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TEST REPORT

REPORT NUMBER: 101276459SAT-016
ORIGINAL ISSUE DATE: September 4, 2014
REVISED DATE: N/A

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RENDERED TO

AREVA NP Inc.
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AREVA NP Inc.
58-9224234-000

PRODUCTS EVALUATED: Dow Corning® 732 Multi-Purpose Sealant and Unifrax Durablanket® S

EVALUATION PROPERTY: Seismic Pressure Resistance (Seismic Pressure Test 8)

Report of Testing pressure resistance capabilities for compliance with the applicable requirements of AREVA NP Inc. Test Plan, Document No. 51-9217022-000

1 Table of Contents

2 Introduction

Intertek Testing Services NA (Intertek) has conducted testing for AREVA NP Inc., on the seismic pressure resistance capabilities of Dow Corning® 732 Multi-Purpose Sealant (DC-732) and Unifrax Durablanket® S (Durablanket) through a 12" thick concrete deck for compliance with the applicable requirements of and in accordance with AREVA NP Inc. Document No. 51-9217022-000, *Detailed Test Plan for Conducting MOX Seismic Pressure Test 8.* This test took place on January 21, 2014.

This project was undertaken to evaluate the seismic pressure resistance capabilities of the test assembly using alternating pressures at the air pressure increments above atmospheric pressure.

NOTE: The test assembly used in this seismic pressure test was the same test assembly that was constructed and tested in Pressure Test 10 without any changes to the penetration seal assemblies. Refer to AREVA Doc. 58-9224201-000 or Intertek Test Report No. 101276459SAT-013 for details on Pressure Test 10.

3 Test Samples

3.1. SAMPLE SELECTION

The sealant materials were not independently selected for testing; they were supplied by AREVA NP Inc., and were received on June 13 and September 10, 2014, respectively. The samples were received with Certificates of Conformance and are considered traceable. Basic information on sealant material(s) is presented in the table below.

Sealant Material	Lot /Batch#	Expiration Date
Dow Corning® 732	0007251823	5/29/2015
Unifrax Durablanket® S	32039	NA

Information regarding receiving dates and origin of all the materials in the assembly can be found in Appendix F: Quality Documents of Pressure Test 10 (Intertek Test Report No, 101276459SAT-013; AREVA document 58-9224201-000). All samples were received in good condition at the Evaluation Center.

3.2. SAMPLE AND ASSEMBLY DESCRIPTION

The configuration for Seismic Pressure Test 8 is the same assembly that was tested under Pressure Test 10. A detailed description of the test assembly can be found in AREVA NP Inc. Engineering Record 51-9217022-000*, Detailed Test Plan for Conducting Seismic Pressure Test 8* which is contained in Appendix D. For drawings of the concrete deck and penetrations please refer to Appendix A of Pressure Test 10 (Intertek Report No. 101276459SAT-0013; AREVA document 58-9224201-000). The test configuration consisted of six penetrations; small, medium and large sized conduits of stainless steel (SS) and ridged galvanized steel (RGS) cast into concrete. Cables were installed in the conduits. The installation and documentation of penetration seal

assemblies contained within the test slab was performed by AREVA under AREVA's Quality Assurance Program (Reference 12.4 in the test plan found in Appendix D).

Note: Seismic Pressure Test 8 was originally attempted to be tested the day after Pressure Test 10 was conducted. During that attempted test, it was discovered that the bottom side of test assembly (i.e., bottom bonnet and slab interface) could not hold pressure due to an extremely porous finish on the bottom side of the concrete test slab. This condition had not been detected during Pressure Test 10 because the pressure was applied to the top side of the test slab, which had a smooth and uniform finish. However, for a seismic pressure test, the pressure is alternated such that both sides of the test assembly are subjected to (and must hold) pressure.

To alleviate this condition, the test slab was flipped over and surplus Panel Patch material was used to seal the porous concrete finish. A topcoat of Panel Patch material was applied to the entire surface of the test slab up to the exiting sealed penetrations, taking care not to cover the penetration seal material or the interface between the seal material and the cast-in-place conduits. After the Panel Patch material was allowed to cure, Seismic Pressure 8 was performed.

4 Testing and Evaluation Methods

The Test Plan in Appendix D defines the test methods, acceptance criteria and test report documentation requirements for penetration seal Seismic Pressure Test 8. Additionally, this detailed test plan defines the roles and responsibilities of MOX Services, AREVA, the selected testing laboratory, and any other subcontracted entity engaged in support of seismic pressure testing efforts.

The detailed test plan also describes the procurement plan for materials associated with penetration seals in Seismic Pressure Test 8 and identifies the entities responsible for procuring the various components of the test assembly based on the quality level assigned to each component.

The Test Plan also establishes minimum quality requirements for the penetration seal materials used in the test assembly and links quality requirements in the AREVA QA program to customer/project quality requirements.

4.1. TEST APPARATUS

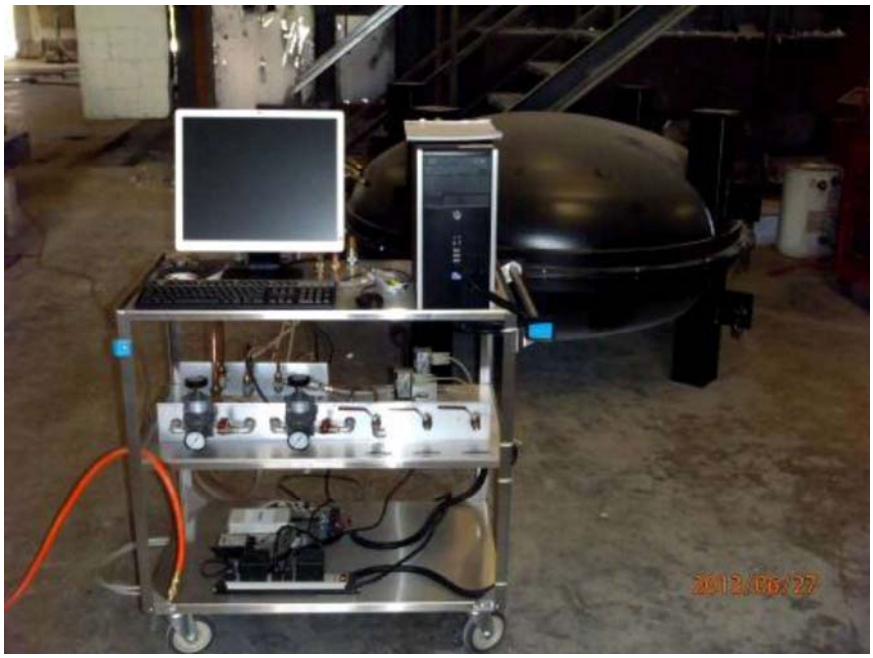
In the absence of any consensus codes or standards related to the pressure testing of penetration seal assemblies for seismic qualification purposes, the MOX Penetration Seal Program has developed a standardized method for conducting pressure testing of MOX penetration seal designs. Specifically, seismic pressure testing will be used to evaluate the seismic inertia of the self-weight of the seal assembly by applying an equivalent pressure to alternating sides of a penetration seal assembly. In support of this effort, Intertek assisted in the design and construction of a pressure test apparatus to be use in the conduct of MOX penetration seal pressure tests.

The pressure chamber apparatus consists of two hemispherical 72" diameter steel pressure vessels, calibrated equipment and a data acquisition system. The apparatus accurately maintains the desired air pressure, using one of two sensitive, manually adjustable pressure regulators; a high (0-15 psi) and a low (0-2 psi) range. The sealed collection chamber feeds any leakage air back to the test device, where it is channeled through one of two calibrated flow meters, once again, a high (0-200 L/min) and a low (0-20 L/min) range. A calibrated electronic pressure transducer (0-5 psi) measures the differential pressure between the two chambers and the data acquisition software determines the net pressure drop across the test seal and the leakage through the seal. The chambers are interchangeable and the direction can be reversed very quickly so both can serve as the pressure or the collection chamber.

