMC	AMBIENT	GAS INJECT	MAIN DUCT	WEC CELL	WEC CELL
	DIFF (IN H2O)	ABS (PSIA)	DIFF (IN H2O)	ABS (PSIA)	(PPM)	(PPM)	TEMP.(F)	TEMP. (F)	TEMP. (F)	TEMP (F)	(VOLTS)
0.009979	3.7555	14.75098	-0.0033	14.58225	71.625	-3.57324	70.5	69.8	69.4	69.8	0.000242
810.02	3.742995	14.74874	3.17319	14.77125	7368.25	6929.037	70.8	70.9	69.5	69.9	0.001326
815.06	3.744871	14.74948	3.17444	14.77425	7368.25	6936.486	70.8	70.9	69.5	69.9	0.001328
820.07	3.746746	14.74799	3.176317	14.77125	7378.75	6942.942	70.8	70.9	69.5	70	0.001328
825.02	3.772382	14.75023	3.175066	14.7735	7388.5	6944.184	70.7	70.9	69.6	69.9	0.001329
830.07	3.749247	14.74724	3.178193	14.77425	7388.5	6935.245	70.7	70.9	69.6	69.9	0.00133
835.02	3.76738	14.74948	3.179444	14.7735	7398.25	6950.888	70.6	70.9	69.5	69.9	0.001332
840.02	3.748622	14.74649	3.183822	14.7735	7398.75	6932.513	70.6	71	69.5	70	0.001332
845.04	3.751749	14.74649	3.185698	14.7735	7408.5	6946.915	70.6	71	69.5	69.9	0.001331
850.07	3.749247	14.74874	3.185073	14.77275	7408.5	6962.31	70.6	71	69.5	69.9	0.001332
855.02	3.745496	14.74874	0.00446	14.5815	7419	6960.821	70.6	70.9	69.4	69.9	0.001333
860.03	3.7555	14.74649	3.094384	14.7585	7389	5040.655	70.6	70.9	69.4	69.9	0.001309
865.07	3.734866	14.74799	3.201334	14.7765	6818.75	3504.622	70.6	71	69.5	69.9	0.001213

TEST: FG22228A 22 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 6523ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.009979	3.759252	14.74724	0.055746	14.64225	91.425	-3.5484	70.6	69.8	69.5	69.7	0.000244
5.019989	3.744871	14.74874	2.973049	14.757	91.225	-3.37459	70.6	69.8	69.4	69.7	0.000245
10.01999	3.750498	14.74799	2.979303	14.75625	171.55	2019.988	70.6	69.9	69.5	69.7	0.000278
15.01999	3.76738	14.74724	2.983681	14.757	782.25	4301.69	70.6	69.9	69.5	69.7	0.000384
20.01999	3.744871	14.74799	2.984932	14.757	1679.75	5378.354	70.5	69.8	69.5	69.7	0.000516
25.01999	3.7555	14.74799	2.988059	14.75625	2502.25	5813.638	70.6	69.8	69.5	69.7	0.000641
30.01999	3.750498	14.74799	2.991187	14.7555	3279.5	5998.379	70.6	69.8	69.5	69.7	0.000749
35.01999	3.744871	14.74724	2.992437	14.75625	3883.25	6084.045	70.5	69.8	69.5	69.7	0.000836
40.01999	3.735491	14.74799	2.991187	14.75625	4427.25	6143.391	70.5	69.8	69.5	69.7	0.000808
45.01999	3.737993	14.74874	2.993688	14.75625	4804.75	6186.348	70.5	69.8	69.4	69.7	0.000965
50.01999	3.738618	14.74724	2.99619	14.75625	5134	6222.601	70.5	69.8	69.4	69.7	0.001011
55.01999	3.754875	14.74724	2.995565	14.75625	5425.75	6231.292	70.5	69.9	69.5	69.7	0.001048
60.01999	3.739868	14.74724	2.995565	14.75625	5655.5	6245.942	70.6	69.9	69.6	69.7	0.001079
65.01999	3.764879	14.74799	2.994939	14.75625	5805.5	6287.658	70.6	69.9	69.6	69.7	0.001103
70.01999	3.741744	14.74799	2.997441	14.75625	5935.75	6284.43	70.6	69.8	69.6	69.8	0.001123
75.01999	3.784263	14.74799	2.99619	14.757	6065.75	6278.967	70.7	69.9	69.6	69.7	0.00114
80.01999	3.748247	14.74724	2.999943	14.75625	6156	6326.842	70.7	69.9	69.5	69.7	0.001152
85.01999	3.751123	14.74724	2.999943	14.757	6246	6344.768	70.6	69.9	69.5	69.7	0.001163
90.01999	3.750498	14.74724	2.999943	14.757	6306.25	6351.721	70.5	69.9	69.5	69.8	0.001174
95.01999	3.7555	14.74874	3.000568	14.75625	6375.5	6369.351	70.6	69.9	69.5	69.8	0.001183
100.02	3.744871	14.74799	3.000568	14.75625	6436.5	6376.055	70.6	69.9	69.4	69.8	0.00119
105.02	3.771757	14.74874	3.00307	14.75625	6476.25	6380.276	70.6	69.9	69.4	69.7	0.001196
110.02	3.747372	14.74874	3.002444	14.757	6506	6385.988	70.7	70	69.4	69.7	0.001202
115.02	3.761128	14.74649	3.001194	14.75625	6536.25	6404.859	70.7	70	69.4	69.8	0.001206
120.02	3.752374	14.74724	3.001819	14.757	6566.5	6437.636	70.7	69.9	69.5	69.8	0.00121
125.02	3.751123	14.74799	3.00307	14.757	6606.5	6429.193	70.7	70	69.5	69.7	0.001215
130.02	3.737993	14.74649	3.002444	14.757	6626.5	6415.536	70.7	70	69.5	69.7	0.001217
135.02	3.7555	14.74874	3.002444	14.757	6647	6415.785	70.7	70	69.6	69.7	0.00122
140.02	3.744871	14.74874	3.001819	14.757	6667	6438.132	70.7	70	69.6	69.8	0.001223
145.02	3.738618	14.74874	3.002444	14.75625	6687	6440.367	70.7	70	69.6	69.8	0.001228

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.009979	3.759252	14.74724	0.055746	14.64225	91.425	-3.5484	70.6	69.8	69.5	69.7	0.000244
150.02	3.776134	14.74724	3.002444	14.757	6697	6453.527	70.7	70	69.6	69.7	0.001228
155.02	3.784888	14.74874	3.001819	14.7555	6717	6456.259	70.7	70	69.5	69.8	0.00123
160.02	3.756125	14.74948	3.002444	14.7555	6726.75	6465.198	70.7	70	69.5	69.8	0.001233
165.02	3.735491	14.74948	3.001819	14.75625	6747	6461.473	70.7	70.1	69.5	69.8	0.001235
170.02	3.744871	14.74874	3.002444	14.757	6757	6454.521	70.5	70	69.5	69.8	0.001238
175.02	3.7555	14.74724	3.004321	14.757	6767.25	6455.514	70.6	70	69.4	69.7	0.001239
180.02	3.759252	14.74649	3.003695	14.7555	6776.75	6493.008	70.6	70.1	69.5	69.8	0.00124
185.02	3.744245	14.74649	3.004321	14.75625	6787.5	6497.478	70.6	70.1	69.5	69.7	0.001241
190.02	3.740494	14.74724	3.004946	14.75775	6796.75	6482.331	70.6	70.1	69.6	69.8	0.001243
195.02	3.757376	14.74874	3.004946	14.75625	6807.25	6487.049	70.7	70.1	69.6	69.7	0.001244
200.02	3.749247	14.74724	3.004321	14.75625	6817	6498.968	70.7	70.1	69.6	69.7	0.001244
205.08	3.7555	14.74799	3.006823	14.757	6827.25	6506.417	70.7	70.1	69.4	69.8	0.001246
210.02	3.746746	14.74724	3.006823	14.757	6827.25	6500.209	70.8	70.2	69.5	69.7	0.001246
215.02	3.7555	14.74724	3.006197	14.75775	6837.25	6499.216	70.8	70.2	69.6	69.8	0.001248
220.02	3.732365	14.74724	3.006197	14.757	6837	6507.658	70.8	70.2	69.6	69.8	0.001249
225.02	3.742369	14.74799	3.006823	14.757	6847.5	6514.114	70.8	70.2	69.5	69.8	0.00125
230.02	3.749247	14.74799	3.007448	14.757	6847.5	6534.972	70.8	70.2	69.5	69.8	0.001251
235.02	3.75425	14.74724	3.006823	14.757	6857.25	6523.798	70.8	70.2	69.4	69.8	0.001251
240.02	3.750498	14.74724	3.008073	14.757	6857.5	6514.114	70.8	70.2	69.4	69.7	0.001251
245.02	3.745496	14.74799	3.009324	14.757	6867.5	6511.631	70.8	70.3	69.5	69.8	0.001253
250.02	3.744871	14.74799	3.008699	14.75625	6867.75	6507.907	70.8	70.2	69.5	69.7	0.001254
255.28	3.740494	14.74724	3.008699	14.757	6877.5	6511.88	70.8	70.2	69.5	69.8	0.001255
260.02	3.73174	14.74724	3.008699	14.75775	6887.75	6536.214	70.8	70.2	69.5	69.8	0.001256
265.02	3.753624	14.74724	3.008699	14.75625	6887.25	6551.857	70.7	70.3	69.6	69.8	0.001256
270.02	3.740494	14.74799	3.008699	14.757	6897.25	6552.602	70.7	70.3	69.5	69.8	0.001256
275.02	3.751123	14.74649	3.008073	14.75625	6897.25	6520.322	70.8	70.3	69.5	69.8	0.001257
280.02	3.735491	14.74649	3.008699	14.75625	6908	6516.101	70.7	70.3	69.4	69.8	0.001259
285.02	3.741119	14.74874	3.008699	14.75625	6907.25	6528.516	70.7	70.3	69.4	69.8	0.001259
290.02	3.739668	14.74799	3.00995	14.757	6918	6541.428	70.7	70.3	69.4	69.8	0.00126
295.02	3.745496	14.74799	3.00995	14.75775	6917.75	6527.026	70.7	70.3	69.5	69.8	0.00126
300.02	3.749247	14.74649	3.00995	14.75925	6927.25	6542.67	70.7	70.4	69.4	69.8	0.00126
305.02	3.751123	14.74724	3.010575	14.75625	6927.75	6551.112	70.7	70.3	69.4	69.8	0.001261
310.02	3.7555	14.74874	3.00995	14.75625	6927.25	6547.388	70.7	70.3	69.4	69.8	0.001261

Flammable Gas Interlock Spoolpiece Testing

FG22228A.XLS

SECONDS	MAIN DUCT	MAIN DUCT	GAS INJECT	GAS INJECT	NEWPORT	SMC	AMBIENT	GAS INJECT	MAIN DUCT	WEC CELL	WEC CELL
	DIFF (IN H2O)	ABS (PSIA)	DIFF (IN H2O)	ABS (PSIA)	(PPM)	(PPM)	TEMP.(F)	TEMP. (F)	TEMP. (F)	TEMP. (F)	(VOLTS)
0.009979	3.759252	14.74724	0.055746	14.64225	91.425	-3.5484	70.6	69.8	69.5	69.7	0.000244
315.02	3.763629	14.74574	3.010575	14.75625	6937.75	6530.503	70.7	70.4	69.8	69.8	0.001261
320.02	3.748622	14.74724	3.012452	14.75625	6937.5	6517.094	70.7	70.4	69.5	69.8	0.001262
325.02	3.758001	14.74799	3.013077	14.7555	6947.5	6525.785	70.7	70.4	69.5	69.8	0.001263
330.02	3.744871	14.74724	3.013077	14.757	6947.25	6555.83	70.7	70.4	69.5	69.8	0.001264
335.02	3.745496	14.74724	3.013077	14.757	6957.25	6539.69	70.6	70.4	69.5	69.8	0.001265
340.02	3.744871	14.74649	3.012452	14.75625	6967.75	6535.469	70.6	70.4	69.5	69.8	0.001266
345.02	3.741119	14.74574	3.011826	14.75625	6967.75	6526.778	70.7	70.4	69.5	69.8	0.001266
350.02	3.751123	14.74724	3.012452	14.75625	6967.75	6515.853	70.7	70.5	69.5	69.8	0.001268
355.02	3.753624	14.74799	3.012452	14.75625	6967.75	6546.891	70.7	70.4	69.4	69.8	0.001265
360.02	3.758001	14.74724	3.015579	14.75625	6967.75	6543.663	70.7	70.4	69.4	69.8	0.001265
365.02	3.764254	14.74724	3.013077	14.757	6967.5	6560.548	70.6	70.4	69.4	69.8	0.001266
370.02	3.736742	14.74799	3.012452	14.757	6968	6550.616	70.6	70.4	69.4	69.9	0.001267
375.02	3.751749	14.74649	3.014953	14.757	6968	6559.307	70.6	70.5	69.4	69.8	0.001268
380.02	3.749247	14.74574	3.014328	14.757	6967.75	6565.266	70.5	70.5	69.4	69.8	0.001267
385.02	3.745496	14.74574	3.013077	14.75625	6978	6575.943	70.5	70.5	69.4	69.8	0.001268
390.02	3.750498	14.74724	3.00995	14.75775	6978	6588.855	70.4	70.5	69.4	69.8	0.001268
395.02	3.746746	14.74724	3.012452	14.75625	6977.75	6569.735	70.4	70.5	69.4	69.8	0.001268
400.02	3.745496	14.74724	3.013077	14.757	6988	6574.702	70.4	70.5	69.4	69.8	0.001269
405.07	3.745496	14.74874	3.013702	14.75625	6987.75	6566.259	70.4	70.5	69.4	69.8	0.001268
410.02	3.744245	14.74649	3.013077	14.75625	6988	6558.065	70.4	70.5	69.5	69.8	0.001268
415.02	3.746121	14.74649	3.013702	14.75625	6967.75	6534.476	70.5	70.5	69.5	69.8	0.001268
420.02	3.751749	14.74649	3.014953	14.757	6988	6541.825	70.5	70.5	69.5	69.8	0.001269
425.06	3.773008	14.74724	3.014328	14.75625	6987.5	6554.34	70.5	70.5	69.5	69.8	0.001268
430.02	3.761128	14.74799	3.014953	14.75625	6977.75	6561.293	70.5	70.5	69.5	69.8	0.001268
435.1	3.736742	14.74799	3.014953	14.75625	6978	6586.372	70.5	70.5	69.4	69.8	0.001268
440.02	3.75425	14.74724	3.014953	14.7555	6978	6582.647	70.5	70.5	69.5	69.8	0.001268
445.02	3.73174	14.74799	3.014953	14.75625	6977.75	6604.747	70.6	70.6	69.4	69.8	0.001269
450.02	3.747372	14.74799	3.014953	14.75625	6978	6588.11	70.6	70.5	69.5	69.8	0.001269
455.02	3.738618	14.74948	3.014953	14.75775	6988	6570.48	70.6	70.6	69.4	69.8	0.00127
460.02	3.737993	14.74799	3.014328	14.75625	6988	6577.433	70.5	70.6	69.5	69.8	0.001271
465.02	3.7555	14.74874	3.014953	14.75625	6988	6564.273	70.6	70.6	69.5	69.9	0.001272
470.02	3.732365	14.74799	3.014953	14.757	6988	6548.629	70.6	70.6	69.5	69.8	0.001272
475.02	3.727363	14.74874	3.014328	14.75625	7007.5	6529.758	70.6	70.5	69.5	69.8	0.001273