The primary components described above include the devices described on the following pages:

Pressure Chamber	2-piece hemispherical 72” diameter steel vessel 3 connection ports per piece 16 flange attachment points per piece Flange attachment via 3/8” diameter holes @ 22-1/2° spacing

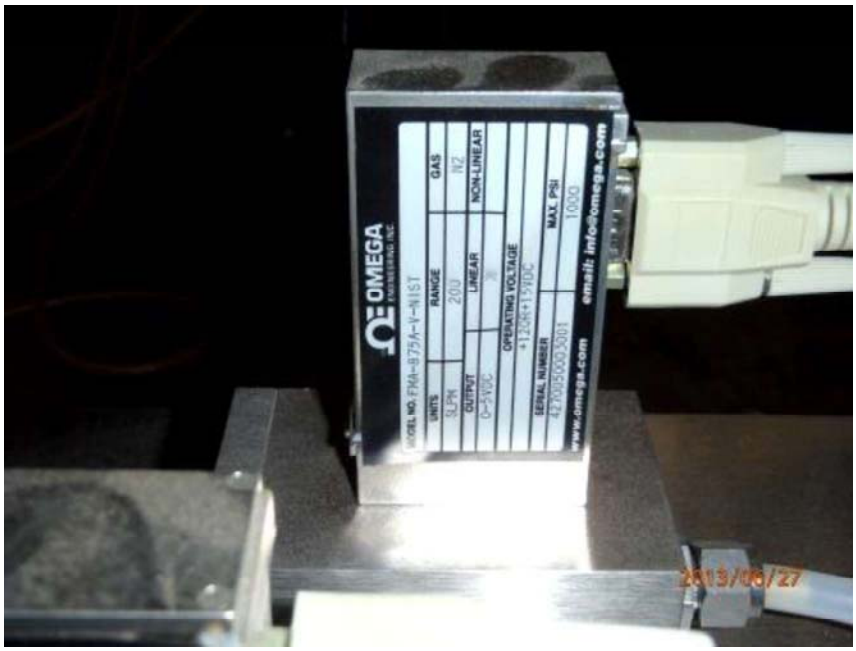
Pressure Cart	Stainless steel rolling cart with control equipment and associated Data Acquisition System



Regulator (low)	Control Air, Inc., Amherst, NH Type 700 0-2 psi
Regulator (high)	Control Air, Inc., Amherst, NH Type 700 0-15 psi

Mass Flow Meter Omega Engineering, Inc., Stamford, CT
Model No. FMA-872A-V-NIST
Serial No. 4270050001001
0-20 lpm

Mass Flow Meter Omega Engineering, Inc., Stamford, CT
Model No. FMA-875A-V-NIST
Serial No. 4270050003001
0-200 lpm



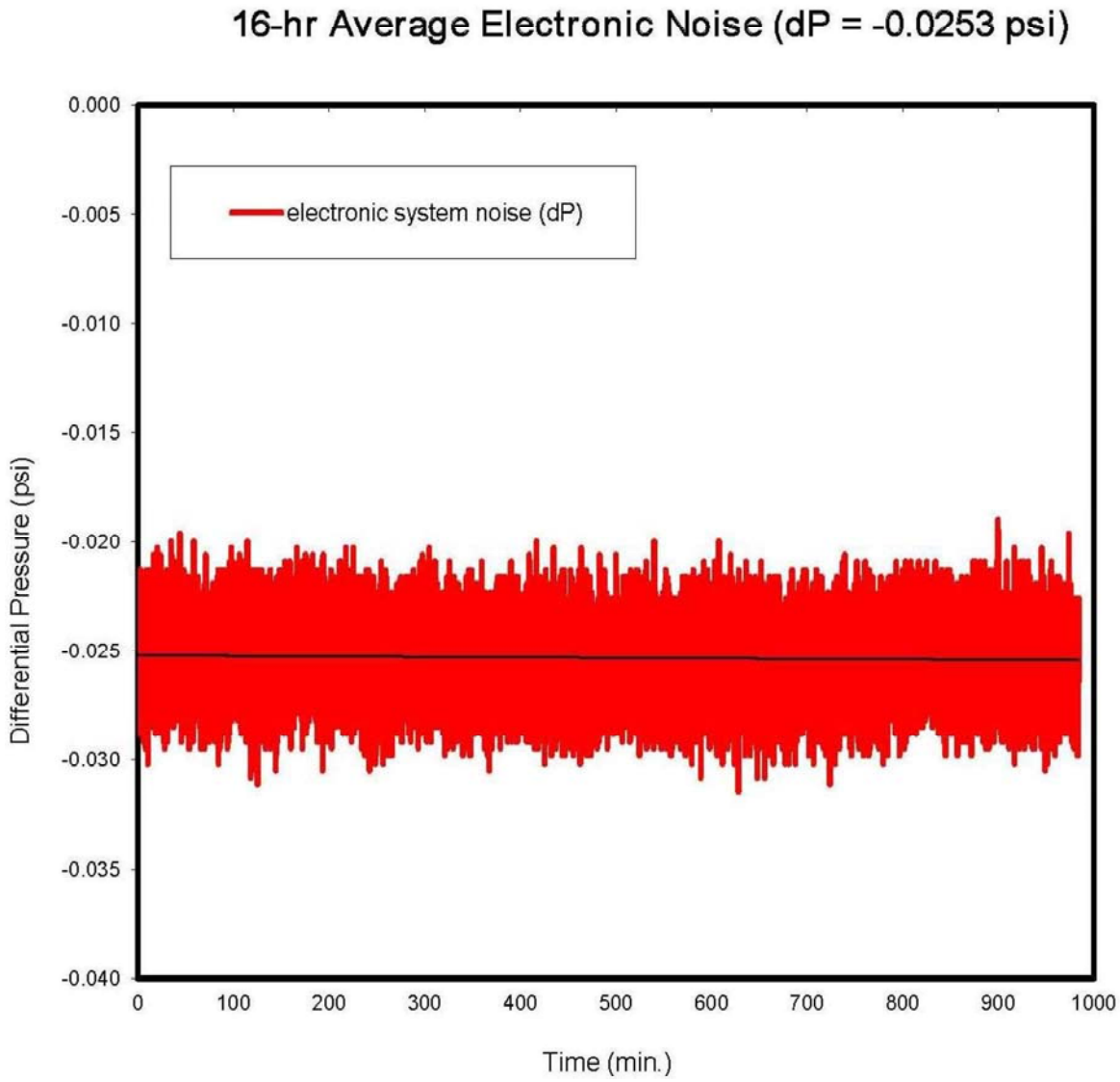
Pressure Transducer Omegadyne Inc., Sunbury, OH
Model No. PX409-005 DWUV
Serial No. 406707
Pressure Range: 0-5 psi
Input 0-100mVdc

Power Supply	Omega Engineering, Inc., Stamford, CT Model No. PSS-10 +10V @ 400 mA Input 115 VAC 50/60 Hz
Multifunction DAQ	National Instruments, Model No. NI USB-6210 16 Input, 16-bit, 250 kS/s, Multifunction I/O

Dedicated CPU

HP Compaq Pro-6300 Microtower
Serial No. MXL3090LN6
OS Windows 7 Pro

Additionally, during initial system start-up testing and verification, it was discovered that the data acquisition system (DAQ) was so sensitive that "signal noise" resulted in data fluctuations for reported differential pressure even when the system was at equilibrium (i.e., both high side and low side pressure chambers were at atmospheric conditions). After collecting data for 16 hours overnight, the average fluctuation was -0.025 psi.



As seen above, the average data fluctuation due to "signal noise" was -0.025 psi. For this test, the Test Plan required pressure was applied and maintained using the DAQ reported differential pressure without consideration for any "signal noise". Since the "signal noise" always reported some level of negative pressure at the beginning of the test, this method assured that the tests were conducted with additional margin, as the actual differential pressure that the test specimen was subjected to was equal to the DAQ reported differential pressure plus the additional pressure needed to overcome the negative "signal noise" reported at the beginning of the test when both pressure chambers were at atmospheric conditions.