Flammable Gas Interlock Spoolpiece Testing

FG22228A.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.009979	3.759252	14.74724	0.055746	14.64225	91.425	-3.5484	70.6	69.8	69.5	69.7	0.000244
480.02	3.744871	14.74649	3.014953	14.75625	7007.5	6528.02	70.6	70.6	69.5	69.9	0.001274
485.02	3.746121	14.74799	3.014953	14.757	7008	6544.656	70.6	70.6	69.6	69.8	0.001273
490.02	3.759877	14.74799	3.015579	14.757	7017.75	6546.891	70.7	70.6	69.6	69.9	0.001274
495.02	3.744871	14.74874	3.014953	14.75625	7018	6542.918	70.7	70.6	69.5	69.9	0.001275
500.02	3.739243	14.74799	3.015579	14.757	7028	6549.623	70.7	70.6	69.5	69.8	0.001274
505.02	3.764254	14.74874	3.014953	14.75775	7028	6556.823	70.7	70.6	69.5	69.9	0.001275
510.02	3.734241	14.74724	3.014953	14.75625	7028	6560.548	70.7	70.6	69.5	69.8	0.001275
515.02	3.738618	14.74799	3.014953	14.757	7028	6564.521	70.8	70.6	69.5	69.8	0.001276
520.02	3.735491	14.74874	3.014328	14.75625	7028	6560.796	70.7	70.6	69.4	69.8	0.001274
525.02	3.77926	14.74948	3.014953	14.75625	7027.75	6564.769	70.7	70.6	69.5	69.9	0.001276
530.04	3.751749	14.74724	3.014953	14.757	7028	6554.092	70.7	70.6	69.5	69.9	0.001277
535.02	3.762378	14.74649	3.014328	14.75625	7037.75	6542.918	70.8	70.6	69.5	69.9	0.001276
540.02	3.738618	14.74649	3.014328	14.75925	7027.75	6541.18	70.7	70.7	69.5	69.8	0.001275
545.02	3.751749	14.74799	3.014328	14.75625	7028.25	6538.697	70.7	70.7	69.5	69.9	0.001276
550.02	3.757376	14.74799	3.014953	14.75775	7028	6554.837	70.7	70.6	69.4	69.9	0.001276
555.02	3.73174	14.74724	3.014953	14.757	7028.25	6558.065	70.7	70.6	69.5	69.8	0.001275
560.06	3.760502	14.74574	3.014953	14.757	7028	6559.307	70.7	70.7	69.5	69.8	0.001276
565.02	3.749247	14.74799	3.013077	14.75625	7028	6551.609	70.6	70.7	69.5	69.9	0.001276
570.02	3.738618	14.74724	3.012452	14.757	7027.5	6574.205	70.6	70.7	69.5	69.9	0.001276
575.06	3.748622	14.74649	3.012452	14.757	7038	6535.966	70.7	70.7	69.5	69.8	0.001276
580.02	3.751123	14.74724	3.011201	14.757	7038.5	6537.952	70.7	70.7	69.4	69.8	0.001277
585.02	3.745496	14.74724	3.012452	14.757	7037.75	6552.354	70.6	70.7	69.4	69.8	0.001277
590.07	3.734241	14.74724	3.010575	14.757	7038	6545.65	70.6	70.7	69.3	69.8	0.001277
595.08	3.746746	14.74724	3.010575	14.757	7038.25	6557.072	70.6	70.7	69.4	69.8	0.001276
600.02	3.742369	14.74649	3.010575	14.75775	7038.25	6550.119	70.7	70.7	69.5	69.8	0.001276
605.03	3.745496	14.74724	3.010575	14.75625	7037.25	6540.435	70.7	70.7	69.5	69.9	0.001276
610.04	3.762378	14.74649	3.00995	14.75625	7037.75	6535.469	70.7	70.7	69.4	69.8	0.001276
615.02	3.747372	14.74574	3.011201	14.75625	7038.25	6536.462	70.8	70.7	69.4	69.9	0.001277
620.02	3.732365	14.74649	3.011201	14.75625	7037.75	6526.778	70.7	70.7	69.4	69.8	0.001277
625.04	3.739868	14.74799	3.011201	14.75625	7038.25	6545.401	70.6	70.7	69.4	69.8	0.001278
630.02	3.732365	14.74724	3.011201	14.757	7048	6561.541	70.6	70.7	69.4	69.9	0.001277
635.05	3.763003	14.74799	3.010575	14.757	7048	6551.609	70.6	70.7	69.6	69.9	0.001278
640.04	3.752999	14.74574	3.010575	14.75625	7048	6542.173	70.6	70.7	69.4	69.8	0.001277

Flammable Gas Interlock Spoolpiece Testing

FG22228A.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.009979	3.759252	14.74724	0.055746	14.64225	91.425	-3.5484	70.6	69.8	69.5	69.7	0.000244
645.02	3.749873	14.74724	3.010575	14.757	7038.25	6553.099	70.6	70.7	69.5	69.9	0.001277
650.02	3.7555	14.74724	3.011828	14.7555	7038.5	6533.979	70.6	70.7	69.4	69.8	0.001276
655.02	3.741119	14.74574	3.011201	14.75625	7038	6529.261	70.6	70.8	69.4	69.9	0.001277
660.02	3.749247	14.74724	3.011201	14.757	7038.5	6537.704	70.7	70.7	69.4	69.8	0.001278
665.04	3.746746	14.74724	3.011201	14.757	7048.75	6538.945	70.7	70.7	69.5	69.9	0.001279
670.02	3.761128	14.74724	3.011201	14.757	7048.25	6528.765	70.6	70.7	69.6	69.9	0.001279
675.02	3.744871	14.74649	3.011201	14.757	7048.25	6520.322	70.6	70.8	69.6	69.9	0.001277
680.02	3.751749	14.74799	3.00995	14.757	7048.25	6536.462	70.6	70.7	69.4	69.9	0.001279
685.02	3.722986	14.74724	3.011201	14.7555	7048	6539.939	70.6	70.7	69.4	69.9	0.001279
690.02	3.76613	14.74649	3.010575	14.757	7058	6531.496	70.6	70.8	69.5	69.8	0.00128
695.03	3.739243	14.74799	3.010575	14.757	7058.25	6538.945	70.7	70.8	69.5	69.9	0.001279
700.02	3.756125	14.74649	3.010575	14.75775	7057.75	6541.677	70.7	70.8	69.5	69.9	0.001279
705.02	3.760502	14.74724	3.011201	14.75775	7058.25	6540.932	70.7	70.8	69.5	69.8	0.001278
710.04	3.738618	14.74799	3.010575	14.75625	7048.25	6530.254	70.7	70.8	69.4	69.9	0.001279
715.04	3.753624	14.74649	3.010575	14.757	7048.25	6530.999	70.7	70.8	69.4	69.9	0.001279
720.02	3.737993	14.74724	3.011201	14.757	7048.5	6538.945	70.9	70.8	69.6	69.9	0.001279
725.02	3.744245	14.74724	3.010575	14.75625	7058.25	6535.221	70.8	70.8	69.6	69.9	0.00128
730.02	3.758001	14.74799	3.011201	14.75625	7057.75	6532.489	70.8	70.8	69.6	69.9	0.001279
735.02	3.76738	14.74724	3.010575	14.75625	7058	6554.34	70.7	70.8	69.4	69.9	0.001279
740.06	3.736117	14.74649	3.011201	14.75625	7058.25	6567.004	70.8	70.8	69.6	69.9	0.001279
745.02	3.771132	14.74724	3.011201	14.757	7058.25	6554.589	70.8	70.8	69.4	69.9	0.00128
750.02	3.744871	14.74724	3.011201	14.75625	7057.5	6528.516	70.7	70.8	69.5	69.9	0.001279
755.07	3.75425	14.74724	3.010575	14.75625	7058	6526.282	70.8	70.8	69.4	69.8	0.001279
760.02	3.761128	14.74574	3.010575	14.75625	7057.75	6512.873	70.7	70.8	69.5	69.9	0.001278
765.02	3.733616	14.74649	3.010575	14.75625	7057.75	6528.268	70.7	70.8	69.4	69.8	0.001279
770.05	3.745496	14.74799	3.011201	14.75775	7058.25	6533.234	70.6	70.8	69.4	69.8	0.001279
775.02	3.756125	14.74724	3.010575	14.75625	7058.25	6553.595	70.5	70.8	69.4	69.9	0.001279
780.02	3.742995	14.74799	3.011201	14.757	7058.5	6559.058	70.6	70.8	69.4	69.9	0.001281
785.06	3.744871	14.74799	3.011201	14.757	7067.75	6543.911	70.5	70.8	69.4	69.9	0.001281
790.02	3.752999	14.74649	3.010575	14.757	7068.25	6550.367	70.4	70.8	69.5	69.9	0.001282
795.02	3.752999	14.74724	3.011826	14.75625	7067.5	6524.047	70.4	70.8	69.5	69.9	0.001282
800.03	3.729864	14.74724	3.011201	14.75625	7068	6533.731	70.4	70.8	69.4	69.9	0.001282
805.02	3.750498	14.74724	3.008699	14.757	7072	6530.254	70.5	70.8	69.4	69.9	0.001282

SECONDS	MAIN DUCT	MAIN DUCT	GAS INJECT	GAS INJECT	NEWPORT	SMC	AMBIENT	GAS INJECT	MAIN DUCT	WEC CELL	WEC CELL
	DIFF (IN H2O)	ABS (PSIA)	DIFF (IN H2O)	ABS (PSIA)	(PPM)	(PPM)	TEMP.(F)	TEMP. (F)	TEMP. (F)	TEMP. (F)	(VOLTS)
0.009979	3.759252	14.74724	0.055746	14.64225	91.425	-3.5484	70.6	69.8	69.5	69.7	0.000244
810.02	3.749247	14.74724	3.011201	14.75625	7067.5	6526.033	70.5	70.8	69.4	69.9	0.001282
815.03	3.756125	14.74874	3.011201	14.75625	7067.75	6544.905	70.6	70.9	69.4	69.9	0.001281
820.02	3.756125	14.74799	3.011201	14.757	7078	6546.395	70.5	70.8	69.4	69.9	0.001281
825.02	3.738618	14.74724	3.008073	14.757	7068	6529.758	70.5	70.8	69.4	69.9	0.001281
830.03	3.746746	14.74799	3.008073	14.75625	7067.75	6535.717	70.5	70.8	69.5	69.9	0.001281
835.02	3.749873	14.74874	3.011201	14.757	7068.25	6528.765	70.5	70.8	69.5	69.9	0.001282
840.02	3.737367	14.74799	3.010575	14.75775	7068.25	6528.02	70.5	70.8	69.5	69.9	0.001282
845.06	3.732365	14.74799	3.010575	14.75625	7068.5	6528.02	70.4	70.9	69.5	69.9	0.001282
850.02	3.737993	14.74724	3.00995	14.75625	7068.5	6538.2	70.4	70.8	69.4	69.9	0.001282
855.02	3.739243	14.74874	3.010575	14.75775	7068.25	6521.564	70.3	70.8	69.4	69.9	0.001282
860.02	3.744871	14.74874	3.00995	14.75625	7068	6527.771	70.3	70.8	69.5	69.9	0.001281
865.02	3.754875	14.74948	3.010575	14.75775	7068.5	6538.449	70.4	70.8	69.5	69.9	0.00128
870.02	3.742995	14.74724	3.008073	14.75775	7068.25	6534.476	70.5	70.8	69.5	69.9	0.001282
875.04	3.744245	14.74724	3.008699	14.75775	7068.5	6530.006	70.5	70.8	69.4	69.9	0.001282
880.02	3.753624	14.74724	3.008699	14.75625	7068	6537.704	70.5	70.9	69.5	69.9	0.001281
885.02	3.761753	14.74724	3.008699	14.75775	7068.25	6544.408	70.6	70.8	69.5	69.9	0.001281
890.05	3.752374	14.74649	3.008699	14.757	7068.5	6539.939	70.6	70.8	69.4	69.9	0.001282
895.02	3.7555	14.74799	3.009324	14.757	7068.25	6544.408	70.6	70.8	69.5	69.9	0.001282
900.02	3.761753	14.74799	3.008699	14.75625	7068.5	6547.388	70.6	70.9	69.5	69.9	0.001283
905.05	3.768631	14.74724	3.009324	14.75625	7078	6554.589	70.7	70.9	69.4	69.9	0.001283
910.04	3.756751	14.74799	3.008699	14.757	7078.25	6538.697	70.7	70.8	69.4	69.9	0.001282
915.02	3.730489	14.74874	3.008699	14.757	7078	6545.898	70.7	70.9	69.6	69.9	0.001282

TEST: FGI22229 22 Feb 1997 WEC-SPOOL

Measured Hydrogen Concentration = 6480ppm

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP.(F)	MAIN DUCT TEMP.(F)	WEC CELL TEMP.(F)	WEC CELL (VOLTS)
0.01001	3.7555	14.74424	0.587683	14.6595	91.25	-3.59807	70.7	69.6	69.5	69.8	0.000245
5.070007	3.751123	14.74349	2.973674	14.75175	91.1	37.59623	70.7	69.6	69.5	69.8	0.000246
10.01999	3.791766	14.74499	2.979303	14.75175	275.5	2563.783	70.6	69.6	69.5	69.8	0.000293
15.01999	3.732365	14.74499	2.983056	14.75175	907.75	4584.265	70.6	69.6	69.5	69.8	0.000411
20.01999	3.759252	14.74574	2.985558	14.75175	1854.5	5451.108	70.7	69.6	69.4	69.8	0.000544
25.01999	3.766755	14.74499	2.988059	14.75175	2698.25	5816.369	70.7	69.6	69.5	69.8	0.000668
30.01999	3.73174	14.74424	2.992437	14.7525	3423.75	6006.821	70.7	69.6	69.5	69.8	0.000772
35.01999	3.738618	14.74574	2.992437	14.7525	4010.25	6080.817	70.7	69.6	69.5	69.8	0.000856
40.01999	3.737993	14.74424	2.993063	14.7525	4498.5	6096.957	70.7	69.6	69.5	69.8	0.000924
45.01999	3.754875	14.74424	2.991812	14.7525	4914.75	6137.431	70.7	69.7	69.5	69.9	0.00098
50.01999	3.746746	14.74649	2.994314	14.7525	5205.25	6178.899	70.7	69.7	69.5	69.8	0.001023
55.01999	3.726738	14.74499	2.994939	14.75175	5474.75	6204.723	70.7	69.7	69.5	69.8	0.001059
60.01999	3.748622	14.74574	2.997441	14.75175	5695.25	6242.962	70.7	69.7	69.4	69.8	0.001087
65.01999	3.724237	14.74349	2.994314	14.75175	5868.5	6275.987	70.7	69.7	69.4	69.8	0.00111
70.04001	3.731115	14.74574	2.995565	14.75175	5995.75	6294.114	70.7	69.7	69.5	69.8	0.001129
75.01999	3.742995	14.74424	2.995565	14.75175	6105.75	6313.73	70.7	69.7	69.4	69.8	0.001145
80.01999	3.744245	14.74499	2.995565	14.75175	6206	6324.407	70.7	69.7	69.4	69.9	0.00116
85.01999	3.74362	14.74499	2.995565	14.75175	6276	6327.387	70.8	69.8	69.4	69.8	0.00117
90.04999	3.73174	14.74424	2.99619	14.751	6356.5	6338.561	70.8	69.7	69.4	69.8	0.001178
95.01999	3.760502	14.74424	2.996816	14.75175	6406.5	6322.669	70.8	69.7	69.5	69.8	0.001187
100.02	3.748873	14.74424	2.995565	14.7525	6456.5	6338.561	70.8	69.8	69.5	69.8	0.001193
105.02	3.746746	14.74274	2.993688	14.75175	6486.5	6360.164	70.8	69.8	69.5	69.8	0.001199
110.02	3.742369	14.74424	2.99619	14.7525	6526.75	6372.827	70.8	69.8	69.5	69.8	0.001203
115.02	3.77801	14.74499	2.993688	14.75175	6556.75	6390.457	70.8	69.8	69.6	69.8	0.001208
120.02	3.748622	14.74424	2.996816	14.751	6586.25	6388.471	70.8	69.8	69.6	69.8	0.001212
125.02	3.761753	14.74499	2.99619	14.75175	6606.5	6384.249	70.8	69.8	69.5	69.8	0.001214
130.02	3.73174	14.74424	2.994314	14.751	6616.5	6384.746	70.9	69.8	69.5	69.8	0.001218
135.02	3.748247	14.74574	2.993688	14.7525	6646.5	6411.067	70.8	69.8	69.5	69.8	0.001221
140.02	3.750498	14.74424	2.993063	14.75175	6666.5	6399.644	70.8	69.9	69.5	69.8	0.001223
145.02	3.73174	14.74349	2.993063	14.75175	6687	6400.141	70.8	69.9	69.4	69.8	0.001226