4.2. TEST STANDARD

AREVA NP Inc. Document No. 51-9217022-000

Seismically qualified penetration seals at the MOX facility are required to remain in the opening (penetration) during and after a Design Earthquake seismic event. In order demonstrate that a penetration seal will remain in place, the seal has to be evaluated for two conditions: 1) The seismic inertia of the self-weight of the seal has to be evaluated; and 2) The seismic deflection of the commodities penetrating the seal has to be considered.

Seismic pressure testing was used to evaluate the seismic inertia of the self-weight of the seal assembly. This was accomplished by applying a pressure to alternating sides of the penetration seal to demonstrate that the seal would not become dislodged from the opening due to the seismic inertia of the self-weight of the seal. The seismic deflection of commodities that penetrate the seal will be addressed by a separate analysis.

Ultimately, the overall seismic qualification of MOX penetration seal assemblies will be captured in a penetration seal seismic qualification report that will tie together the results of seismic pressure testing with other analyses performed to address seismic deflection of commodities that penetrate the seal.

The acceptance criterion for evaluating the seismic inertia of the seal self-weight is calculated in MOX Services Calculation “Penetration Seal Seismic Requirements” [Test Plan Reference 12.1] and expressed as an equivalent pressure. Testing at this equivalent pressure qualified that a penetration seal assembly would remain in place (i.e., the penetration seal cannot become dislodged from the opening or otherwise catastrophically fail such that a substantial leakage path is created) during the design earthquake seismic event.

The relative movement of the items penetrating a seal and the movement of the wall / seal during a seismic event were not considered as a part of this test. A separate engineering evaluation is required to evaluate the effect of movement on a seal with penetrating items during a seismic event.

No pressure inducing events are required to be considered concurrently with a seismic event.

The table below identifies the differential pressure levels (stages) for conducting this seismic pressure test, as well as, the acceptance criteria in order for the penetration seal assemblies to meet the seismic pressure testing requirements.

Test Stage	Differential Pressure (inch w.g.)	Required Hold Time (minutes)	Acceptance Criteria	Basis for the Selected Differential Pressure
1-4	8 (Note 1)	5	Penetration Seal Remains in Opening (Does not become dislodged)	Testing at this differential pressure meets the seismic demand expressed as a pressure [Test Plan Reference 12.1]

Note 1: An approximate density of 65 pcf was determined for Dow Corning 732 based on its published specific gravity of 1.04 (64.8 pcf using specific gravity of 1.04 and water at 70 degrees F). This approximate density was confirmed as being conservative by filling a P35A 3.5 oz sample cup full to the top with Dow Corning 732, weighing the sample, subtracting the weight of the empty cup to ascertain the sample material weight (mass), and then using formulas used to derive Table 8-1 of AREVA Document 51-9201312-001 [Test Plan Reference 12.9] to obtain the density of Dow Corning 732. The sample material weight (mass) was measured as 107.6 grams, which correlates to a material density of 60.7 pcf. 65 pcf times a seal depth of 0.5" on each side of the penetration yields a seal weight of approximately 5.4 psf. 12 pcf (Unifrax Fiberfrax Durablanket S density (6 pcf) at 50 percent compression) times a seal depth of 4" (2" thickness on each side of the penetration) yields a seal weight of approximately 4.0 psf. Approximately 5.4 psf plus 4.0 psf yields a total seal weight of approximately 9.4 psf. Based on Figure B-1.1 of Test Plan Reference 12.1, the corresponding seismic pressure for a seal weight of 9.4 psf is approximately 8 inches w.g. (7.42 inches w.g.). Therefore, for Seismic Pressure Test 8 an equivalent seismic pressure of 8 inches w.g. was used.

Refer to Appendix C of the Test Plan for additional details associated with the density sample for Dow Corning 732 sealant.

The test assembly was attached to the seismic pressure test apparatus and subjected to the pressures identified in the table above as described below:

For Stage 1, the test assembly was attached to the pressure test apparatus and subjected to air pressure at the select pressure level identified in the table. Once this pressure had been obtained, the pressure was maintained for the hold time specified. If the penetration seal catastrophically failed during this time, the time of failure was to be noted and the test stopped.

Once the designated hold time for Stage 1 had been achieved, the pressure was vented from the test chamber. Next, the pressure identified for Stage 2 was applied to the opposite side of the penetration seal and held for the designated hold time. If the penetration seal catastrophically failed during this time, the time of failure was to be noted and the test stopped.

Once the designated hold time for Stage 2 had been achieved, the pressure was vented from the test chamber. Next, the pressure identified in the table for Stage 3 was applied to the original side of the penetration seal and held for the designated hold time. If the penetration seal catastrophically failed during this time, the time of failure was to be noted and the test stopped.

Once the designated hold time for Stage 3 had been achieved, the pressure was vented from the test chamber. Finally, the pressure identified in the table for Stage 4 was applied to the opposite side of the penetration seal and held for the designated hold time. If the penetration seal catastrophically fails during this time, the time of failure was to be noted and the test shall stopped.

Following completion of Stage 4 pressure testing, the pressure was vented from the test chamber. At this point, the test was continued at the discretion of the AREVA test engineer and the testing laboratory manager in charge. Subsequent pressures, and hold times were recorded as directed by the AREVA test engineer.

Note:	The pressure used for the testing performed above was based on a seal material depth of 0.5" of 732 caulk and a 2" depth of 6 pcf ceramic blanket at 50% compression installed on both sides of the barrier. Since the test was successful, a recommended subsequent testing pressure of 16 inches w.g. was evaluated, which represents the pressure associated with 1 inch of 732 caulk and 4" of ceramic blanket installed on both sides of the barrier (i.e., double the normal seal design). These tests were designated as Stages 1a-4a.

If at any pressure level (or test stage) the penetration seal became dislodged from the opening or otherwise catastrophically fails, the seismic pressure test was to be terminated and the time to failure and pressure at which the failure occurred was to be recorded.

5 Testing and Evaluation Results

5.1. RESULTS AND OBSERVATIONS

The test was initiated at 12:17 p.m. on January 21, 2014. Scott Groesbeck, representing AREVA NP Inc. was present to witness the test. The ambient temperature at the start of the test was 63°F, with a relative humidity of 26%.

The test procedure followed that presented in Section 9.0 of the Test Plan except that the top of the slab in Pressure Test 10 is now the bottom of the slab in this test, since the slab was flipped to apply the Panel Patch material. Additionally, at the completion of Stage 4 the pressure was not vented from the bottom chamber. In lieu of this, the bottom chamber pressure was increased to the Stage 1a level of 16" w.g. and the test continued. This resulted in Stage 4a concluding with the pressure being applied to the top side of the test assembly. This minor deviation from the prescribed test method was conducted with the verbal approval of the AREVA Test Engineer and is deemed to have had no adverse impact on the outcome of the test results.

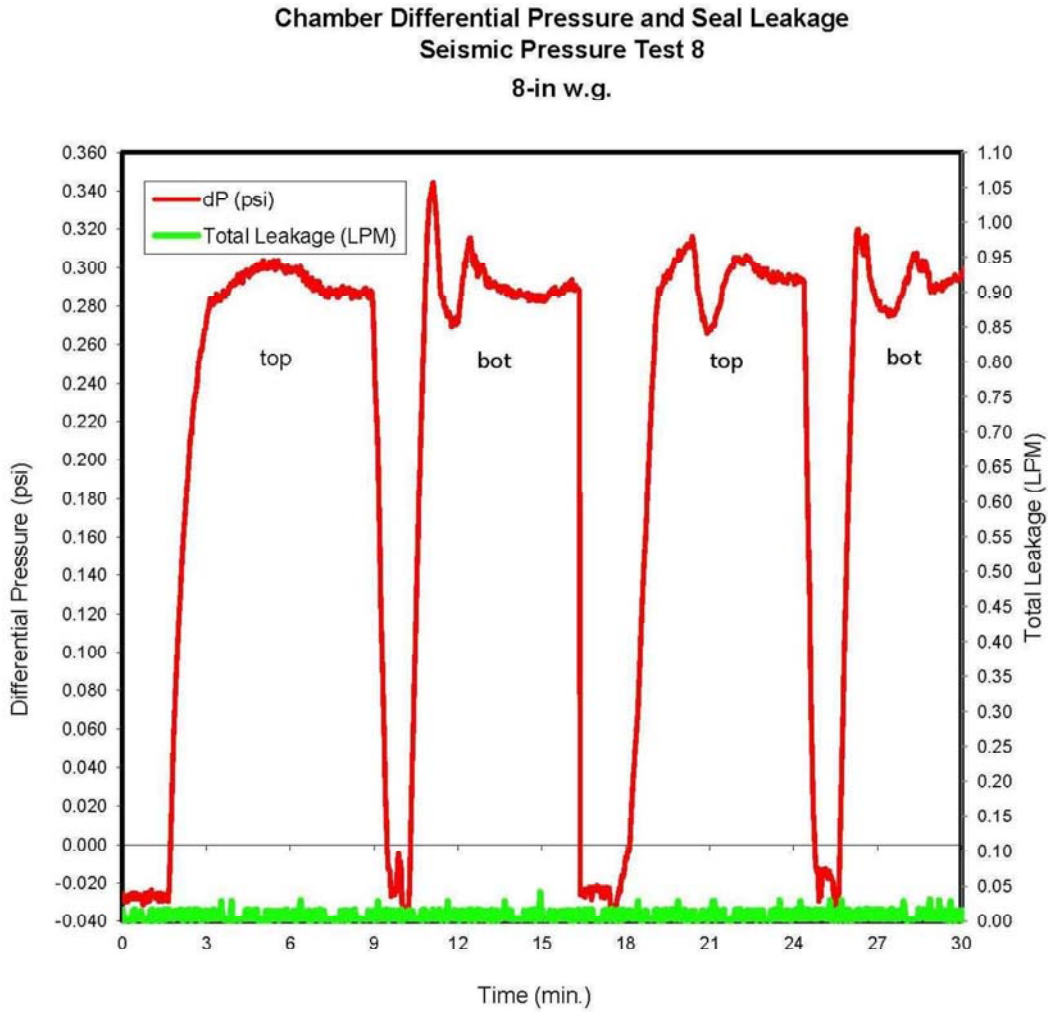
The graphs and table on the following page(s) provide a summary of results and observations for the various pressure stages; any observed leakage, and whether the seal remained in place. Appendix B of this test report contains the raw data for this test.

The graphs are based on data collected throughout the entire test process, including the time periods between stages when the pressure chamber was being vented and refilled. Pressure spikes and leakage rates displayed for time periods between stages should not be misinterpreted, as recorded leakage may have been caused by intentional venting of the pressure chamber though a mass flow meter.

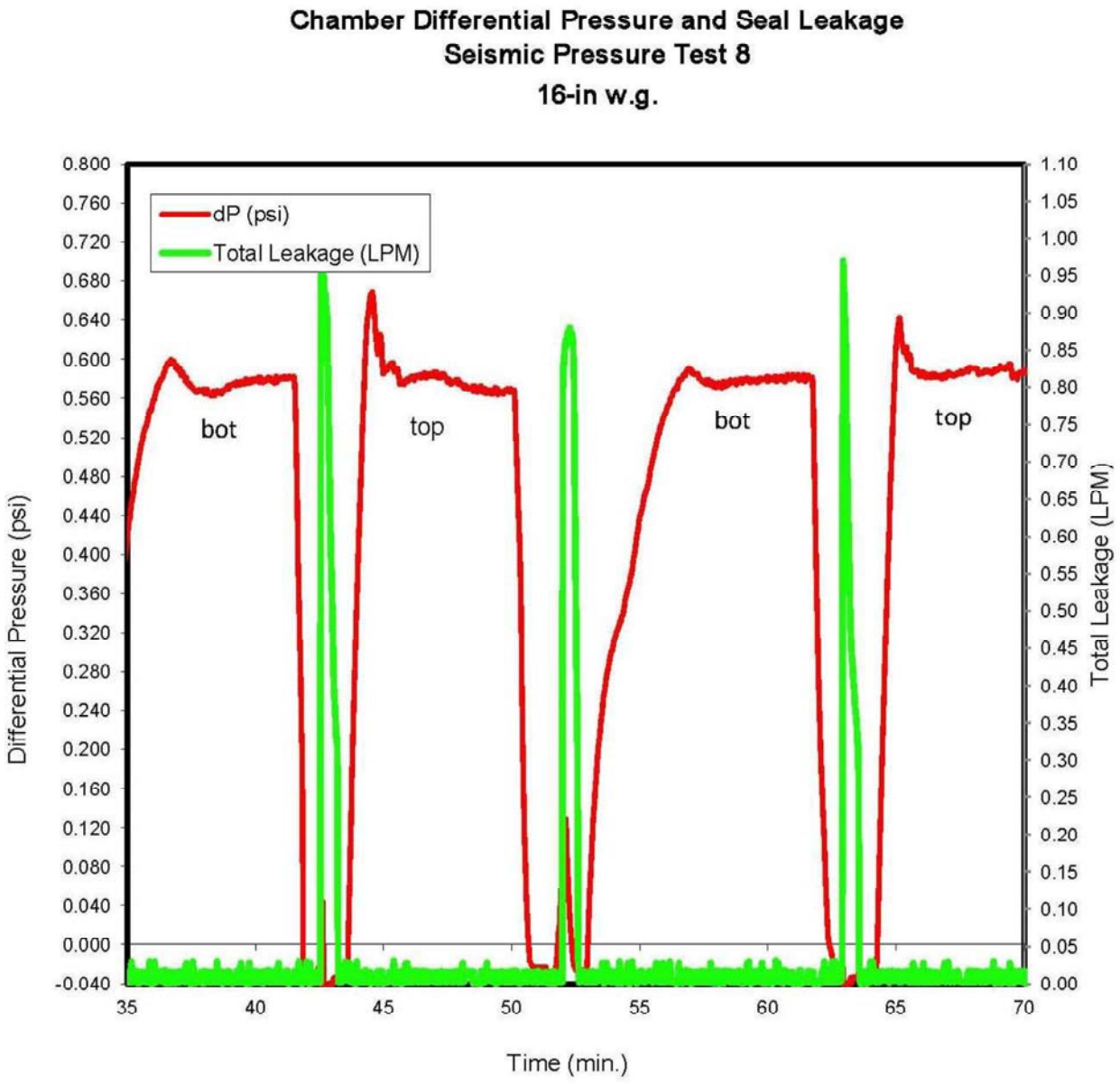
Additionally, it should be noted that when changing between mass flowmeters during a pressure a test, valve lineups and flowpath routes are changed. The time it takes to manipulate the valves, differences in tubing sizes, orifice sizes and mass flowmeter throughput capacity all affect bonnet pressure on the leakage side of the test assembly which can affect recorded leakage values. Generally, the input air on the opposite side of the test assembly remains constant during this time period, since manipulation of the input pressure regulator would require additional operator action. This results in reported differential pressure fluctuations which typically show up as pressure spikes when the raw data is graphed. Within a few minutes of mass flowmeter switchover, the system stabilizes to the new lineup and the data results in a more uniform graph.

Therefore, it is important to analyze the data compiled during the hold times for each pressure stage and not the data before, after or in between pressure stages. The summary table presented after the graphs identifies the approximate start time and stop times for each pressure stage of this test. These times can be correlated to the data under the "Time (min)" heading for the raw data contained in Appendix B of this report. The official start and stop times for each pressure stage were timed using a traceable, calibrated stopwatch.