Flammable Gas Interlock Spoolpiece Testing

FGI22229.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.01001	3.7555	14.74424	0.587683	14.6595	91.25	-3.59807	70.7	69.6	69.5	69.8	0.000245
150.02	3.765504	14.74499	2.991187	14.7525	6697	6400.638	70.9	69.9	69.5	69.8	0.001229
155.02	3.747997	14.74349	2.991812	14.751	6707	6400.141	70.8	70	69.4	69.9	0.001231
160.02	3.736117	14.74349	2.991812	14.75175	6727	6389.216	70.8	70	69.5	69.8	0.001231
165.02	3.749247	14.74274	2.991812	14.751	6737	6401.134	70.8	69.9	69.6	69.8	0.001234
170.02	3.740494	14.74349	2.991812	14.75175	6737	6437.387	70.7	69.9	69.6	69.8	0.001235
175.02	3.734866	14.74349	2.991187	14.7525	6747	6420.502	70.7	69.9	69.6	69.8	0.001236
180.02	3.774258	14.74349	2.991812	14.75175	6757.25	6426.71	70.8	70	69.6	69.9	0.001237
185.12	3.744245	14.74424	2.991812	14.751	6776.75	6439.87	70.7	70	69.5	69.8	0.001238
190.02	3.74362	14.74424	2.991187	14.75175	6787	6458.742	70.8	70	69.6	69.8	0.00124
195.02	3.752999	14.74424	2.991187	14.75175	6797.25	6461.473	70.8	70	69.6	69.8	0.001241
200.02	3.764254	14.74574	2.989936	14.75175	6796.75	6443.595	70.8	70	69.4	69.9	0.001242
205.02	3.77926	14.74574	2.98931	14.75175	6807.25	6427.703	70.8	70	69.5	69.9	0.001244
210.02	3.751123	14.74424	2.98931	14.75175	6817	6469.916	70.8	70	69.4	69.9	0.001246
215.02	3.727988	14.74349	2.988808	14.75175	6816.75	6485.559	70.9	70	69.4	69.8	0.001245
220.02	3.748622	14.74424	2.989936	14.7525	6827.25	6471.405	70.8	70	69.3	69.8	0.001245
225.02	3.757376	14.74574	2.987434	14.75175	6827.25	6471.654	70.8	70	69.4	69.9	0.001247
230.02	3.752374	14.74424	2.988059	14.7525	6837	6473.144	70.9	70.1	69.4	69.8	0.001247
235.02	3.733616	14.74499	2.984932	14.75325	6837.75	6494.746	70.9	70.1	69.6	69.9	0.001248
240.02	3.742369	14.74124	2.985558	14.75175	6847.75	6471.405	70.8	70.1	69.6	69.9	0.00125
245.02	3.758626	14.74574	2.985558	14.75175	6847.25	6455.265	70.8	70.1	69.6	69.9	0.00125
250.02	3.744245	14.74574	2.984932	14.75175	6857	6468.177	70.8	70.1	69.5	69.9	0.001251
255.02	3.733616	14.74274	2.985558	14.75175	6857.25	6462.218	70.8	70.1	69.5	69.9	0.001251
260.02	3.746746	14.74349	2.984932	14.7525	6866.75	6489.532	70.8	70.2	69.5	69.9	0.001251
265.02	3.740494	14.74349	2.985558	14.7525	6867.25	6494.25	70.8	70.2	69.4	69.9	0.00125
270.02	3.746121	14.74199	2.985558	14.75175	6867.75	6490.277	70.7	70.2	69.4	69.9	0.001251
275.02	3.750498	14.74499	2.985558	14.751	6867.5	6489.78	70.7	70.2	69.3	69.9	0.001252
280.02	3.742369	14.74424	2.986183	14.75175	6877.75	6471.157	70.6	70.2	69.4	69.9	0.001253
285.02	3.744871	14.74124	2.984307	14.75175	6877.5	6465.694	70.6	70.2	69.4	69.9	0.001254
290.02	3.758125	14.74499	2.983056	14.75175	6887.75	6471.157	70.7	70.2	69.6	69.9	0.001254
295.02	3.748622	14.74424	2.98243	14.75175	6887.25	6442.85	70.6	70.2	69.5	69.8	0.001254
300.02	3.737993	14.74199	2.983056	14.75175	6887.5	6415.288	70.6	70.2	69.6	69.9	0.001256
305.02	3.742995	14.74124	2.983056	14.75175	6897.75	6451.541	70.6	70.2	69.6	69.8	0.001256
310.02	3.749247	14.74124	2.98243	14.7525	6897.25	6464.453	70.5	70.2	69.5	69.9	0.001257

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.01001	3.7555	14.74424	0.587683	14.6595	91.25	-3.59807	70.7	69.6	69.5	69.8	0.000245
315.02	3.742369	14.74424	2.981805	14.7525	6897.75	6481.586	70.5	70.2	69.5	69.9	0.001257
320.02	3.736742	14.74424	2.980554	14.75175	6907.75	6480.345	70.5	70.2	69.4	69.9	0.001256
325.02	3.74362	14.74424	2.98118	14.751	6907.75	6482.579	70.6	70.3	69.5	69.9	0.001257
330.02	3.751123	14.74049	2.98118	14.7525	6907.75	6479.6	70.7	70.3	69.4	69.9	0.001258
335.02	3.770507	14.74499	2.980554	14.7525	6908	6473.144	70.7	70.3	69.4	69.9	0.001258
340.02	3.757376	14.74349	2.98118	14.75175	6918	6476.123	70.7	70.3	69.4	69.9	0.001258
345.02	3.742369	14.74424	2.979929	14.75175	6917.25	6487.546	70.7	70.3	69.4	69.8	0.001258
350.02	3.754875	14.74499	2.981805	14.75175	6917.75	6487.794	70.7	70.3	69.4	69.9	0.00126
355.02	3.749873	14.74199	2.979303	14.7525	6917	6488.539	70.8	70.3	69.4	69.8	0.001259
360.02	3.747997	14.74424	2.979929	14.75175	6917.5	6486.801	70.8	70.3	69.4	69.9	0.00126
365.02	3.761753	14.74499	2.979303	14.7525	6927.75	6476.372	70.7	70.3	69.3	69.8	0.00126
370.03	3.737367	14.74199	2.979929	14.751	6927.25	6477.613	70.7	70.4	69.4	69.9	0.00126
375.02	3.724862	14.74199	2.979929	14.7525	6927.75	6488.29	70.8	70.4	69.3	69.8	0.00126
380.02	3.744871	14.74124	2.978678	14.7525	6927.75	6481.09	70.7	70.4	69.3	69.9	0.001261
385.02	3.751123	14.74199	2.978678	14.75175	6928	6477.365	70.7	70.4	69.3	69.9	0.00126
390.1	3.748622	14.74274	2.979303	14.7525	6927.25	6476.868	70.7	70.4	69.3	69.9	0.001261
395.02	3.759252	14.74424	2.979303	14.751	6928	6479.848	70.7	70.4	69.3	69.9	0.001261
400.04	3.731115	14.74274	2.978678	14.75175	6928	6474.634	70.7	70.4	69.4	69.9	0.001262
405.02	3.761753	14.74199	2.979303	14.75175	6927.25	6476.62	70.7	70.4	69.4	69.8	0.001261
410.06	3.74362	14.74199	2.979303	14.7525	6927.5	6486.304	70.6	70.4	69.3	69.9	0.001261
415.02	3.736117	14.74199	2.978601	14.7525	6937.5	6482.828	70.7	70.4	69.5	69.8	0.001262
420.07	3.751123	14.74274	2.978678	14.7495	6937.75	6485.807	70.6	70.4	69.4	69.9	0.001262
425.02	3.739243	14.74424	2.978052	14.7525	6937.75	6489.171	70.6	70.4	69.4	69.9	0.001262
430.02	3.744871	14.74274	2.978678	14.7495	6937.5	6480.096	70.6	70.4	69.4	69.9	0.001262
435.02	3.744871	14.74124	2.977427	14.7495	6938	6473.144	70.6	70.4	69.4	69.9	0.001262
440.09	3.736117	14.74124	2.978601	14.75175	6939.5	6475.378	70.6	70.4	69.4	69.9	0.001263
445.02	3.740494	14.74349	2.974925	14.75175	6948	6482.083	70.6	70.4	69.4	69.9	0.001263
450.09	3.740494	14.74124	2.974925	14.7495	6957.75	6481.338	70.7	70.4	69.5	69.9	0.001265
455.02	3.762376	14.74274	2.974925	14.74875	6958	6467.184	70.7	70.4	69.5	69.9	0.001264
460.02	3.747372	14.74499	2.975551	14.75175	6957.75	6444.837	70.7	70.4	69.5	69.9	0.001264
465.02	3.739868	14.74199	2.974925	14.7495	6957.5	6445.83	70.8	70.4	69.4	69.9	0.001263
470.02	3.732365	14.74199	2.975551	14.75175	6957.75	6452.286	70.8	70.4	69.4	69.9	0.001264
475.02	3.750498	14.74199	2.974925	14.7495	6947.5	6441.609	70.7	70.5	69.4	69.9	0.001264

Flammable Gas Interlock Spoolpiece Testing

FGI22229.XLS

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.01001	3.7555	14.74424	0.587683	14.6595	91.25	-3.59807	70.7	69.6	69.5	69.8	0.000245
480.02	3.725487	14.74199	2.973674	14.751	6958	6448.065	70.7	70.5	69.5	69.9	0.001265
485.02	3.771757	14.74199	2.975551	14.7495	6957.25	6466.439	70.6	70.5	69.5	69.9	0.001265
490.02	3.771757	14.74199	2.974925	14.7495	6958	6455.762	70.7	70.5	69.4	69.9	0.001268
495.02	3.735491	14.74124	2.974925	14.751	6968	6438.381	70.7	70.5	69.4	69.9	0.001268
500.02	3.748247	14.74274	2.9743	14.751	6968	6451.789	70.6	70.5	69.5	69.9	0.001268
505.02	3.739868	14.74124	2.973049	14.74875	6968.25	6460.728	70.6	70.5	69.5	69.9	0.001265
510.03	3.732365	14.74349	2.973674	14.75175	6968.25	6472.895	70.6	70.5	69.6	69.9	0.001268
515.08	3.756125	14.74124	2.973049	14.74875	6968	6442.105	70.6	70.5	69.5	69.8	0.001267
520.02	3.768006	14.74424	2.973049	14.75175	6968	6468.177	70.6	70.5	69.5	69.8	0.001267
525.02	3.749873	14.74274	2.973674	14.75175	6968.25	6464.205	70.7	70.5	69.6	69.9	0.001267
530.03	3.761753	14.74274	2.973049	14.7495	6968	6444.34	70.7	70.5	69.5	69.9	0.001268
535.02	3.73174	14.74124	2.972423	14.74875	6977.75	6455.514	70.7	70.5	69.5	69.9	0.001268
540.03	3.744871	14.74274	2.973674	14.7495	6978	6440.615	70.7	70.5	69.5	69.9	0.001268
545.02	3.757376	14.74274	2.973049	14.74875	6978	6452.286	70.7	70.5	69.5	69.8	0.001268
550.02	3.747372	14.74349	2.9743	14.7495	6967.75	6438.877	70.8	70.5	69.5	69.8	0.001268
555.02	3.744245	14.74199	2.973674	14.751	6968.25	6444.092	70.8	70.6	69.5	69.9	0.001268
560.07	3.768006	14.74499	2.973049	14.751	6967.75	6450.548	70.8	70.5	69.6	69.9	0.001268
565.02	3.746746	14.74274	2.973674	14.7495	6978	6452.037	70.7	70.5	69.5	69.9	0.001268
570.03	3.75425	14.74274	2.973049	14.74875	6978	6448.313	70.5	70.6	69.4	69.9	0.001267
575.1	3.7555	14.74199	2.973049	14.7495	6978	6437.387	70.6	70.6	69.4	69.9	0.001267
580.02	3.744871	14.74124	2.973049	14.74875	6977.75	6444.837	70.5	70.6	69.4	69.9	0.001268
585.08	3.763629	14.74274	2.973674	14.74875	6978.25	6442.353	70.5	70.6	69.4	69.9	0.001267
590.02	3.746121	14.74124	2.973049	14.74875	6978	6452.286	70.5	70.6	69.3	69.9	0.001267
595.02	3.737993	14.74199	2.973674	14.7495	6977.75	6449.058	70.6	70.6	69.4	69.9	0.001268
600.04	3.752999	14.74199	2.973049	14.7495	6968	6437.636	70.7	70.6	69.4	69.9	0.001265
605.02	3.737993	14.74124	2.973674	14.74875	6968.25	6444.837	70.7	70.6	69.4	69.9	0.001267
610.02	3.737993	14.74199	2.973049	14.7495	6967.75	6437.387	70.7	70.6	69.4	69.9	0.001267
615.02	3.757376	14.74349	2.973049	14.7495	6977.75	6442.85	70.7	70.6	69.5	69.9	0.001267
620.08	3.748247	14.74124	2.973049	14.7495	6978	6446.326	70.7	70.6	69.5	69.9	0.001268
625.02	3.733616	14.74049	2.973049	14.7495	6978	6427.952	70.7	70.6	69.5	69.9	0.001268
630.04	3.741119	14.74199	2.973674	14.74875	6977.75	6440.119	70.7	70.6	69.5	69.9	0.001269
635.05	3.740494	14.74199	2.973049	14.74875	6977.75	6429.193	70.7	70.6	69.4	69.9	0.001268
640.02	3.736117	14.74124	2.973674	14.74875	6978.25	6424.724	70.7	70.6	69.5	69.9	0.001269