Stage 1-4



Stage 1a-4a


Chamber Differential Pressure and Seal Leakage
Seismic Pressure Test 8
16-in w.g.
dP (psi)
Total Leakage (LPM)
bot
top
bot
top
Differential Pressure (psi)
Total Leakage (LPM)
Time (min.)
0.800
0.760
0.720
0.680
0.640
0.600
0.560
0.520
0.480
0.440
0.400
0.360
0.320
0.280
0.240
0.200
0.160
0.120
0.080
0.040
0.000
-0.040
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
35
40
45
50
55
60
65
70

Test Results and Observations

Test Stage	Pressurized Side	Differential Pressure (inch w.g.)	Start Time (min)	Required Hold Time (minutes)	Acceptance Criteria	PASS/FAIL
1	TOP*	8	3.8	5	Seal Remains In Place	PASS
2	BOTTOM	8	10.9	5	Seal Remains In Place	PASS
3	TOP	8	19.2	5	Seal Remains In Place	PASS
4	BOTTOM	8	26.2	5	Seal Remains In Place	PASS
1a	BOTTOM	16	36.4	5	Seal Remains In Place	PASS
2a	TOP	16	44.3	5	Seal Remains In Place	PASS
3a	BOTTOM	16	56.6	5	Seal Remains In Place	PASS
4a	TOP	16	65	5	Seal Remains In Place	PASS

* TOP is the test slab side with the Panel Patch material. This was described as the BOTTOM side in Pressure Test 10.

5.2. POST TEST EXAMINATION

Following completion of Seismic Pressure Test 8, the top bonnet was removed and the top side of the test specimen was visually inspected. This inspection revealed the following:

- Integrity of seal and conditions on the exposed side of the penetration
  - ➢ No visual changes were observed.
- Location of any penetration seal degradation
  - ➢ No visual changes were observed.
- Condition of seal to barrier interface
  - ➢ No visual changes were observed.
- Condition of seal to penetrating item interfaces
  - ➢ No visual changes were observed.

Finally, the slab was removed from the bottom bonnet and the bottom side of the test assembly was inspected. No visual changes were noted on the bottom side of the test assembly.

6 Conclusion

Intertek Testing Services NA (Intertek) has conducted testing for AREVA NP Inc., on the seismic pressure resistance capabilities of Dow Corning® 732 Multi-Purpose Sealant (DC-732) and Unifrax Durablanket® S (Durablanket) through a 12" thick concrete deck for compliance with the applicable requirements of and in accordance with AREVA NP Inc. Document No. 51-9217022-000, *Detailed Test Plan for Conducting MOX Seismic Pressure Test 8.* This test took place on January 21, 2014.

The seals in Seismic Pressure Test 8 met the acceptance criteria as defined in the Test Plan.

This project was undertaken to evaluate the seismic pressure resistance capabilities of the test assembly using alternating pressures at the air pressure increments above atmospheric pressure.

The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

INTERTEK TESTING SERVICES NA

Reported by: [redacted]

Mike Dey
Staff Engineer

Reviewed by: [redacted]

Project Engineer, Fire Resistance

Reviewed by: [redacted]

Michael A. Brown
Quality Supervisor

APPENDIX A
Assembly Drawings

The test assembly used in Seismic Pressure Test 8 was the same assembly tested in Pressure Test 10. A detailed description of the assembly is presented in the Test Plan in Appendix D of this report. For drawings of the assembly, please refer to the final test report for Pressure Test 10 (Intertek Report No. 101276459SAT-013; AREVA document 58-9224201-000).

APPENDIX B
Test Data

Areva NP, Inc. Project No. G101276459-SAT-016 January 21, 2014

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
0	-0.0259	0.0153	0.0019	0.0172
0.0333	-0.0262	0	0	0
0.0667	-0.0298	0	0	0
0.1	-0.0302	0	0.0005	0.0005
0.1333	-0.0272	0.0022	0	0.0022
0.1667	-0.0282	0.0022	0.0019	0.0041
0.2	-0.0295	0.0022	0.0005	0.0027
0.2333	-0.0262	0.0022	0.0005	0.0027
0.2667	-0.0269	0.0022	0	0.0022
0.3	-0.0285	0	0.0005	0.0005
0.3333	-0.0255	0	0	0
0.3667	-0.0255	0.0153	0	0.0153
0.4	-0.0285	0	0	0
0.4333	-0.0265	0.0153	0.0019	0.0172
0.4667	-0.0252	0.0022	0.0005	0.0027
0.5	-0.0255	0.0022	0.0005	0.0027
0.5333	-0.0282	0.0022	0.0005	0.0027
0.5667	-0.0285	0.0022	0	0.0022
0.6	-0.0279	0.0022	0.0005	0.0027
0.6333	-0.0262	0.0022	0.0005	0.0027
0.6667	-0.0269	0.0153	0	0.0153
0.7	-0.0272	0.0022	0	0.0022
0.7333	-0.0315	0.0022	0	0.0022
0.7667	-0.0288	0	0	0
0.8	-0.0255	0.0022	0.0005	0.0027
0.8333	-0.0302	0.0022	0.0005	0.0027
0.8667	-0.0288	0	0.0005	0.0005
0.9	-0.0269	0.0022	0.0005	0.0027
0.9333	-0.0249	0.0022	0.0005	0.0027
0.9667	-0.0295	0	0.0005	0.0005
1	-0.0262	0.0153	0	0.0153
1.0333	-0.0239	0.0022	0	0.0022
1.0667	-0.0265	0.0153	0.0019	0.0172
1.1	-0.0255	0.0022	0.0005	0.0027
1.1333	-0.0262	0	0.0005	0.0005
1.1667	-0.0279	0.0022	0	0.0022
1.2	-0.0279	0.0153	0	0.0153
1.2333	-0.0275	0	0.0005	0.0005
1.2667	-0.0255	0.0153	0.0005	0.0159
1.3	-0.0295	0.0153	0.0005	0.0159
1.3333	-0.0275	0.0022	0.0032	0.0054
1.3667	-0.0255	0.0022	0.0005	0.0027
1.4	-0.0259	0.0022	0	0.0022

Areva NP, Inc. Project No. G101276459-SAT-016 January 21, 2014

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
1.4333	-0.0295	0	0	0
1.4667	-0.0259	0.0022	0	0.0022
1.5	-0.0292	0.0153	0.0019	0.0172
1.5333	-0.0288	0.0153	0.0005	0.0159
1.5667	-0.0272	0	0.0019	0.0019
1.6	-0.0282	0.0022	0.0005	0.0027
1.6333	-0.0298	0.0153	0.0019	0.0172
1.6667	-0.0229	0.0153	0.0005	0.0159
1.7	-0.0071	0.0153	0.0005	0.0159
1.7333	0.0064	0.0022	0	0.0022
1.7667	0.0261	0.0022	0.0019	0.0041
1.8	0.0429	0.0022	0.0005	0.0027
1.8333	0.0567	0	0.0019	0.0019
1.8667	0.0699	0.0022	0.0019	0.0041
1.9	0.0804	0.0153	0	0.0153
1.9333	0.0923	0.0022	0.0019	0.0041
1.9667	0.1018	0.0022	0.0019	0.0041
2	0.1137	0.0153	0.0005	0.0159
2.0333	0.1216	0.0022	0.0019	0.0041
2.0667	0.1295	0.0153	0.0019	0.0172
2.1	0.1397	0	0.0019	0.0019
2.1333	0.1479	0.0153	0.0005	0.0159
2.1667	0.1581	0	0	0
2.2	0.164	0.0153	0.0005	0.0159
2.2333	0.1709	0.0153	0.0005	0.0159
2.2667	0.1775	0.0022	0.0005	0.0027
2.3	0.1861	0.0022	0.0005	0.0027
2.3333	0.19	0.0022	0.0005	0.0027
2.3667	0.1989	0.0153	0.0019	0.0172
2.4	0.2052	0.0022	0.0005	0.0027
2.4333	0.2131	0.0022	0.0019	0.0041
2.4667	0.2134	0	0.0005	0.0005
2.5	0.2213	0.0022	0.0005	0.0027
2.5333	0.2266	0.0022	0.0019	0.0041
2.5667	0.2312	0.0153	0.0019	0.0172
2.6	0.2332	0.0022	0.0005	0.0027
2.6333	0.2364	0.0153	0.0019	0.0172
2.6667	0.2404	0.0153	0.0019	0.0172
2.7	0.247	0.0022	0.0019	0.0041
2.7333	0.2509	0.0022	0.0005	0.0027
2.7667	0.2536	0.0153	0.0005	0.0159
2.8	0.2572	0	0	0
2.8333	0.2568	0	0	0