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.01001	3.7555	14.74424	0.587683	14.6595	91.25	-3.59807	70.7	69.6	69.5	69.8	0.000245
645.04	3.753624	14.74049	2.973674	14.74875	6978	6422.737	70.6	70.6	69.5	69.9	0.001268
650.09	3.733616	14.74049	2.9743	14.74875	6988	6429.938	70.6	70.7	69.5	69.9	0.001269
655.02	3.737993	14.74124	2.973049	14.74875	6988.25	6432.173	70.7	70.6	69.4	69.9	0.00127
660.07	3.74362	14.74199	2.973049	14.74875	6998	6444.092	70.7	70.6	69.4	69.9	0.001271
665.02	3.747372	14.74199	2.973049	14.74875	6998	6437.387	70.6	70.7	69.4	69.9	0.001271
670.02	3.746121	14.74199	2.973674	14.748	6998	6440.119	70.7	70.7	69.5	69.9	0.001269
675.05	3.7555	14.74274	2.973049	14.748	6988	6450.299	70.7	70.7	69.4	69.9	0.00127
680.02	3.752999	14.73974	2.973049	14.74875	6998	6433.166	70.7	70.7	69.5	69.9	0.00127
685.02	3.748622	14.74124	2.973674	14.748	6998	6446.078	70.7	70.7	69.5	69.9	0.001269
690.06	3.731115	14.74124	2.971172	14.74875	6998	6463.46	70.7	70.7	69.5	69.9	0.001269
695.02	3.734241	14.74199	2.971172	14.74875	6998	6450.051	70.7	70.7	69.6	69.9	0.00127
700.02	3.737367	14.74199	2.970547	14.74875	6988.25	6428.448	70.7	70.7	69.6	69.9	0.001269
705.04	3.742995	14.74199	2.971172	14.7495	6988.25	6403.617	70.8	70.7	69.5	69.9	0.001269
710.02	3.738618	14.74199	2.971172	14.74875	6987.75	6415.536	70.7	70.7	69.5	69.9	0.00127
715.02	3.742369	14.74199	2.971172	14.74875	6998.25	6428.2	70.8	70.7	69.6	69.9	0.00127
720.07	3.748622	14.74124	2.971172	14.74725	6998.25	6409.08	70.7	70.7	69.6	69.8	0.00127
725.04	3.763003	14.74274	2.970547	14.748	6988	6411.812	70.6	70.7	69.5	69.9	0.001269
730.02	3.756125	14.74199	2.971172	14.74875	6988.25	6419.757	70.6	70.7	69.5	69.9	0.001268
735.02	3.7555	14.74199	2.971172	14.74575	6988	6405.604	70.6	70.7	69.5	69.9	0.001268
740.02	3.742369	14.74274	2.971798	14.74875	6987.75	6406.597	70.5	70.7	69.6	70	0.00127
745.02	3.738618	14.74199	2.971172	14.748	6988	6421.992	70.6	70.7	69.5	69.9	0.001269
750.05	3.738618	14.74049	2.969296	14.74725	6988.25	6435.153	70.6	70.7	69.6	69.9	0.001269
755.06	3.772382	14.74199	2.970547	14.748	6988.25	6423.234	70.6	70.7	69.5	69.9	0.001269
760.02	3.744871	14.74199	2.971172	14.74875	6998.25	6391.45	70.6	70.8	69.5	69.9	0.001269
765.04	3.747372	14.74124	2.969296	14.74875	6988.25	6424.475	70.6	70.7	69.6	69.9	0.001271
770.06	3.734241	14.74199	2.970547	14.748	6998	6445.83	70.6	70.7	69.5	69.9	0.00127
775.02	3.744871	14.74274	2.971172	14.74875	6998.25	6438.629	70.6	70.7	69.4	69.9	0.00127
780.06	3.759877	14.74199	2.968671	14.74875	6998.25	6461.97	70.6	70.7	69.5	69.9	0.00127
785.02	3.80177	14.74199	2.968671	14.7495	6998	6454.272	70.6	70.7	69.5	69.9	0.00127
790.02	3.754875	14.74274	2.969296	14.74875	6998.25	6445.83	70.6	70.7	69.5	69.9	0.00127
795.02	3.737993	14.74274	2.969296	14.748	6998.25	6437.636	70.6	70.7	69.6	69.9	0.00127
800.05	3.735491	14.74124	2.971172	14.74875	6998	6451.789	70.6	70.8	69.5	69.9	0.00127
805.02	3.746121	14.74199	2.968045	14.74875	6998.25	6449.306	70.5	70.8	69.6	69.9	0.001271

SECONDS	MAIN DUCT DIFF (IN H2O)	MAIN DUCT ABS (PSIA)	GAS INJECT DIFF (IN H2O)	GAS INJECT ABS (PSIA)	NEWPORT (PPM)	SMC (PPM)	AMBIENT TEMP.(F)	GAS INJECT TEMP. (F)	MAIN DUCT TEMP. (F)	WEC CELL TEMP. (F)	WEC CELL (VOLTS)
0.01001	3.7555	14.74424	0.587683	14.6595	91.25	-3.59807	70.7	69.6	69.5	69.8	0.000245
810.02	3.754875	14.74199	2.968671	14.7495	6998.25	6442.602	70.5	70.8	69.5	69.9	0.00127
815.02	3.7555	14.74124	2.968671	14.74725	6998.25	6442.353	70.6	70.8	69.5	69.9	0.00127
820.02	3.754875	14.74199	2.968671	14.74725	6997.75	6487.546	70.6	70.8	69.5	69.9	0.00127
825.02	3.73174	14.74199	2.968671	14.74575	6998	6474.385	70.6	70.8	69.6	69.9	0.001271
830.09	3.762378	14.74124	2.968671	14.748	6998	6450.548	70.6	70.8	69.5	69.9	0.001271
835.02	3.742369	14.74199	2.968045	14.7495	6998	6432.173	70.5	70.8	69.5	69.9	0.001271
840.02	3.745496	14.74124	2.969296	14.7495	6998.25	6439.125	70.5	70.8	69.5	69.9	0.001271
845.02	3.726112	14.74274	2.968671	14.74875	6998.25	6458.742	70.6	70.8	69.6	69.9	0.001271
850.02	3.744871	14.74274	2.968671	14.7465	7008.25	6463.46	70.6	70.8	69.4	69.9	0.001272
855.03	3.749247	14.74199	2.968671	14.7465	7008.25	6461.97	70.6	70.8	69.5	69.9	0.001272
860.02	3.727988	14.74199	2.966794	14.74875	7008.25	6460.48	70.7	70.8	69.5	69.9	0.001271
865.02	3.737367	14.74274	2.965544	14.745	7008	6436.642	70.7	70.8	69.4	69.9	0.001271
870.02	3.73174	14.74199	2.966169	14.74875	7008	6437.884	70.8	70.8	69.4	69.9	0.001272
875.02	3.737367	14.74274	2.966169	14.74725	7008.25	6446.823	70.8	70.8	69.5	69.9	0.001272
880.02	3.754875	14.74124	2.966794	14.74575	7008	6456.507	70.7	70.8	69.5	69.9	0.001272
885.04	3.759677	14.74274	2.968671	14.7465	7008	6461.225	70.7	70.8	69.5	69.9	0.001272
890.02	3.744245	14.74199	2.96742	14.7465	7008	6469.667	70.8	70.8	69.6	70	0.001272
895.02	3.752374	14.74274	2.96742	14.74725	7008	6480.096	70.8	70.8	69.5	69.9	0.001271
900.05	3.73299	14.74124	2.966169	14.7465	7008	6475.13	70.7	70.8	69.5	70	0.001272
905.02	3.736117	14.74124	2.966794	14.74575	7008	6460.977	70.7	70.8	69.5	70	0.001272
910.02	3.750498	14.74199	2.96742	14.7465	7008	6459.735	70.7	70.8	69.6	69.9	0.001272
915.05	3.768631	14.74124	2.968045	14.74725	7008.25	6467.184	70.7	70.8	69.6	70	0.001271
920.03	3.768006	14.74199	2.96742	14.748	7008.25	6460.977	70.7	70.8	69.5	70	0.001272
925.02	3.76738	14.74199	2.966794	14.7465	7008.25	6452.286	70.8	70.8	69.5	69.9	0.001272
930.05	3.732365	14.74349	2.966794	14.74875	6998.25	6441.857	70.8	70.8	69.5	70	0.001271

APPENDIX D - EXCEPTION RECORDS

TEST EXCEPTION SHEET

<u>Test Exception 1</u>			Title of Test: HNF-SD-WM-TC-RMCS FGI FLOW RESPONSE TEST		
EXCEPTIONS			CORRECTION APPROVAL		
Procedure Step Number	Date	Description	Initials/Date		
			Test Engineer	Test Director	Witnesses
10.2.3.5	2-13-97	<p>Testing results indicate a WEC sensor response time of about 6 minutes to 90% of final value. This is unacceptable to the.</p> <p><u>Resolution Action Plan:</u></p> <p>1. Reconfigure the spool piece sample tubing to provide gas flow through the sensor gas detection chamber. Drive the gas flow by the differential pressure developed across the internal baffle.</p> <p>2. Repeat previous tests to validate the new response times. Record testing activity in the test log to document details.</p> <p>Test Results led to the preparation of EEN 680420.</p>		<p>jed.</p> <p>2-17-97</p>	

TEST APPROVED WITH EXCEPTIONS

JC Ehrhard 12-17-97
Test Director / Date

Michael L. McElroy 13-10-97
Quality Assurance / Date

EXCEPTION RESOLVED

Eric Walder 13/10/97
FGI Cognizant Engineer / Date

Michael L. McElroy 13-10-97
Quality Assurance / Date

40420

ENGINEERING CHANGE NOTICE

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Proj.
ECN

2. ECN Category (mark one) ☐ Supplemental ☐ Direct Revision ☐ Change ECN ☐ Temporary ☐ Standby ☐ Supersede ☐ Cancel/Void	3. Originator's Name, Organization, MSIN, and Telephone No. T.R. BENEGAS, 0800, S2-24, 376-4862	4. USQ Required? ☒ Yes ☐ No	5. Date 2/19/97
6. Project Title/No./Work Order No. Rotary Mode Core Sampling ESI 549	7. Bldg./Sys./Fac. No. 200G/241G	8. Approval Designator SQ	
9. Document Numbers Changed by this ECN (includes sheet no. and rev.) See Block 13A for list	10. Related ECN No(s). N/A	11. Related PO No. N/A	
12a. Modification Work	12b. Work Package No.	12c. Modification Work Complete	
☒ Yes (fill out Blk. 12b) ☐ No (NA Blks. 12b, 12c, 12d)	ES-97-00103 ENGINEERING	12d. Restored-to-Originat-Condition (Temp. or Standby ECN only) N/A	
Design Authority/Cog. Engineer		Signature & Date	
13a. Description of Change			
USQ TF-97-0180			
13b. Design Baseline Document? ☒ Yes ☐ No			
<p>This ECN effects drawing H-14-100524, Rev. 0, Sheets 1,2,3,5, and 9. This ECN adds an additional three way valve to provide a flow of air past the Whittaker sensor. See continuation sheets for drawing details.</p> <p>When incorporating this ECN, original details shown on the drawing that were moved or omitted for clarity are to be restored.</p> <p><i>A rotameter was also added to the Whittaker sensing line to allow verification of flow. Air flow is necessary to allow the Whittaker to respond properly. In addition, the SMC rotameter was changed to a higher range model since the specified rotameter was pegging. When pegged, it is not clear if there is flow or if the ball is stuck. A higher range flowmeter for the SMC will have the ball indicator in the midrange of the tube.</i></p>			
14a. Justification (mark one)			
☐ Criteria Change	☒ Design Improvement	☐ Environmental	☐ Facility Deactivation
☐ As-Found	☐ Facilitate Const	☐ Const. Error/Omission	☐ Design Error/Omission
14b. Justification Details			
This change will allow the Whittaker sensor to operate within the required time limits as specified in WHC-SD-WM-SAD-035, Rev. 0A.			
This ECN is covered by USQ TF-97-0180.			
15. Distribution (include name, MSIN, and no. of copies)			
EJ Waldo S7-12 (1)	KL Drury S7-12 (1)	S7-12 (1)	
JD Robinson S7-12 (1)	RE Raymond S7-12 (1)	S7-12 (1)	
EE Salinas S7-12 (1)	J.S. Ranscha S7-07 (1)	S7-07 (1)	
ML McElroy S7-07 (1)	Sta. 15 E6-12 (1)	E6-12 (1)	
Sta. 1 S5-59 (1)	Sta. 16 S5-00 (1)	S5-00 (1)	
Sta. 2 S6-81 (1)	Sta. 20 T4-00 (1)	T4-00 (1)	
G.P. Janicek S7-12 (1)			

RELEASE STAMP

DATE FEB 25 1997
STA 3
RELEASE

ID 58

ENGINEERING CHANGE NOTICE

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1. ECN (use no. from pg. 1)
640420

16. Design Verification Required [X] Yes [] No	17. Cost Impact		18. Schedule Impact (days)	
	ENGINEERING <i>N/A</i>		CONSTRUCTION <i>N/A</i>	
	Additional [] \$	Savings [] \$	Improvement []	Delay []

19. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 13. Enter the affected document number in Block 20.

SDD/DD	[X]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[X]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[X]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[X]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]	Master Equipment List	[X]
Environmental Permit	[]	Inventory Adjustment Request	[]		[]

20. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number/Revision
6-ES-451 TRB	6-ES-445	TO-060-347
TS-020-451 TRB	6-ES-443	
TO-080-518 TRB	H-14-100523, Sheet 1, Rev. 0	

21. Approvals

Signature	Date	Signature	Date
Design Authority G.P. Janicek S7-12	2/25/97	Design Agent.	
Cog. Eng. E.J. Waldo S7-12	2/19/97	PE	
Cog. Mgr. J.S. Schofield S7-12	2/19/97	QA	
QA ML McElroy S7-07	2/24/97	Safety	
Safety J.S. Ranschau S7-07	2/20/97	Design	
Environ.		Environ.	
Other C.E. Hanson S7-12	2/20/97	Other	
Informal Design Review	2/20/97		

DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

ADDITIONAL

ENGINEERING CHANGE NOTICE CONTINUATION SHEET

Page 3 of 7

Date 2/19/97

1. Change the quantity on the "PARTS/MATERIAL LIST", H-14-100524, Sheet 1, Rev. 0:
- Item 12 from "3" to "2", (reduces number of bulkhead fittings by one).
 - Item 21 from "1" to "2", (increases number of 3-way valves by one).
 - Item 38 from "14" to "18", (updates number of labels generated to date).
 - Item 74 from "2" to "3" (increases number of unions by one, Reference ECN 639109).
 - Item 72 from "2" to "4" (increases number of male connectors from 2 to 4 for the use of an additional rotameter).

2. Change the "PARTS/MATERIAL LIST", H-14-100524, Sheet 1, Rev. 0, part number 58 as follows:

Was:

GASKET, 1/8 THK	NEOPRENE, DURO 40 ±5	3	58
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is:

GASKET, I.D. 1 3/8, O.D. 1 5/8, W 1/8	PARKER 2 SERIES OR EQUAL	3	58
---------------------------------------	--------------------------	---	----

3. Change Item 69 from the "PARTS/MATERIAL LIST", H-14-100524, Sheet 1, Rev. 0, from "RMA-12" to "RMA-13". Refer to ECN 636576.
4. Change the quantity on the "PARTS/MATERIAL LIST", H-14-100524, Sheet 1, Rev. 0, for Item 69 from "1" to "2". Refer to ECN 636576.
5. Delete detail 58 on H-14-100524, Sheet 3, Rev. 0.
6. Add the following Item to the SCHEDULE, Item 38, Drawing H-14-100524, Rev. 0, Sheet 5.

ALPHA	TEXT	MINIMUM PLATE SIZE (H x W)	MINIMUM TEXT HEIGHT
T	VTP-V-2207T WHITTAKER H2 CELL RETURN ISOLATION	1 X 2	7/32

7. Add flag note 28 to H-14-100524, Sheet 1.
- "28" Place flowmeter approximately midway between Whittaker sensor and Whittaker Valve and as close as practical to spool piece, i.e., provide maximum protection for flowmeter as practical."
8. See additional pages for detailed changes.