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
2.8667	0.2601	0.0022	0.0005	0.0027
2.9	0.2647	0.0022	0	0.0022
2.9333	0.2677	0.0022	0	0.0022
2.9667	0.268	0.0153	0.0005	0.0159
3	0.2723	0.0153	0.0005	0.0159
3.0333	0.275	0	0.0019	0.0019
3.0667	0.2776	0.0022	0	0.0022
3.1	0.2789	0.0022	0.0005	0.0027
3.1333	0.2835	0.0022	0	0.0022
3.1667	0.2802	0.0153	0.0005	0.0159
3.2	0.2835	0.0153	0.0005	0.0159
3.2333	0.2805	0.0022	0.0005	0.0027
3.2667	0.2815	0.0153	0.0019	0.0172
3.3	0.2819	0.0022	0.0019	0.0041
3.3333	0.2829	0.0153	0	0.0153
3.3667	0.2865	0.0022	0.0005	0.0027
3.4	0.2829	0.0022	0.0005	0.0027
3.4333	0.2829	0.0022	0.0005	0.0027
3.4667	0.2829	0.0022	0.0005	0.0027
3.5	0.2825	0.0022	0.0005	0.0027
3.5333	0.2852	0.0285	0	0.0285
3.5667	0.2855	0.0022	0.0019	0.0041
3.6	0.2881	0.0022	0	0.0022
3.6333	0.2878	0	0.0019	0.0019
3.6667	0.2848	0.0022	0.0005	0.0027
3.7	0.2878	0.0022	0.0005	0.0027
3.7333	0.2865	0	0.0005	0.0005
3.7667	0.2865	0.0022	0.0019	0.0041
3.8	0.2901	0.0022	0.0005	0.0027
3.8333	0.2891	0.0022	0.0005	0.0027
3.8667	0.2917	0	0	0
3.9	0.2914	0.0285	0.0005	0.029
3.9333	0.2907	0	0.0019	0.0019
3.9667	0.2927	0	0.0019	0.0019
4	0.2914	0	0.0005	0.0005
4.0333	0.2911	0.0022	0.0005	0.0027
4.0667	0.294	0.0022	0.0005	0.0027
4.1	0.2921	0	0.0019	0.0019
4.1333	0.2963	0.0022	0	0.0022
4.1667	0.2924	0.0022	0.0005	0.0027
4.2	0.2934	0	0.0005	0.0005
4.2333	0.2967	0.0022	0	0.0022
4.2667	0.297	0.0022	0.0005	0.0027

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
4.3	0.2921	0.0022	0	0.0022
4.3333	0.2963	0.0022	0.0005	0.0027
4.3667	0.2963	0.0022	0.0005	0.0027
4.4	0.2977	0.0153	0.0005	0.0159
4.4333	0.2986	0.0022	0.0005	0.0027
4.4667	0.2977	0.0153	0.0019	0.0172
4.5	0.2977	0.0022	0.0019	0.0041
4.5333	0.295	0.0022	0	0.0022
4.5667	0.2973	0.0022	0.0005	0.0027
4.6	0.2977	0.0022	0.0005	0.0027
4.6333	0.2996	0.0153	0.0005	0.0159
4.6667	0.2973	0.0022	0.0005	0.0027
4.7	0.3	0.0153	0	0.0153
4.7333	0.2986	0.0153	0	0.0153
4.7667	0.2983	0.0153	0.0019	0.0172
4.8	0.3016	0.0153	0.0019	0.0172
4.8333	0.2983	0	0.0005	0.0005
4.8667	0.3003	0	0.0019	0.0019
4.9	0.299	0.0022	0.0005	0.0027
4.9333	0.2993	0	0.0032	0.0032
4.9667	0.3023	0	0	0
5	0.2993	0	0.0019	0.0019
5.0333	0.3039	0.0022	0	0.0022
5.0667	0.3013	0.0022	0.0005	0.0027
5.1	0.2996	0	0.0005	0.0005
5.1333	0.301	0.0153	0	0.0153
5.1667	0.2993	0	0.0005	0.0005
5.2	0.3013	0.0153	0.0005	0.0159
5.2333	0.2996	0	0	0
5.2667	0.3029	0	0.0005	0.0005
5.3	0.3013	0.0022	0.0005	0.0027
5.3333	0.3	0.0153	0	0.0153
5.3667	0.3016	0.0022	0.0005	0.0027
5.4	0.3036	0.0022	0.0019	0.0041
5.4333	0.3016	0.0153	0	0.0153
5.4667	0.2986	0.0022	0.0005	0.0027
5.5	0.3033	0.0022	0.0005	0.0027
5.5333	0.3029	0.0153	0	0.0153
5.5667	0.3036	0.0153	0	0.0153
5.6	0.3	0	0.0005	0.0005
5.6333	0.3013	0.0153	0	0.0153
5.6667	0.301	0.0022	0	0.0022
5.7	0.3	0.0022	0.0019	0.0041

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
5.7333	0.3006	0.0022	0.0005	0.0027
5.7667	0.2983	0.0022	0	0.0022
5.8	0.2983	0.0153	0.0005	0.0159
5.8333	0.297	0.0153	0.0005	0.0159
5.8667	0.2993	0.0153	0.0019	0.0172
5.9	0.3006	0.0022	0	0.0022
5.9333	0.2986	0.0022	0.0019	0.0041
5.9667	0.2986	0.0022	0	0.0022
6	0.2996	0.0022	0.0005	0.0027
6.0333	0.2973	0.0022	0.0005	0.0027
6.0667	0.298	0.0022	0	0.0022
6.1	0.2983	0.0153	0	0.0153
6.1333	0.2986	0	0.0019	0.0019
6.1667	0.2996	0.0022	0.0005	0.0027
6.2	0.3	0	0	0
6.2333	0.2977	0.0153	0.0005	0.0159
6.2667	0.2977	0.0022	0.0019	0.0041
6.3	0.2973	0.0153	0.0019	0.0172
6.3333	0.296	0.0153	0.0005	0.0159
6.3667	0.3003	0.0285	0.0019	0.0304
6.4	0.2967	0.0022	0.0005	0.0027
6.4333	0.2977	0.0153	0	0.0153
6.4667	0.2931	0.0153	0.0005	0.0159
6.5	0.295	0.0022	0	0.0022
6.5333	0.2937	0.0022	0.0005	0.0027
6.5667	0.297	0.0022	0.0005	0.0027
6.6	0.2911	0.0022	0.0005	0.0027
6.6333	0.294	0	0.0005	0.0005
6.6667	0.2934	0.0153	0.0005	0.0159
6.7	0.2917	0.0022	0	0.0022
6.7333	0.2898	0	0.0005	0.0005
6.7667	0.2947	0	0	0
6.8	0.2914	0.0022	0.0005	0.0027
6.8333	0.2881	0.0022	0	0.0022
6.8667	0.2891	0.0153	0	0.0153
6.9	0.2888	0.0153	0.0005	0.0159
6.9333	0.2927	0.0022	0.0019	0.0041
6.9667	0.2884	0.0022	0.0005	0.0027
7	0.2898	0.0153	0.0005	0.0159
7.0333	0.2927	0.0022	0.0005	0.0027
7.0667	0.2878	0.0153	0.0019	0.0172
7.1	0.2865	0	0	0
7.1333	0.2898	0.0153	0.0005	0.0159

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
7.1667	0.2871	0.0022	0	0.0022
7.2	0.2865	0.0153	0	0.0153
7.2333	0.2868	0.0022	0.0019	0.0041
7.2667	0.2848	0.0022	0.0005	0.0027
7.3	0.2881	0	0.0019	0.0019
7.3333	0.2858	0.0022	0.0005	0.0027
7.3667	0.2845	0.0022	0.0005	0.0027
7.4	0.2894	0.0022	0	0.0022
7.4333	0.2881	0.0022	0	0.0022
7.4667	0.2878	0.0022	0.0005	0.0027
7.5	0.2861	0.0022	0	0.0022
7.5333	0.2865	0	0.0005	0.0005
7.5667	0.2868	0.0022	0.0019	0.0041
7.6	0.2878	0.0022	0.0019	0.0041
7.6333	0.2884	0	0.0005	0.0005
7.6667	0.2848	0.0022	0	0.0022
7.7	0.2842	0	0.0005	0.0005
7.7333	0.2881	0.0022	0.0019	0.0041
7.7667	0.2852	0	0.0019	0.0019
7.8	0.2888	0.0153	0	0.0153
7.8333	0.2894	0	0.0019	0.0019
7.8667	0.2904	0	0.0005	0.0005
7.9	0.2865	0.0153	0.0005	0.0159
7.9333	0.2865	0.0153	0.0005	0.0159
7.9667	0.2891	0.0022	0	0.0022
8	0.2875	0.0153	0.0005	0.0159
8.0333	0.2884	0.0153	0	0.0153
8.0667	0.2884	0	0	0
8.1	0.2894	0	0	0
8.1333	0.2865	0.0022	0.0005	0.0027
8.1667	0.2878	0.0022	0	0.0022
8.2	0.2838	0.0153	0.0005	0.0159
8.2333	0.2881	0.0022	0.0019	0.0041
8.2667	0.2861	0.0022	0	0.0022
8.3	0.2881	0.0153	0.0019	0.0172
8.3333	0.2848	0.0022	0	0.0022
8.3667	0.2875	0.0022	0.0005	0.0027
8.4	0.2861	0.0022	0.0005	0.0027
8.4333	0.2852	0.0022	0.0019	0.0041
8.4667	0.2842	0	0.0005	0.0005
8.5	0.2875	0.0022	0.0019	0.0041
8.5333	0.2858	0.0022	0.0005	0.0027
8.5667	0.2861	0.0022	0	0.0022

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
8.6	0.2865	0.0022	0.0005	0.0027
8.6333	0.2888	0.0022	0	0.0022
8.6667	0.2878	0.0022	0.0005	0.0027
8.7	0.2894	0.0022	0	0.0022
8.7333	0.2871	0	0.0019	0.0019
8.7667	0.2848	0.0022	0.0019	0.0041
8.8	0.2845	0.0153	0.0005	0.0159
8.8333	0.2838	0.0022	0.0005	0.0027
8.8667	0.2881	0.0022	0.0019	0.0041
8.9	0.2878	0.0022	0.0005	0.0027
8.9333	0.2865	0.0022	0.0005	0.0027
8.9667	0.2723	0	0.0019	0.0019
9	0.2585	0.0153	0.0005	0.0159
9.0333	0.2411	0	0.0005	0.0005
9.0667	0.2289	0	0.0019	0.0019
9.1	0.2197	0.0022	0	0.0022
9.1333	0.2042	0.0285	0.0005	0.029
9.1667	0.1818	0.0022	0	0.0022
9.2	0.1548	0.0022	0	0.0022
9.2333	0.1288	0.0153	0.0005	0.0159
9.2667	0.1051	0.0022	0.0019	0.0041
9.3	0.0893	0.0022	0.0005	0.0027
9.3333	0.0719	0.0153	0.0005	0.0159
9.3667	0.0511	0.0022	0.0005	0.0027
9.4	0.0265	0.0153	0.0005	0.0159
9.4333	0.0126	0.0153	0.0019	0.0172
9.4667	-0.0028	0.0022	0	0.0022
9.5	-0.013	0	0.0005	0.0005
9.5333	-0.013	0.0022	0.0005	0.0027
9.5667	-0.014	0.0153	0.0005	0.0159
9.6	-0.0269	0.0022	0	0.0022
9.6333	-0.0236	0.0022	0.0019	0.0041
9.6667	-0.0242	0.0022	0.0019	0.0041
9.7	-0.0259	0.0022	0.0019	0.0041
9.7333	-0.0262	0.0153	0.0005	0.0159
9.7667	-0.0229	0.0022	0	0.0022
9.8	-0.0246	0.0022	0.0005	0.0027
9.8333	-0.0097	0.0153	0	0.0153
9.8667	-0.0048	0.0022	0.0005	0.0027
9.9	-0.0091	0	0.0005	0.0005
9.9333	-0.0088	0.0022	0.0005	0.0027
9.9667	-0.013	0.0153	0.0019	0.0172
10	-0.0308	0.0153	0.0005	0.0159

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
10.0333	-0.0318	0	0.0005	0.0005
10.0667	-0.0325	0.0022	0.0005	0.0027
10.1	-0.0325	0.0022	0.0005	0.0027
10.1333	-0.0341	0.0022	0.0019	0.0041
10.1667	-0.0328	0.0022	0.0005	0.0027
10.2	-0.0351	0.0022	0.0005	0.0027
10.2333	-0.0331	0.0153	0.0005	0.0159
10.2667	-0.0203	0.0022	0.0005	0.0027
10.3	-0.0005	0.0022	0.0005	0.0027
10.3333	0.0242	0.0022	0.0019	0.0041
10.3667	0.0432	0.0153	0	0.0153
10.4	0.0627	0.0022	0.0019	0.0041
10.4333	0.0834	0.0022	0	0.0022
10.4667	0.1045	0.0022	0.0019	0.0041
10.5	0.1216	0.0022	0.0005	0.0027
10.5333	0.141	0.0022	0	0.0022
10.5667	0.1591	0.0022	0.0019	0.0041
10.6	0.1811	0.0022	0	0.0022
10.6333	0.1943	0.0022	0	0.0022
10.6667	0.2121	0.0022	0.0019	0.0041
10.7	0.2292	0.0153	0.0005	0.0159
10.7333	0.2463	0	0.0005	0.0005
10.7667	0.2605	0.0153	0.0019	0.0172
10.8	0.2766	0.0022	0	0.0022
10.8333	0.2921	0.0022	0.0005	0.0027
10.8667	0.3023	0.0153	0	0.0153
10.9	0.3174	0.0022	0	0.0022
10.9333	0.3263	0.0022	0	0.0022
10.9667	0.3335	0.0022	0	0.0022
11	0.3368	0.0022	0.0019	0.0041
11.0333	0.3385	0.0022	0.0019	0.0041
11.0667	0.3421	0.0022	0	0.0022
11.1	0.3444	0.0153	0.0019	0.0172
11.1333	0.3418	0.0153	0	0.0153
11.1667	0.3349	0.0153	0.0005	0.0159
11.2	0.3316	0	0.0019	0.0019
11.2333	0.322	0.0022	0.0005	0.0027
11.2667	0.3144	0.0022	0.0005	0.0027
11.3	0.3049	0.0022	0.0005	0.0027
11.3333	0.2977	0.0153	0.0019	0.0172
11.3667	0.2865	0.0022	0.0019	0.0041
11.4	0.2852	0	0.0005	0.0005
11.4333	0.2838	0.0022	0.0005	0.0027