H-14-100524, SHEET 2, ZONE A-F, 2-6

ENGINEERING CHANGE NOTICE CONTINUATION SHEET PAGE 4 OF 7

ECN 649420
Date 2/19/97

H-14-100524, SHEET 2, ZONE A-F, 2-6

ENGINEERING CHANGE NOTICE CONTINUATION SHEET PAGE 5 OF 7

ECN 64020
Date 2/19/97

IS

ECN.	640420
Date	2/19/97

ECN.	640420
Date	2/19/97

SECTION C-C

15

ENGINEERING CHANGE NOTICE CONTINUATION SHEET

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ECN 640420

Date 2/19/97

14-100524, SHEET 9, ZONE C7

WAS

SAMPLER SPOOL P & ID

IS

SAMPLER SPOOL P & ID

TEST EXCEPTION SHEET

TEST # 2			Title of Test: HNF-SD-WM-TC-RMCS FGI FLOW RESPONSE TEST		
EXCEPTIONS			CORRECTION APPROVAL		
Procedure Step Number	Date	Description	Initials/Date		
			Test Engineer	Test Director	Witnesses
10.2.3.6	2-22-97	<p>The 100% H₂ injection gas bottle ran out of gas at approximately 14 minutes into run 2-8.</p> <p>Resolution: Test EO# 2-8 will be repeated using the following file EO#s so no data will be lost QC - 0222728A DL - FG22228A</p> <p>Test Repeated</p>	 	 	

TEST APPROVED WITH EXCEPTIONS

JC Rhoads / 2-22-97
Test Director / Date

Michael L. McElroy / 3-10-97
Quality Assurance / Date

EXCEPTION RESOLVED

Eric Walder / 3-10-97
FGI Cognizant Engineer / Date

Michael L. McElroy / 3-10-97
Quality Assurance / Date

TEST EXCEPTION SHEET

JE #3			Title of Test: HNF-SD-WM-TC-RMCS FGI FLOW RESPONSE TEST		
EXCEPTIONS			CORRECTION APPROVAL		
Procedure Step Number	Date	Description	Initials/Date		
			Test Engineer	Test Director	Witnesses
10.2.3	2-22-97	<p>It is desired to see the H₂ sensor response at a lower flow (180 SCFM) since that is the current field operating point.</p> <p><u>Resolution:</u></p> <p>Perform 3 tests at 180 SCFM mainduct flow with a mixed concentration of nominally 4,000 ppm H₂. Identify the test IDs as follows:</p> <p>GC - 02227 EX 1, 2, 3</p> <p>DL - EX 1, EX 2, EX 3 02227</p>		<p>ged.</p> <p>2-22-97</p>	

TEST APPROVED WITH EXCEPTIONS

J.C. Rhine / 2-22-97
Test Director / Date

Michael L. McElroy / 1-3-10-97
Quality Assurance / Date

EXCEPTION RESOLVED

Chris Waldo / 1-3-10-97
FGI Cognizant Engineer / Date

Michael L. McElroy / 1-3-10-97
Quality Assurance / Date

TEST EXCEPTION SHEET

<div style="font-size: 2em; font-family: cursive;">TE#4</div>			Title of Test: HNF-SD-WM-TC-RMCS FGI FLOW RESPONSE TEST		
EXCEPTIONS			CORRECTION APPROVAL		
Procedure Step Number	Date	Description	Initials/Date		
			Test Engineer	Test Director	Witnesses
10.2.1.2	2-25-97	<p><i>During testing to resolve TE#1, it was noted that the sensor flows were at the upper limits of the installed rotameters.</i></p> <p><i>Resolution:</i></p> <p><i>Replace the sensor flow rotameters with higher ranges (RMA-13, 0-1000ccm) that would provide readings more on scale for the SMC and WEC sensors.</i></p> <p><i>Repeat testing at the mid-range (4000ppm) value concentrations to validate proper sensor response.</i></p>		<div style="font-size: 1.5em; font-family: cursive;">JES</div> <div style="font-weight: bold;">2-25-97</div>	

TEST APPROVED WITH EXCEPTIONS

J. C. Chasid / 12-25-97
 Test Director / Date

Michael L. McElroy / 13-10-97
 Quality Assurance / Date

EXCEPTION RESOLVED

Eric Waldo / 13-10-97
 FGI Cognizant Engineer / Date

Michael R. McElroy / 13-10-97
 Quality Assurance / Date

APPENDIX E - TEST LOG RECORDS

Whittaker Cell/Spool Piece Testing
 The following entries pertain to Test Plan/Procedure
 "Flammable Gas Interlock Spoolpiece Flow Response Test Plan
 and Procedure" Rev 0 by T.C. Schneider
 HNF-SD-WM-TF-073
 Following is a description of the testing copied from an as-yet-to-be
 released draft of the above mentioned document

1.0 INTRODUCTION

The flammable gas interlock system (FGI) as required to support Rotary Mode Gas Sampling (RMGS) of single small

portable exhausters ventilation ducting to monitor vapor space for hydrogen and other flammable gases and automatically terminate the core sampling activities upon detection of a preset

concentration or rate of change. The system uses two diverse detection sensors. The system has been designed and built utilizing the sensor vendor guidance for duct flow monitoring of the

sensors. The duct application is somewhat unique for the sensor systems and due to the critical application it is necessary to perform a functional test to validate the spoolpiece operation.

The purpose of this test plan and procedure is to define the methodology used to test the performance of the FGI spoolpiece and sensors using simulated field hydrogen gas concentrations.

This test will be performed using the guidelines as defined in B2-4.2, Section 2.4.2, "Development Testing". The main purpose of the test is to resolve the engineering issues regarding the performance of the sensors at duct flows that will be experienced during Hanford Site tank farm deployment. The parameters for the test will be provided by the core sampling team (CST) and by the gas characterization team (GCT) from experience gained while developing the Standard Hydrogen Monitoring Systems (SHMS). The

2.0 DESCRIPTION

The test will be conducted in the 305 Engineering Test Laboratory, in the 300 area of the Hanford Site, Richland, Washington. It will use grounded metal ventilation ducting or conductive flexible ducting where potentially flammable gas concentrations exist. The ducting between the gas injection point and the flammable gas sensors will be of adequate length to include a FGI spoolpiece, including the two gas sensors, built to field specifications, a blower to provide the same flow rates expected in the field installation, a precision total flow meter, a precision gas mixing flow meter, a gas chromatograph (GC) to validate the duct gas concentrations and support process valves and pressure instrumentation including a flow switch and solenoid valve to terminate hydrogen injection gas upon loss

of duct flow. Compressed gases will also be employed for sample injection gas. GC calibration gas and GC carrier gas. The blower will be installed upstream of the gas injection port. This allows the need to use a qualified blower and will only pressurize the ducting by approximately 5" H₂O at the operating flows. The test gases will be contained in the duct system and will be exhausted outside the building the fully mixed gas concentration will be controlled to remain below 25% of the lower flammability level for hydrogen in air. Refer to FIGURE 1 for a simple piping and instrumentation diagram (P&ID) of the test equipment arrangement.

Duct flow will be established at nominally 200 SCFM using the blower and a throttle valve. The main flow value will be determined using a precision laminar flow element, differential pressure transmitter and absolute pressure transmitter. The hydrogen injection gas flow, in the range of 1 to 2 SCFM, will be established using a precision laminar flow element, differential pressure transmitter and absolute pressure transmitter. The duct gas concentration is determined by the ratio of the mixed gas streams. The actual duct hydrogen gas concentration will be measured just upstream of the spoolpiece using a gas chromatograph calibrated with standard gases. The sensors tested will be calibrated using the same procedures as in the field installation. The output of the Sierra Monitor Corporation (SMC) transmitter will be measured and logged on the HP data logger. The Whitaker electro-chemical cell (WCC) hydrogen sensor output will be connected in the field on the HP data logger. The Whitaker electro-chemical cell (WCC) hydrogen sensor output will be connected in the field on the HP data logger. The data logger will also measure the raw WCC signal for comparison to the previous testing performed by Test Procedure for Measurement of Performance vs Temperature of Whitaker Electrochemical Cell, HNF-SD-WM-TC-072. The process instruments including any duct and ambient thermocouples that will be measured and logged on the HP data logger. The logged data files will be used to develop instrument response graphs as well as steady state readings. The gas chromatograph data will be compiled using vendor supplied software and the concentration values will be stored in a data file and provided as a portion of Appendix C to this procedure. A minimum of two test sequences will be performed. The initial testing will involve low concentration gas provided by an injection source of 3% hydrogen which is tested 25% below the lower flammability limit in air. This testing will be used to validate the development of the mixed gases prior to the spoolpiece inlet by measuring the flow stream gases with a gas chromatograph (GC). If the measured GC concentration is consistent with the calculated and anticipated value, it can be

concluded that the gas stream is mixed. The second test sequence will involve the use of pure hydrogen and will validate the sensor aid to high range measurement capabilities. Since the measured gas is injected upstream of the sensors, the gas transit time will be calculated and subtracted from the overall response time to obtain an actual system response time. The system response time is the change in output signal with a near instantaneous input of gas. The response time data will be affected by the sample rate of the data logger, in conjunction with the test procedure for Measurement of Performance vs Temperature of Whitaker Electrochemical Cell, HNF-SD-WM-TC-072, will provide a good understanding of the Whitaker cell response characteristics.

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T/P 30

HNF-SD-WM-TRP-275
Rev. 0
Page 261

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HANFORD STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT

CUSTOMER/ADDRESS JORDAN SR		PROPERTY CODE NUMBER 750-78-02-013		MFG. NO.		REPERFECT NUMBER 40688	
SERIAL NUMBER 16-13		PROPERTY NUMBER N/A		RECALL STATUS 1. ASSESSED 2. SUSPENDED 3. DEFECTED		RECALL CYCLE 970131	
THERMOCOUPLE TYPE K 5 EACH		BUILDING N/A 305		SERVICE DEPARTMENT 4		DATE RECEIVED 2/12/97	
THERMOCOUPLE TYPE K 5 EACH		BUILDING N/A 305		SERVICE DEPARTMENT 4		DATE RECEIVED 2/12/97	
THERMOCOUPLE TYPE K 5 EACH		BUILDING N/A 305		SERVICE DEPARTMENT 4		DATE RECEIVED 2/12/97	

WITNESS 5-2012
TEMPERATURE 41- 40°F

PARAMETERS USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS		EXPIRATION DATE 002-19-03-001 4/19/97 002-19-04-036 3/12/97 002-14-01-035 4/19/97	
REPAIR HOURS 4.0		OTHER HOURS	
MATERIALS		TOTAL CHANGE = (240.0 - 240.0) = 0.0	
MATERIALS		DATE CALIBRATED DATE DUE 2/5/97 2/5/98	
MATERIALS		ANALYST TEMPERATURE = 23.44	

SERIAL NUMBER	STANDARD	AS FOUND	SERIAL NUMBER	STANDARD	AS FOUND
001	-9.43	-9.13	001	149.23	150.13
002	-9.62	-9.14	002	149.27	149.47
003	-9.92	-9.07	003	149.27	149.47
236	-9.15	-9.35	236	149.27	149.20
400	-8.95	-9.45	400	149.27	149.12
001	49.60	49.58	001	200.76	201.38
002	49.60	49.62	002	200.76	200.81
003	49.60	49.57	003	200.76	201.73
236	49.60	49.41	236	200.78	202.37
400	49.53	49.45	400	200.78	201.94
001	99.38	99.38	001	250.53	251.57
002	99.38	99.32	002	250.51	251.10
003	99.38	99.27	003	250.51	252.11
236	99.38	99.18	236	250.55	253.09
400	99.39	99.36	400	250.54	252.38

APPROVED BY M. N. N. 2/5/97	CALIBRATED BY M. N. N. 42	FOR HANFORD STANDARDS LABORATORY Contractor for the Department of Energy, Hanford Site State Department of Energy, Hanford Site	PAGE 1 of 1
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*photo 2 with
2/12/97*

HANFORD STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT									
CUSTOMER/ADDRESS JORDAN SR		STANDARD CODE NUMBER 752-67-11-002		SERIAL NUMBER 406661		PROPERTY NUMBER 1521542		DATE RECEIVED 12/15/97	
ITEM NUMBER 16-13		PROPERTY NUMBER 2222AC6660		PROPERTY STATUS 1. NONRECALL 2. SUPPORTED 3. SELECTED 4. NONCATA PLATE		TOLERANCE STATUS 1. 360 2. 1111 3. 1111 4. 1111		DATE RECEIVED 12/15/97	
DATA ACQUSN SYSTEM H-P 3497A		ROOM N/A		SERVICE DEPARTMENT 4		TOLERANCE STATUS 1. 360 2. 1111 3. 1111 4. 1111		DATE RECEIVED 12/15/97	
CONTROL UNIT		N/A		4		TOLERANCE STATUS 1. 360 2. 1111 3. 1111 4. 1111		DATE RECEIVED 12/15/97	
K WITWER 6-3019		N/A		4		TOLERANCE STATUS 1. 360 2. 1111 3. 1111 4. 1111		DATE RECEIVED 12/15/97	
INTERVIEW INVESTIGATIONS		N/A		4		TOLERANCE STATUS 1. 360 2. 1111 3. 1111 4. 1111		DATE RECEIVED 12/15/97	
SEE TOLERANCE COLUMN		N/A		4		TOLERANCE STATUS 1. 360 2. 1111 3. 1111 4. 1111		DATE RECEIVED 12/15/97	
STANDARDS USED IN CALIBRATION TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY OR NATIONALLY RECOGNIZED STANDARDS		EXPIRATION DATE 7/15/97		EXPIRATION DATE 7/15/97		EXPIRATION DATE 7/15/97		EXPIRATION DATE 7/15/97	
002-1401-036		7/15/97		7/15/97		7/15/97		7/15/97	
002-7906036		3/12/97		3/12/97		3/12/97		3/12/97	
002-4508059		9/15/97		9/15/97		9/15/97		9/15/97	
REMARKS (REF-16)		N/A		4		TOLERANCE STATUS 1. 360 2. 1111 3. 1111 4. 1111		DATE RECEIVED 12/15/97	
PROCEDURE NUMBER WNC-67-11-3497A (12-62)		N/A		4		TOLERANCE STATUS 1. 360 2. 1111 3. 1111 4. 1111		DATE RECEIVED 12/15/97	
APPROVED BY M. H. H. 1/5/97		CALIBRATED BY A 42		PROJECT HANFORD MATERIALS CONTROL, INC. - CLING SERVICES, INC. PAGE 1		CONTRACTOR FOR THE STATE DEPARTMENT OF ENERGY SERVICES, MA 01901		DATE RECEIVED 12/15/97	

2/12/97
2/12/97

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2/12/97

PROCEDURE NAME - 16 WHC-67-11-3497A(12-82)	STANDARD CODE NUMBER 752-67-11-002	REFERENCE NUMBER 406541
---	---------------------------------------	----------------------------

DATA SHEET

DMM RANGE AND DISPLAY	STANDARD READING	DMM READING		ONE YEAR TOLERANCE
		AS FOUND	FINAL	
.1V 5 1/2 DIGIT	.100000	.077999	Same	± .18 μ V
1.0V	1.00000	1.00000		± 160 μ V
10.0V	1.1111	1.1111		± .3 mV
	2.2222	2.2222		± .4 mV
	3.3333	3.3333		± .6 mV
	4.4444	4.4444		± .8 mV
	5.5555	5.5555		± .9 mV
	6.6666	6.6666		± 1.1 mV
	7.7777	7.7777		± 1.3 mV
	8.8888	8.8888		± 1.4 mV
	9.9999	9.9999		± 1.6 mV
	10.0000	10.0000		± 1.6 mV
100.0V	50.000	49.998		± 8.0 mV
	100.000	99.996		± 16.0 mV
	-100.000	99.997		± 16.0 mV
	-50.000	-49.999		± 8.0 mV
AUTO RANGE	50.000	49.998		± 8.0 mV
	5.0000	5.0000		± .8 mV
	.50000	.50000		± 80 μ V
	.050000	.049998		± 10 μ V
10V 4 1/2 DIGIT	9.000	9.000		± 3.0 mV
10V 3 1/2 DIGIT	9.00	9.00	↓	± 20 mV

APPROVED BY M. Nougat 2/15/97	CALIBRATED BY J. 42	Page 2 of 3
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W. J. D. D.
2/12/97

APPROVED BY <i>AM [signature]</i> 2/5/97	CALIBRATED BY <i>WHO</i> 42	Page 3 of 3
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PROCEDURE NAME - 304 NMC-5-RMT-3051CA REV.3 GENERIC	STANDARDS CODE NUMBER 75080-02-023	REFERENCE NUMBER 406864
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DATA SHEET

INPUT TEST POINTS		DESIRED	AS FOUND OUTPUT		METER	TOLERANCE	
PSI	INH2O	MA	ROSEMOUNT PSI	%	MA	PSI	MA
0	NA	4.002	-0039	0.0	3.998	7.03	7.016
7.5		8.003	7.50	25.0	8.000	}	}
15.0		12.000	16.01	50.0	12.008		
22.5		16.004	22.5	75.0	16.007		
30.0		20.008	30.01	100.0	20.009		

INPUT TEST POINTS		DESIRED	FINAL OUTPUT		METER	TOLERANCE
PSI	INH2O	MA	ROSEMOUNT %	%	MA	MA
		4				/
		8				
		12				
		16				
		20				

CONVERSION FACTOR:
INH2O = 27.73 X PSI

APPROVED BY <i>Handwritten:</i> 2/1/97	CALIBRATED BY <i>Handwritten:</i> 2/1/97	PAGE 2 of 2
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1/2/97

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2/12/97

HANFORD STANDARDS LABORATORY PHYSICAL AND ELECTRICAL REPORT									
CUSTOMER/ADDRESS JORDAN, SA Leuch, NJ 16-13 75237		PROPERTY NO. 750-80-02-025		DATE 10/28/86		REFERENCE NUMBER 405866		TOLERANCE HISTORY 1851549	
INSTRUMENT PRESSURE TRANSMITTER ROSEMOUNT 3051CD 0-25 IN H2O ELECTRIC		SERIAL NUMBER 33807		PROPERTY NUMBER N/A		LOCAL STATUS 1 ACTIVE 2 DEFECTIVE 3 DISPOSED 4 RELAYED 5 MODIFIED 6 MODIFIED		LOCAL CYCLE 1 360 2 360 3 360 4 360 5 360 6 360	
BUILDING N/A		FLOOR 305		S		DATE RECEIVED 270131		TOLERANCE HISTORY 1 10 2 10 3 10 4 10 5 10 6 10	
WITNESS 6-2018		TESTER'S VERIFICATION MFG. 5RCS 71-10 70 FS		TRAINING NUMBER 20		CALIBRATION NUMBER 20		REPAIR NUMBER 20	
NATIONAL REGISTERED STANDARDS 102-80-02-005 102-45-08-092 102-45-08-092		EXPIRATION DATE 4-22-97		EXPIRATION DATE 4-22-97		OTHER NUMBER OK		MATERIALS OK	
MODEL 1MP-304		PROCEDURE NUMBER WHC-5-RMT-3051CA REV.3 GENERIC		TOTAL CHANGE 1320 x 500 (500) = MATERIAL		DATE CALIBRATED 2/3/97		DATE RECEIVED 2/3/98	
APPROVED BY A. M. M. 2/1/97		CALIBRATED BY A. M. M. 2/1/97		Project Number Contractor See 100-1000 State Department Project Number Contractor See 100-1000 State Department		Page 12		Page 12	

Replaced Batteries in
268 Programmer

Missing Screws in Cover to
Terminal Strip

110

[Signature]
2/12/97

PROCEDURE NAME - 304 WHC-5-RMT-3051CA REV.3 GENERIC	STANDARDS CODE NUMBER 750-80-02-025	REFERENCE NUMBER 406866
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DATA SHEET

INPUT TEST POINTS		DESIRED MA	AS FOUND OUTPUT ROSEMOUNT		METER MA	TOLERANCE	
PSI	INH2O		"H2O	%		"H2O	MA
	0	4	-0865	-1	3.969	+1.03	1/2 016
	6.25	8	6.149	24.9	7.960	{	{
	12.5	12	12.39	49.7	11.965		
	18.75	16	18.65	74.8	15.970		
	25.0	20	24.92	99.8	19.987		
INPUT TEST POINTS		DESIRED MA	FINAL OUTPUT ROSEMOUNT		METER MA	TOLERANCE	
PSI	INH2O		"H2O	%		"H2O	MA
	0	4	.0025	0.0	3.999	+1.03	1/2 016
	6.25	8	6.249	24.9	7.995	{	{
	12.5	12	12.49	49.9	12.001		
	18.75	16	18.75	75.0	16.007		
	25.0	20	25.01	100.0	20.008		

CONVERSION FACTOR:
INH2O = 27.73 X PSI

APPROVED BY H. MURPHY 2/12/97	CALIBRATED BY [Signature]	PAGE 2 of 2
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APPROVED BY <i>M. Miller</i> 2/2/07	CALIBRATED BY A 21	Project Sanford Management Contractor for the United States Department of Energy Richland, WA 99352	DynCorp TGI-Cities Services, Inc P.O. Box 1700 Richland, WA 99352	PAGE 1 OF 2
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John S. Smith
2/12/97

Temperature
being with
Lab # 750
Thermocouple
verified as
calibrator

The other is
by both
by using

DATA SHEET

APPROVED BY 21/97 CALIBRATED BY 21/97 Page 2 of 2

2/12/97

2/13/97 113

Temperature inputs to TE-1 through 4 verified as being within $\pm 1^\circ\text{F}$ using an OMEGA CLEDSA calibrator - standards Lab # 750-13-55-002 - expiration date 6-25-97. A Type K thermocouple input was injected into each channel in place of each TE and verified as being within 1°F on the computer readout compared to the Omega calibrator output.

The other signal inputs are straight voltage inputs and were verified by both visual comparison with Rosemount front panel displays or by using the calibration data from each unit.

[illegible]

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John Switzer
2/13/97

- The gas in
was capped
to 20 PSI
No leaks and

DATA SHEET

- The Gas (below) was with the Fe indicate ~~low~~ ^{low}

[illegible]

GC Sample

(@ Standard Cond
70°F, 14.7 psia)

APPROVED BY <u>5-6-96</u> <u>R. J. Nelson</u>	CALIBRATED BY <u>STL</u> <u>21</u>	Page <u>2</u> of <u>2</u>
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1/8
2/13/97

2/13/97 115

- The gas inlet line from the flammable gas bottle (H_2 or some fraction) was capped at the fitting next to the manifold. The line was pressurized to 20 PSI with N_2 and leak checked using soapy water at each fitting. No leaks are present.
- The gas chromatograph Sample Flow Indicator (FI-4 on P&ID Diagram below) was characterized using an HP 0101-0113-SOAP FILM FLOWMETER with the following results. Note that this flowmeter is primarily used to indicate ~~flow~~ a flow/no-flow condition - not for an exact flow value.

GC Sample Flow Indicator Marks (on at full scale)	Actual Value From HP Soap Film Flowmeter
(0 Standard Conditions) 70°F, Atmospheric Pressure	
25	7.73 cc/min
50	24.60 cc/min
75	63.29 cc/min
100	111.1 cc/min

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Marty Castro
2/13/97

Following is

FI-3 & FI-5: Rotometers used with the gas chromatograph unit were calibrated using a third rotometer which was calibrated at the standards lab - Cal # 750-28-13-005 Range = 0-6 SCFH - AIR. Following are the results from the calibration/characterization (Cal Expires 1-27-98)

Primary Flowmeter
Cal # 750-28-13-005
Indication (SCFH)

Flowmeter FI-3
Indication
(SCFH)

0.5
1.1
1.6
2.1
2.5

0.5
1.0
1.5
2.0
2.5

Primary Flowmeter
Indication
(SCFH)

Flowmeter FI-5
Indication
(SCFH)

0.4
1.1
1.6
2.0
2.4

0.5
1.0
1.5
2.0
2.5

These values were obtained by Marty Castro, JESC

with 2/13/97

with 2/13/97 117

*meter
50-28-13-005
sub's from*

Following is a summary listing of the test equipment used

APPENDIX A
MEASUREMENT AND EQUIPMENT DATA SHEET

FE-1 Main Duct Flow Element	Laminar Flow Element, Meriam Inst. Model 50MC2-4, Serial No. 757200-K1 Range: 0-424.6 SCFM air at std. temp./press. Accuracy: 1.0% of reading Cal. Std.: Vendor Cal. Record Curve
FT-1 Main Duct Flow Xmitter	Diff. Press., Rosemount, Model 3051CD, Serial No. 32688 Range: 0-25"H ₂ O Accuracy: 0.1% FS Cal. Std.: Std. Lab. No. 750-80-02-026 Cal. Due Date: 2-3-98
PT-1 Main Duct Press Xmitter	Abs. Press., Rosemount, Model 3051CD, Serial No. 65843 Range: 0-30 psia Accuracy: 0.1% FS Cal. Std.: Std. Lab. No. 750-80-02-023 Cal. Due Date: 2-3-98
FE-2 Injection Flow Element	Laminar Flow Element, Meriam Inst. Model 50MJ10-10, Serial No. 753510-J3 Range: 0-1.6087 SCFM air at std. temp./press. Accuracy: 1.0% of reading Cal. Std.: Vendor Cal. Record Curve
FT-2 Injection Flow Xmitter	Diff. Press., Rosemount, Model 3051CD, Serial No. 33807 Range: 0-25"H ₂ O Accuracy: 0.1% FS Cal. Std.: Std. Lab. No. 750-80-02-025 Cal. Due Date: 2-3-98
PT-2 Injection Press Xmitter	Abs. Press., Rosemount, Model 3051CD, Serial No. 0266492 Range: 0-30 psia Accuracy: 0.1% FS Cal. Std.: Std. Lab. No. 355-80-02-055 Cal. Due Date: 5-6-97
FI/FCV-3 GC Bypass Flow	Rotameter with outlet control valve, Wallace & Tiernan, Model 32E08351X3 Range: 0-2.5 CFH air Accuracy: 10% FS Cal.: Test Log Comparison (Indication Only)
FI-4 GC Sample Flow	Rotameter, Matheson, Model FM-1050 EI-4Y101-E910 Range: 0-100 ccm air Accuracy: 5% FS Cal.: Test Log Comparison (Indication Only)

Continued

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FI/FCV-5 GC Cal. Flow	Rotameter with inlet control valve, Wallace & Tiernan, Model 32E0831XX2 Range: 0-2.5 CFH air Accuracy: 10% FS Cal.: Test Log Comparison (Indication Only)
TE-1	Type K stainless steel jacketed thermocouple Cal.: Std. Lab. No. 750-78-02-013 S/W 002 Cal. Due Date: 2-5-98
TE-2	Type K stainless steel jacketed thermocouple Cal.: Std. Lab. No. 750-78-02-013 S/W 236 Cal. Due Date: 2-5-98
TE-3	Type K stainless steel jacketed thermocouple Cal.: Std. Lab. No. 750-78-02-013 S/W 001 Cal. Due Date: 2-5-98
TE-4	Type K stainless steel jacketed thermocouple Cal.: Std. Lab. No. 750-78-02-013 S/W 400 Cal. Due Date: 2-5-98
GC-1 H ₂ Concentration Std.	Dual Column GC, Micro-sensor Tech. Inc., Model M2000, Serial No. 130313 Range: 100-30,000 ppm Accuracy: 10% Reading Cal.: Standard Gas per Appendix F-3
PC-1 GC Control Computer	Lap Top PC, Toshiba Satellite Pro Model 40SCS, Serial No. 02628992-1 Range: N/A Accuracy: N/A
DL-1 System Data Logger	H-P Data Logger, Model 3497A, Serial No. 2222A05660 Range and Accuracy: 0-0.1 Vdc ($\pm 18\mu\text{Vdc}$), 0-100 Vdc ($\pm 0.3\text{mVdc}$), 7°C ($\pm 1^\circ\text{C}$) Cal.: Std. Lab. No. 752-67-11-002 Cal. Due Date: 2-5-98
NE-1 Whittaker Sensor	Electro-Chemical Cell, Whittaker, Model 109D020-2, Serial No. HS-1226 Range: 0-10% H ₂ by Volume Accuracy: 0.2% Absolute Cal.: Standard Gas per Appendix F-2
NE-2 SMC Sensor	Combustible Gas Module, Sierra Monitor Corp., Model 4101-02, Serial No. 96-B-4455 Range: 0-100% LFL H ₂ Accuracy: 3% FS Cal.: Standard Gas per Appendix F-1
Handheld Digital Multimeter	Fuke Model 702, Serial No. 6240608 Cal.: Std. Lab. No. 750-13-71-001 Cal. Due Date: 12-06-97

Correction for
input voltage

ch #

0	M
1	M
2	Gas
3	Gas
4	New
6	S
7	Av
8	Fla
9	M
10	wh
11	wh

- Correction for
Cell input voltage

Initial
Final

- This was
the

- Correction
values

- This gives

the
low gas

- GC C
Calibration
sample

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Correction Factors used by HP Data Acq system to change input voltages to the proper engineering units are as follows:

Ch #	Input Measured	Slope	Offset
0	Main Duct Diff Press (in _{H₂O})	6.2527	-6.2607
1	Main Duct Abs Press (PSIA)	7.49622	-7.4918
2	Gas Inject Diff Press (in _{H₂O})	6.2544	-6.2647
3	Gas Inject Abs Press (PSIA)	7.5	-7.5
4	Newport Intensity Output (PPM)	250	-250
6	SMC (PPM)	2483.08	-2557.57
7	Ambient Temp (°F)	(N/A)	
8	Flammable Gas Temp (°F)	(N/A)	
9	Main Duct Temp (°F)	(N/A)	
10	Whittaker Cell Temp (°F)	(N/A)	
11	Whittaker Cell Output (Volts)	1	0

- Correction Value used to calibrate Newport Intensity meter from WEC Cell input was based on the following

$$\begin{aligned}\text{Initial Voltage} &= 0.706 \text{ V} \rightarrow 0 \text{ PPM} \\ \text{Final Voltage} &= 1.406 \text{ V} \rightarrow 8070 \text{ PPM}\end{aligned}$$

- This would give a correction factor of $\text{PPM} = 6725(V_{in}) - 1385.35$
The gas flow rate was 2 SCFH to the WEC Cell for 15 minutes.

- Correction Value used to calibrate SMC input was based on the following values

$$\begin{aligned}\text{Initial Voltage} &= 1.03 \text{ V} \rightarrow 0 \text{ PPM} \\ \text{Final Voltage} &= 4.28 \text{ V} \rightarrow 8070 \text{ PPM}\end{aligned}$$

- This gives the correction factor of: $\text{PPM} = 2483.08(V_{in}) - 2557.57$

The Gas Flow for this 8070 PPM H_2 Cal gas was 550 cc/min to the ~~gas chromatograph~~ unit.
SMC

- GC Calibration parameters:

Calibration Gas = 100% H_2 Balance N_2

Sample Flow Rate was 25.2 indicated on FE-7 (7.7 cc/min)

120

2/13/97

GC - Calibration Continued:

Complete

Calibration File No. 02137cal
Then sequential Cal values are:

The second

1008.56 ppm

concentration

1008.98 ppm

The gas

1009.56 ppm

1009.18 ppm

Viscosity

The 8070 cal gas was tested by the GC.
For comparison the file # was 8070TST
The sequential values read were:

Initial

8055.4 ppm

0.88 FM

8090.09 ppm

Actual p.

8032.3 ppm

Make an

pressure

Viscosity correction factor for Injection Flow:

K_{SD}

The re

We know correction factor for pure $H_2 = 87.6$

PT-2

" " " " " Air = 181.7

Temp

Flow =

Since we're using 3% H_2 we take 3% of the difference of these two
values $.03(181.7 - 87.6) = 2.823 \rightarrow$ subtract this amount
from the Air factor $\rightarrow (181.87 - 2.823) = 179.047$ (the air value
is what the flow sensor curve is based on.)

Process

Calculated

Thus a correction factor of $\frac{179.047}{181.87} = .984$ (3%)
 $\frac{179.047}{179.047} = 1.0158$ (surprise/23)

Performed initial calibration of the injection gas
this with 3.2 H_2 . (Appendix F-5)

The in

test ind

The re

Test ex

route

calib

through

The of

conce

PT-2 = 6.937 "H₂

PT-2 = 15.89 psia

Temp TE-2 = 71°C

PCV-2 = 6 psig

SCFM equivalent = 1.269 SCFM

GC measured value = 237.8 ppm

Calculated value = 232.4 ppm

JS

NOTE:

however

Flow k

BEST AVAILABLE COPY

2/13/97

2/13/97

121

Completed the low concentration testing and began the second phase testing with the 4,000-5,000 ppm concentration. The following calculations support the gas mixing.

Viscosity Calc. for 100% H_2 = $\frac{0.26}{101.87 \times 0.26} = 0.2817$ JSD. SMC Note page 123

Initial flow would be $\frac{4,000 \text{ ppm}}{1,000,000 \text{ ppm}} = 0.004 \times 200 = 0.8 \text{ SCFM}$

0.8 SCFM = desired flow $\frac{0.8 \text{ SCFM}}{0.6087} \times 8" = 3.978" H_2O$
Actual pressure considering viscosity = $\frac{3.978 \text{ H}_2O}{2.076} = 1.91" H_2O$
Made an initial setting of 1.8" H_2O on the differential pressure gauge FT-2.

The readings were:

FT-2 = 1.78

PT-2 = 14.73

Temp = TE-2 = 71°F

RV-2 = 3 psig.

Flow = 8 SCFM = $0.358 \times \frac{14.695}{14.73} \times 0.2817 = 0.172 \text{ SCFM}$
= $0.358 \times \frac{14.73}{14.695} \times 2.076 = 0.745 \text{ SCFM}$

Revised concentration = 4130 ppm

Calculated Concentration = $\frac{4130 \text{ ppm}}{12.4} = 332.5 \text{ ppm}$ JSD. SMC Note page 123

of these two amount the air value

35%

8 (see page 123) reference

hangar

The initial testing at 200 ppm and the first 4,000 ppm test indicated an extremely poor response by the WEC cell. The response was approximately 6 min. to 40% of final value. Test exception I was prepared to disable the SMC and route the upstream pressure port for the SMC to the calibration port on the WEC. This will provide a flow through the WEC cell chamber and out the sample port. The test will be performed with a nominal 4,000 ppm concentration. (Text ID. EX14)

Note: The response of the WEC improved by a factor of 2, however, it was noted that the cell was on the same side of the flow bottle as the SMC flow port. The flow only provided

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122

2/13/97

on the conduction path. A downstream (of the knife) static pressure port was added and connected to the WEC calibration port to provide flow through the cell from the sample port (Test ID EX1-2)

The cell response was significantly improved with a flow through the cell ports approximately 75 sec. to 90% of final value.

2/14/97
ESU

220-97 JAL

Flow profiling tests were performed to determine the placement of a downstream (of knife) static port to be in down the sample gas through the WEC chamber. An optimum location was determined and a response test was performed to verify a good signal response time. (Test ID = EX1-3) (Profiling tests performed on 2-14-97)

Based upon the good response times from EX1-2 and EX1-3, ECU 640 YCO will be prepared to document a new spool piece configuration. Implementing the new spool piece configuration and repeating all the previous testing will resolve Test Exception 2.

Following the initial testing, it was determined to implement the alternate test configuration identified in section 2.0 DESCRIPTION. The alternate configuration will have a qualified blower downstream of the spool piece to simulate more closely the field conditions. An additional flow control valve FCV-2 will be located at the inlet of the blower to control the flow volume/velocity and flow control valve FCV-1 will be used to reduce the system pressure to between -3 and -4 "H₂O. The -3 to -4 "H₂O is the anticipated field negative system pressure (per telecon with Tim Robinson, SESC).

The previously entered calculations for mixing flows were in error due to an incorrect equation given in the test plan procedure.

NOTE:
The curve
is: 5
pg
Tg
49

2/13/97

2-20-97 123

NOTE:

The correct equation for determining equivalent flow SCFM is:

$$SCFM_{eq} = SCFM \times \left(\frac{P_0}{14.695 \text{ psi}} \right) \times \left(\frac{530^\circ R}{T_g} \right) \times \left(\frac{181.874 \mu}{\mu_g} \right)$$

 P_0 = System Pressure in absolute psi (psia)
 T_g = System Temperature in °Rankine (°R = 460 + Temp. in °F)
 μ_g = System Viscosity in micropoises.

FIGURE 1
Alternate Configuration.

2-20-97
Jed

124

new
2-24-97

The following identifies the changes made to the
spool piece per ECN 640430

H-14-100524, SHEET 2, ZONE A-F, 2-6

WAS

ENGINEERING CHANGE NOTICE CONTINUATION SHEET PAGE 4 OF 7

ECN 640430
DATE 2/19/97

red
2-24-97

red 125
2-24-97

11-14-100524, SHEET 2, ZONE A-F, 2-6

Instructions: Field route tubing as shown & as required by general notes. Required dimensions shown on page 6.

ENGINEERING CHANGE NOTICE CONTINUATION SHEET PAGE 5 OF 7

ECN: 104420
Date: 2/19/97

127

2-21-97

5.1
2-21-97

Incorporated the changes in the test setup and spill piece identified by the MSD on page 123 and ECN 640420.

The Whittaker cell zero voltage was checked with air flowing at nominally 200 SCFM. The zero had shifted from 0.206 mVdc measured on 2-13-97 to 0.228 mVdc. The zero offset was adjusted and the final value of span was adjusted accordingly (span delta remained the same) prior to initiating the test. This was to provide an output signal nearer zero. Reprogrammed the Newport NET-1.

Zero Voltage = 0.228

Initial span with 8070 ppm from page 119 = $1.400 - 0.228 = 1.2 \text{ mVdc}$

Span Voltage = $0.228 + 1.2 = 1.428 \text{ mVdc}$

The SMC sensor was tested with 8070 ppm H_2 cal gas to verify calibration. The flow was adjusted to 170 SCFM.

The zero was adjusted to 0.8 ppm

The span was adjusted to 80.55 ppm

The GC was set up and calibrated with the 100 ppm calibration gas. The last 5 readings were:

1011.467 ppm

1010.925 ppm

1010.656 ppm

1011.010 ppm

1010.476 ppm

Due to the full scale display readings of the SMC gas flow rate meter, it was determined to calibrate the SMC at 170 SCFM flow equivalent, but run the test at 200 SCFM. It is anticipated that only the final output span will be slightly affected but with the rise time. Test will also be run at 180 SCFM, since that is the current field flow conditions.

Testing was terminated due to end of shift.

JED 2-21-97

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128

John Smith
2/22/97

Began establishing initial conditions for new concentration fortifier. Again SMC flow with calibration will be established at nominally 180 SCFM main flow.

* At
or
Compla
bottle

The SMC was set up with the following main duct flow conditions:

Duct Press = 3.55

Abs Press = 14.73

Duct Temp = 68°F

> Total Calculated Flow = 189.6

Calcula
2000
1.86

Using 8070 PPM Cal gas the SMC was calibrated to read

0.4 =

8045 PPM with cal gas (8070 PPM) flowing and
- 3.6 PPM with no cal gas (0.0 PPM)

0.19
1.1

FE
PT
TE

Whittaker readout was not adjusted from 2-21-97 which just reset the zero offset. Due to limited 8070 ppm cal gas and the stability of the WRC, no recalibration was performed.

The GC calibration was checked with 1000 ppm cal gas. The last 5 readings were:

Began
and the
The duc
The flow

1009.363 ppm, 1009.599, 1010.236, 1009.090 and 1010.703 ppm.

Established new flow: Per the following actual readings

Completed
for 40

FE-1 = 3.75 "H₂O

PT-1 = 14.73 psia

TE-1 = 68.7 °F

} Flow = 200.3 SCFM

2000
1.86

0.84 =

Established an injection flow of nominally 0.8 SCFM of 5% H₂ in a desired concentration of 200 ppm.

0.4046
1.16

The actual measured parameter are:

FE
PT
TE

FE-2 = 4.00 "H₂O

PT-2 = 15.05 psia

TE-2 = 68.7 °F

} Flow = 0.826 SCFM

Concentration = $\frac{0.826}{0.001} \times 5\% = 206.4 \text{ ppm}$

GC reads = 210 ppm

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129

2-22-97
Jed

Jim Swartz
2/22/97

55 (cm) * At Main Head of 200 SCFM duct pressure = 14.57-14.71
calibration or -0.14 psia or -3.88" H₂O

1.0. Completed 200 ppm testing and changed the cal. gas
to 100% H₂. Began as to testing 2000 ppm concentration

189.6 Calculated FIT-1 reading for 2000 ppm =

read $\frac{2000}{1.876} = 2 \times 10^{-3} \times 200 \text{ cfm} = 0.4 \text{ cfm Injection Flow}$

ad $0.4 = X \left(\frac{1.8767}{87.6} \right) = 1 \quad X = 0.193 \text{ SCFM}$

$\frac{0.193}{1.8767} \times 8.0 \text{ "H}_2\text{O} = 0.960 \text{ "H}_2\text{O}$

FIT-2 = 0.954 } Flow = 0.3975 SCFM
PT-2 = 14.64 } Concentration = 1948.7 ppm
TE-2 = 69°F } Measured concentration = 2087 ppm.

21-97 which began 2000 ppm. The duct flow was slightly high
in cal. gas. and the injection flow slowly decreased during the test.
The duct main flow and injection flow were adjusted following
the first 3000 ppm and (FGE2221)

(readings Completed testing of the 2000 ppm range. Began cal. gas
for 4000 ppm.

in $\frac{4000}{1.876} = 4.2 \times 10^{-3} \times 200 \text{ cfm} = 0.84 \text{ SCFM Injection Flow}$

$0.84 = X \left(\frac{1.8767}{87.6} \right) \quad X = 0.4046 \text{ SCFM}$

SCFM of $\frac{0.4046}{1.8767} \times 8 \text{ "H}_2\text{O} = 2.01 \text{ "H}_2\text{O}$

FIT = 2.00 } Flow = 0.831 SCFM
PT = 14.63 } Concentration = 4156
TE = 70°F } Measured Concentration

5000 = 206.4 ppm

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130

sed 2-22-71

Completed testing sequence at 4,000 ppm and began setup for 6,000 ppm

Calculate FET-1 reading for 6,000 range.

$$\frac{6.2 \times 10^3}{1.46} = 6.2 \times 10^{-3} \times 200 \text{ CFM} = 1.24 \text{ SCFM}$$

$$\frac{1.24}{1.4687} = 0.7708 \times 8" \text{ H}_2\text{O} = 6.166" \text{ H}_2\text{O} \times \frac{181.87}{87.6} = 2.2197$$

$$\frac{1.24 \text{ SCFM}}{1.4687} \times \frac{181.87}{87.6} = 1.24 \text{ SCFM} \times \frac{181.87}{87.6} = 2.57 \text{ SCFM}$$

$$\frac{2.57}{1.4687} \times 8" \text{ H}_2\text{O} = 12.8$$

$$1.24 \text{ SCFM} = X \left(\frac{181.87}{87.6} \right)$$

$$X = 0.597 \text{ SCFM}$$

$$\frac{0.597}{1.4687} \times 8" \text{ H}_2\text{O} = 2.97" \text{ H}_2\text{O} \text{ on FET-2 scale} = \text{required flow}$$

Actual Values

$$\left. \begin{array}{l} \text{FET-2} = 2.97" \text{ H}_2\text{O} \\ \text{PT-2} = 14.75 \text{ psia} \\ \text{TE-2} = 70^\circ \text{F} \end{array} \right\} \begin{array}{l} 1.244 \text{ SCFM} \\ \\ \end{array} \text{ at } 199.6 \text{ SCFM main}$$

$$= 6235 \text{ ppm H}_2$$

The hydrogen injection gas bottle ran out of gas during Test ID run 2-8 at about 12 minutes into the run. The run was repeated with the ID # 0222728A and FG22228A. Test Exception # 2 was prepared to document the problem resolution.

The required testing was completed; however, there is a need to perform testing at a lower flow rate (180 SCFM) dust flow since that is the current field operating conditions. TE # 3 was prepared to allow the 180 SCFM testing. Set the main dust flow to 180 SCFM.

$$\left. \begin{array}{l} \text{FET-1} = 3.39" \text{ H}_2\text{O} \\ \text{PT-1} = 14.74 \text{ psia} \\ \text{TE-1} = 70^\circ \text{F} \end{array} \right\} \text{Flow} = 180.47 \text{ SCFM}$$

131

2-22-79

2-22-97
JST

2 air setups

Established Injection Gas Flow, for nominally 4,000 ppm
at 180 CFM.

Injection Parameters

FET-2 1.805 "H₂O

PT-2 14.67 psia

TE-2 = 70°F

Flow = 0.7563 SCFM

Concentration Calc. = 4168 ppm

1.87 JST
2.6- 2-22-97

-7.5 SCFM

Main duct pressure at 180 SCFM = 14.58 - 14.71 = 0.13 psi

-0.13 psi = -3.6 "H₂O

Three tests at 180 CFM and 4000 ppm H₂ were
run at 20" EX3-1, EX3-2 and EX3-3.

= required flow

177.6 SCFM flow

1.2 gas
into the run,
and
exposed to

there is
(180 SCFM)
is conditions.

132

JED

2-25-97

Resumed testing to eliminate concerns of sensor flow indicators. Prepared TRP to document flow meter range concerns.

The SMC will be calibrated using the flows read by a new rotameter RMA-13 (0-1000 cfm) installed in place of the RMA-11 (0-250 cfm).

The WEC and Newport readout will be zero adjusted as per 2-22-97 on page 138. This will allow an initial reading near zero and provide a more consistent data comparison.

The GC calibration gas was injected into the system and the GC recalibrated to 100 ppm per data file 1057CAL.DFE.

SMC Cal. Es published readout flow to 2008 CFM.

FEI-1 = 3.76 "H ₂ O	} SMC rotameter is 850 CFM (middle of dial)
PT-1 = 14.59 psia	
TE-1 = 70°F	
	0 = 2 ppm 8070 ppm Std = 8070 ppm

Barometric pressure on System zero flow pressure as read by PT-2 = 14.55 psia.
At 200 CFM PT-2 = 14.39 psia
Orst Pressure = 0.16 psia 2-4.432 "H₂O

Readjusted the injection flows between EXY-1 and EXY-2. The initial injection flow was set based upon the first test run which had a total flow of 180.5 CFM. Adjusted the injection flow upward to the 200 CFM duct flow.

At approximately 670 seconds into the EXY-3 run the purge gas line was disconnected from the WEC cell, and a negative signal spike was observed at about the same time. Even though there was valve isolation it appeared that the gas signal was momentarily removed from the WEC. A fourth test for EXY-4 was run to verify proper cell outputs.

A tele...
Systems...
on 2-25-9...
it expla...
They use...
need to...
The bubble...
"spikes"...
Just the...
operation...
We have...
position...
bubble m...
signal is...
long (su...
field of...
(NOTE) a...
started...
readout...
support...

132

COPY

sed
-25-97
user flow
= flow meter
this read
installed
zero
allow
a more
system
file

sed 133

3-4-97

A telecon was held with Jerry Fuller of Whittaker Safety Systems (805-584-4400) to discuss the negative transient observed on 2-25-97 during Run EX4-3. Mr. Fuller identified a likely cell explanation as a gas bubble in the electrolyte solution. They discussed how the electrolyte into the cell and electrodes need to do a second examination to remove air bubbles. The bubbles cause an instability in the cell in the form of "spikes" in the output signal. Mr. Fuller also stated that the "suggested" orientation for the cell in normal operation is vertical with the electrodes pointing down. We have oriented the cell on the FAT in the horizontal position which ~~might~~ would enhance the possibility of bubble migration and cell output interruptions/discharge of signal spikes. The interruptions would not last long (seconds) but could be a source of irritation during field operation.

(NOTE: Action in the day on 2-25-97 when testing had started another negative transient was observed with the cell resultant with normal background gas of air. The above discussion supports the observed negative signal.)

m (middle of hull)
id = 8078 / pm
more as

d EX-2.
first test
d the injection

the page 300
signal source was
5 V/V/V is/leak
id from the
piper cell

APPENDIX F - SUPPORTING DOCUMENTATION

HANFORD JOB HAZARD ANALYSIS CHECKLIST																																																																																																																																																																																			
Page 1 of 3		Date		Area		Bldg.		JHA Number (not required)																																																																																																																																																																											
Prepared By Keith S. Witwer		02/13/97		Area		300		JHA-97-002																																																																																																																																																																											
<p>Emergency Contact Person(s): Primary: Keith S. Witwer - Nimatec Hanford Co. Secondary: Eric Nelson - Industrial Safety Contact - Fluor Daniel Hanford, Inc. Emergency Radio/Phone Number: 911</p>																																																																																																																																																																																			
<p>Scope/Description: Measurement of Performance of Whittaker Electro-Chemical cell in a 200 cfm ducting/spool assembly. Per attached letter of Instruction/Statement of Work.</p>																																																																																																																																																																																			
<p>☐ Revised ☒ New</p>																																																																																																																																																																																			
<p>Specific Work Location(s): 305 Building North High Bay: North Wall - East of Environmental Chamber</p>																																																																																																																																																																																			
KNOWN OR POTENTIAL HAZARDS																																																																																																																																																																																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2"></th> <th colspan="2">Yes</th> <th colspan="2">No</th> <th colspan="2">Reference</th> <th colspan="2">Reference</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Radiation Area Work</td> <td>☒</td> <td>☒</td> <td>☒</td> <td>☒</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2.</td> <td>Hazardous Waste Operations</td> <td>☒</td> <td>☒</td> <td>☒</td> <td>☒</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3.</td> <td>Confined Space Entry</td> <td>☒</td> <td>☒</td> <td>☒</td> <td>☒</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4.</td> <td>Cutting/Welding</td> <td>☒</td> <td>☒</td> <td>☒</td> <td>☒</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5.</td> <td>Roof Work</td> <td>☒</td> <td>☒</td> <td>☒</td> <td>☒</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>6.</td> <td>Fall Hazards (> = 10')</td> <td>☒</td> <td>☒</td> <td>☒</td> <td>☒</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>7.</td> <td>Excavation/Trenching</td> <td>☒</td> <td>☒</td> <td>☒</td> <td>☒</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>8.</td> <td>Asbestos Inspection Report</td> <td>☒</td> <td>☒</td> <td>☒</td> <td>☒</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>9.</td> <td>Hazardous Materials</td> <td>☒</td> <td>☒</td> <td>☒</td> <td>☒</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="10" style="text-align: center;">Other Hazards</td> </tr> <tr> <td colspan="2"></td> <td>Yes</td> <td>No</td> <td colspan="6"></td> </tr> <tr> <td colspan="10"> <p>Control Measures</p> <p>10. Respiratory Hazards: ☒ Yes ☒ No ☒ Reference</p> <p>11. Electrical Hazards: ☒ Yes ☒ No ☒ Reference</p> <p>12. Lock and Tag: ☒ Yes ☒ No ☒ Reference</p> <p>13. Scaffolding: ☒ Yes ☒ No ☒ Reference</p> <p>14. Aerial Lifts: ☒ Yes ☒ No ☒ Reference</p> <p>15. Asbestos Removal: ☒ Yes ☒ No ☒ Reference</p> <p>16. Other (see JHA Sht. 2): ☒ Yes ☒ No ☒ Reference</p> <p>• = Items than require a permit/form/report. ✓ = Formal training required.</p> </td> </tr> <tr> <td colspan="10"> <p>Other Hazards</p> <p>1. Temperature Extremes: ☒ Yes ☒ No</p> <p>2. Noise: ☒ Yes ☒ No</p> <p>3. Insufficient Lighting: ☒ Yes ☒ No</p> <p>4. Animals/Insects: ☒ Yes ☒ No</p> <p>5. Process Chemicals/Steam: ☒ Yes ☒ No</p> <p>6. Dust: ☒ Yes ☒ No</p> <p>7. Flammable/Combustible Materials: ☒ Yes ☒ No</p> <p>8. Ladders: ☒ Yes ☒ No</p> <p>9. Wet/Slippery Floors or Surfaces: ☒ Yes ☒ No</p> <p>10. Uneven Terrain: ☒ Yes ☒ No</p> <p>11. Adjacent Water Hazard: ☒ Yes ☒ No</p> <p>12. Vehicle Traffic: ☒ Yes ☒ No</p> <p>13. Heavy Equipment: ☒ Yes ☒ No</p> <p>14. Rigging Operation: ☒ Yes ☒ No</p> <p>15. Manual Lifting: ☒ Yes ☒ No</p> <p>16. Power Tools: ☒ Yes ☒ No</p> <p>17. Pinch Points: ☒ Yes ☒ No</p> <p>18. Falling Objects: ☒ Yes ☒ No</p> <p>19. Sharp Objects: ☒ Yes ☒ No</p> <p>20. Overhead Obstructions: ☒ Yes ☒ No</p> <p>21. Site Control (Signs/Barricades): ☒ Yes ☒ No</p> <p>22. Remote Work Area: ☒ Yes ☒ No</p> <p>23. 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HANFORD JOB HAZARD ANALYSIS (Continuation Sheet)

Page 2 of 3

Sequence of Basic Job Steps or Work Activity	Hazards Present	How to Eliminate Hazards
1.0 Pre-startup: Configuration and Assembly of Test Apparatus	A)Control Voltages (24vdc) B)Equipment Line Voltages (110VAC) C)Pressurized Flammable Gas Cylinder-gas feed lines - up to initial isolation valve. D)Air Ducting w/ 200 cfm air flow	A)Insure power off when making connections to equipment. B)Insure power cords are in good condition and insure no standing water near cord. C)Use proper gas cylinder procedure when moving/storing cylinders. Use proper cylinder holders when stored. Insure no flame source is nearby and insure lines are leakproof (using soap test) before starting test. D) Use caution when working around blower and insure others working nearby are aware of blower inlet point.
2.0 Startup sequence	Pressurized gas (flammable)	Insure outlet lines are tight and pressure regulator is of proper type and functioning properly.
3.0 Operations sequence	A)Blower Fan B)Potentially flammable gas source (when exposed to atmosphere) C)Flammable Gas	A)Chain barricade will be up around fan. B)Sign stating "Caution - Flammable Gas - No Sparks or Open Flames" will be posted. C)Use Gas chromatograph unit to verify concentration is below LFL - shut off gas flow if not. Purge gas line immediately downstream of gas solenoid control valve with nitrogen after test. Gas insertion point positioned in a 200 SCFM flow stream will provide rapid dilution to below LFL (< 4% hydrogen)after mixing. Air flow ducting near and downstream of flammable gas insertion point will be electrically tied to building ground. Flammable gas solenoid valve will shut off if ma air flow is lost - via air flow switch.

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HANFORD JOB HAZARD ANALYSIS (Continuation Sheet)		Page 3 of 3
Sequence of Basic Job Steps or Work Activity	Hazards Present	How to Eliminate Hazards
4.0 Shutdown sequence	A) Pressurized Gas (flammable) B) Residual H ₂ in Ducting	A) Insure gas cylinder are properly closed before disconnecting gas lines B) Purge gas line immediately downstream of gas solenoid control valve with nitrogen after test.
5.0 Emergency procedures	A) Gas line leak B) Gas cylinder rupture	A) Frequently monitor gas flow - if excessive flow is observed - shut off gas supply B) Mount cylinder in position where catastrophic failure cannot harm personnel - call 911 if accident occurs.
6.0 Cleanup and dismantling	A) Damage to Pressurized Gas cylinder when moving to cylinder dock. B) Electrical hazards	A) Use proper gas cylinder handling procedure B) Power down equipment before dismantling.

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MEETING AGENDA

Engineering Testing Laboratory
305 Building, 300 Area
Richland, WA 99352

Meeting Description Pre Job Meeting for Whittaker Cell / Spool Piece Testing

Results Desired Insure attendees are aware of hazards, control points, site safety info, etc.

Date 02/13/97

Time 10:30

Location ETL Conference Room

Scheduled Time			Actual Time		
Start	Stop	Total Hours	Start	Stop	Total Hours
10:30					
Persons Attending					Signature
1	George Vargo-SESC				
2	Tom Schneider-Numatec Hanford				
3	Keith Witwer - Numatec Hanford				
4	Eric Waldo - NHC				
5					
6					
7					
8					
9					
10					
Items To Be Discussed					✓
1	Site Emergency Contact Telephone Numbers				
2	Safety Considerations when working with hydrogen gas				
3	Location of Eye Wash Station				
4	Necessary PPE				
5	Location of Fire Extinguisher				
6	Description of Work to be done				
7	Description of Work Area				
8	Discussion of Cleanup				
9	Site Emergency Egress Route				
10	Questions?				
11					
Materials Needed			Person Responsible		
1	JHA		K Witwer		
2	305 Emergency Response Board		K. Witwer		
3	Test Plan		Tom Schneider		
4	Test Procedure		Tom Schneider		
5					
6					

7.0 SCHEDULE

In order to support the earliest deployment of the RMCS Truck 4, the assembly of the test equipment will begin during the preparation of this test plan/procedure. The testing will begin as soon as the plan/procedure is approved and any modifications to the test assembly arrangement has been made. The test report will be prepared and released as soon as the test data has been compiled and evaluated.

8.0 QUALITY ASSURANCE

Quality Assurance will review the documentation associated with this testing as part of the review process. There are no QC hold points or verifications required for this testing.

9.0 SAFETY

Safety will review the test plan and procedure as part of the review process. A Job Hazards Analysis will be prepared as a part of this testing program and will be included in the test report. All work will be performed under the guidelines of WHC-CM-1-10, Safety Manual, WHC-CM-1-11 and WHC-CM-4-40, Industrial Hygiene Manuals.

10.0 TEST PROCEDURE

10.1 Test Prerequisites

Prior to the initiation of testing the following conditions shall be verified:

- 10.1.1 The job hazards analysis (JHA), for the performance of this testing in 305 ETL has been prepared and approved.

Verified IC Rhincke 2/13/97
Test Director Date

- 10.1.2 The information for all instruments and test equipment has been recorded in Appendix A.

Verified IC Rhincke 2-13-97
Test Director Date

- 10.1.3 All bottled gases initially required for the testing have been staged. The information for all gas bottles has been recorded in Appendix B.

Verified IC Rhincke 2-13-97
Test Director Date

- 10.1.4 The test apparatus has been assembled, configured, connected and initially verified operational, according to FIGURE 1 and Appendix A. Verify that the exhaust ducting has been routed outside of the building.

Verified JC Schuid 2-13-87
Test Director Date

- 10.1.5 The hydrogen injection piping has been pressure tested, to 20 psig, for leaks using a soap bubble solution (Snoop) and documented in the test log.

Verified JC Schuid 2-13-87
Test Director Date

- 10.1.6 A pretest safety briefing has been held with the testing personnel and recorded in the test log. The briefing will be conducted by the 305 ETL cognizant engineer.

Verified JC Schuid 2-13-87
Test Director Date

10.2 Test Procedure

If any steps in this section cannot be performed as required or results in an abnormal condition, then prepare a sequentially numbered Test Exception Record in Appendix D and a log entry identifying the problem. The resolution of the Exception will determine what testing, if any will need to be repeated.

The testing may be suspended at any time at the request of the 305 ETL facility manager, cognizant engineer or test director when an unsafe condition exists that could harm the facility, equipment or personnel.

10.2.1 Test Equipment Calibration

Calibrate the test equipment in preparation for testing.

- 10.2.1.1 Verify that the Whittaker hydrogen monitoring system is calibrated per the directions in Appendix F-2.

- 10.2.1.2 Verify that the SMC combustible gas monitor is calibrated per the directions in Appendix F-1.

- 10.2.1.3 Verify that the GC system is calibrated per the directions in Appendix F-3.

10.2.2 Low Hydrogen Concentration Testing

The low hydrogen concentration testing will use hydrogen injection standard gas that is below the lower flammability limit of hydrogen. This testing is to determine if the sensors will detect a low concentration of hydrogen present in the flow duct.

Fluor Daniel Northwest, Inc. P.O. Box 1050 Richland, WA 99352-1050	APPLICATION FOR PERMISSION TO USE YOUR COPYRIGHTED MATERIAL
To: RuskIn Fax (816)765-8955	Date: March 24, 1997
Permission is requested to reproduce the following copyrighted material from: Catalog cut sheets for CDRI92 Heavy Duty Round Isolation Damper. Spec CDRI92-894. Selections from text (specify by date of issue, page, paragraph, or illustration; if desired, attach a copy of the material in question):	
Title of work or project in which this material will be included: Letter Report, "340 Vault K1 Exhaust System HEPA Filter Evaluation", prepared by Fluor Daniel Northwest, Inc. for Rust Federal Services of Hanford, Inc. Estimated publication date: March 1997 Author: Tim E. Arndt Publisher (if applicable): n/a	
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PLEASE REPLY AS SOON AS POSSIBLE VIA FAX AT 509-373-0313.	
Name: Lori B. Weidner Signature: <u>Lori B. Weidner</u>	MSIN: 63-17 Date: March 24, 1997 Fluor Daniel Northwest, Inc.
Credit line (if required): <u>NA</u>	
Application approved by: Name: <u>T. W. Arnold</u> Date: <u>3-24-97</u> Company Name: <u>RUSKIN MFG.</u> Signatory's Position: <u>Project Manager</u> Signature: <u>T. W. Arnold</u> (on behalf of) _____	

03/21/97 12:35

373 0313

FDNF ENGINEERING

0002

Fluor Daniel Northwest, Inc.
P.O. Box 1050
Richland, WA 99352-1050

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To: Flanders Filters, Inc.

Date: March 21, 1997

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Title of work or project in which this material will be included:

Letter Report, "340 Vault K1 Exhaust System HEPA Filter Evaluation", prepared by Fluor Daniel Northwest, Inc. for Rust Federal Services of Hanford, Inc.

Estimated publication date: March 1997

Author: Tim E. Arndt

Publisher (if applicable): n/a

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Copyrighted material will be included in the engineering letter report listed above. The engineering study will be copied for the customer and records management archives only.

PLEASE REPLY AS SOON AS POSSIBLE VIA FAX AT 509-373-0313.

Name: Tim E. Arndt

MSIN: G3-17 Date: March 21, 1997

Signature:

Westinghouse Hanford Company

Credit line (if required):

Application approved by:

Name: GLEN W. MOORE

Date: MARCH 24 1997

Company Name: FLANDERS/CSC

Signatory's Position: Marketing

Signature: GLEN MOORE

(on behalf of)

DISTRIBUTION SHEET

To	From	Page 1 of 1
DISTRIBUTION	Characterization Projects	Date Mar. 12, 1997
Project Title/Work Order		EDT No. 619507
Rotary Mode Core Sampling / N4H2B		ECN No. N/A

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
CB Bryan	S7-01			X	
CE Hanson	S7-12	X			
JA Ranchau	S7-07			X	
GP Janicek	S7-12	X			
TD Jarecki	S7-03			X	
ML McElroy	S7-07			X	
RE Raymond	S7-12			X	
MJ Schliebe	L6-13			X	
TC Schneider	L6-37	X			
JS Schofield	S7-12			X	
DD Tate	L6-37			X	
GF Vargo Jr.	H5-09			X	
EJ Waldo	S7-12	X			
KS Witwer	L6-13	X			
Central Files	A3-88	X			