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
11.4667	0.2845	0.0022	0.0019	0.0041
11.5	0.2805	0.0022	0.0019	0.0041
11.5333	0.2789	0.0153	0.0005	0.0159
11.5667	0.2789	0.0153	0.0005	0.0159
11.6	0.2746	0	0.0005	0.0005
11.6333	0.2756	0.0285	0	0.0285
11.6667	0.2769	0.0022	0	0.0022
11.7	0.2756	0.0022	0.0019	0.0041
11.7333	0.274	0.0022	0.0005	0.0027
11.7667	0.269	0.0022	0.0019	0.0041
11.8	0.2733	0.0153	0	0.0153
11.8333	0.2703	0.0153	0.0005	0.0159
11.8667	0.273	0.0022	0.0005	0.0027
11.9	0.2726	0.0153	0.0005	0.0159
11.9333	0.2703	0.0022	0.0005	0.0027
11.9667	0.2746	0.0153	0	0.0153
12	0.2717	0.0153	0	0.0153
12.0333	0.2753	0	0.0005	0.0005
12.0667	0.2822	0.0022	0	0.0022
12.1	0.2838	0.0022	0.0005	0.0027
12.1333	0.2904	0.0153	0.0005	0.0159
12.1667	0.2947	0.0022	0.0005	0.0027
12.2	0.2957	0.0022	0.0005	0.0027
12.2333	0.3026	0.0022	0	0.0022
12.2667	0.3003	0.0022	0.0005	0.0027
12.3	0.3075	0.0153	0.0005	0.0159
12.3333	0.3085	0.0022	0	0.0022
12.3667	0.3115	0.0022	0.0019	0.0041
12.4	0.3148	0	0.0005	0.0005
12.4333	0.3154	0.0153	0.0019	0.0172
12.4667	0.3131	0.0153	0.0019	0.0172
12.5	0.3062	0.0022	0.0019	0.0041
12.5333	0.3013	0.0022	0.0019	0.0041
12.5667	0.3033	0.0153	0	0.0153
12.6	0.3062	0	0.0005	0.0005
12.6333	0.2996	0	0.0019	0.0019
12.6667	0.3029	0.0153	0.0005	0.0159
12.7	0.2954	0.0153	0.0019	0.0172
12.7333	0.2963	0.0022	0	0.0022
12.7667	0.2973	0.0022	0.0005	0.0027
12.8	0.2977	0.0153	0.0005	0.0159
12.8333	0.3	0	0.0019	0.0019
12.8667	0.3013	0.0153	0.0005	0.0159

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
12.9	0.298	0.0022	0.0019	0.0041
12.9333	0.299	0.0022	0.0005	0.0027
12.9667	0.2963	0.0022	0.0005	0.0027
13	0.2917	0.0153	0	0.0153
13.0333	0.2904	0.0022	0.0019	0.0041
13.0667	0.2901	0	0.0005	0.0005
13.1	0.2944	0	0.0005	0.0005
13.1333	0.2898	0.0022	0.0019	0.0041
13.1667	0.2907	0.0153	0.0005	0.0159
13.2	0.2917	0.0153	0.0019	0.0172
13.2333	0.2907	0.0022	0.0032	0.0054
13.2667	0.2901	0	0.0005	0.0005
13.3	0.2924	0.0022	0	0.0022
13.3333	0.2917	0.0022	0	0.0022
13.3667	0.2904	0.0153	0.0005	0.0159
13.4	0.2901	0.0022	0.0019	0.0041
13.4333	0.2881	0	0.0005	0.0005
13.4667	0.2904	0.0022	0	0.0022
13.5	0.2881	0.0022	0.0005	0.0027
13.5333	0.2875	0.0022	0	0.0022
13.5667	0.2901	0.0153	0	0.0153
13.6	0.2881	0.0153	0	0.0153
13.6333	0.2901	0.0022	0.0019	0.0041
13.6667	0.2894	0.0285	0	0.0285
13.7	0.2901	0.0153	0	0.0153
13.7333	0.2858	0.0022	0.0019	0.0041
13.7667	0.2898	0.0153	0.0005	0.0159
13.8	0.2891	0.0022	0	0.0022
13.8333	0.2888	0.0022	0.0005	0.0027
13.8667	0.2881	0.0153	0.0005	0.0159
13.9	0.2852	0.0153	0.0005	0.0159
13.9333	0.2881	0	0.0019	0.0019
13.9667	0.2842	0	0.0019	0.0019
14	0.2855	0.0022	0	0.0022
14.0333	0.2871	0.0022	0.0005	0.0027
14.0667	0.2852	0.0022	0.0005	0.0027
14.1	0.2845	0.0022	0.0005	0.0027
14.1333	0.2865	0.0022	0	0.0022
14.1667	0.2852	0.0022	0.0019	0.0041
14.2	0.2881	0.0022	0	0.0022
14.2333	0.2865	0.0022	0	0.0022
14.2667	0.2858	0	0.0019	0.0019
14.3	0.2861	0.0022	0	0.0022

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
14.3333	0.2852	0.0022	0.0019	0.0041
14.3667	0.2858	0.0153	0.0005	0.0159
14.4	0.2865	0.0022	0	0.0022
14.4333	0.2845	0.0022	0.0019	0.0041
14.4667	0.2865	0.0022	0.0005	0.0027
14.5	0.2871	0.0022	0.0005	0.0027
14.5333	0.2825	0.0022	0.0005	0.0027
14.5667	0.2842	0.0153	0.0005	0.0159
14.6	0.2832	0	0.0019	0.0019
14.6333	0.2861	0.0022	0	0.0022
14.6667	0.2832	0.0153	0.0019	0.0172
14.7	0.2842	0.0022	0.0005	0.0027
14.7333	0.2838	0.0022	0.0005	0.0027
14.7667	0.2858	0	0.0005	0.0005
14.8	0.2825	0.0153	0.0019	0.0172
14.8333	0.2852	0.0153	0	0.0153
14.8667	0.2845	0.0153	0.0019	0.0172
14.9	0.2845	0.0022	0.0005	0.0027
14.9333	0.2858	0.0416	0	0.0416
14.9667	0.2825	0.0022	0	0.0022
15	0.2842	0.0153	0.0019	0.0172
15.0333	0.2838	0.0022	0.0005	0.0027
15.0667	0.2822	0.0022	0.0019	0.0041
15.1	0.2852	0	0.0019	0.0019
15.1333	0.2829	0.0022	0.0005	0.0027
15.1667	0.2848	0.0022	0.0005	0.0027
15.2	0.2842	0.0022	0.0005	0.0027
15.2333	0.2865	0.0022	0.0019	0.0041
15.2667	0.2875	0.0153	0	0.0153
15.3	0.2858	0.0153	0.0005	0.0159
15.3333	0.2868	0	0	0
15.3667	0.2888	0	0.0019	0.0019
15.4	0.2861	0.0022	0	0.0022
15.4333	0.2884	0.0153	0	0.0153
15.4667	0.2898	0.0022	0.0005	0.0027
15.5	0.2871	0	0.0005	0.0005
15.5333	0.2875	0.0022	0	0.0022
15.5667	0.2871	0.0022	0.0005	0.0027
15.6	0.2855	0.0022	0.0005	0.0027
15.6333	0.2878	0.0022	0	0.0022
15.6667	0.2875	0.0153	0	0.0153
15.7	0.2868	0.0153	0	0.0153
15.7333	0.2894	0.0022	0.0005	0.0027

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
15.7667	0.2868	0.0153	0	0.0153
15.8	0.2898	0.0022	0.0005	0.0027
15.8333	0.2911	0.0022	0.0005	0.0027
15.8667	0.2891	0.0153	0.0005	0.0159
15.9	0.2901	0.0022	0.0005	0.0027
15.9333	0.2888	0.0153	0.0005	0.0159
15.9667	0.2888	0.0022	0.0019	0.0041
16	0.2924	0	0.0005	0.0005
16.0333	0.2888	0.0153	0.0005	0.0159
16.0667	0.2937	0.0022	0.0019	0.0041
16.1	0.2888	0	0.0005	0.0005
16.1333	0.2911	0.0022	0	0.0022
16.1667	0.2881	0	0	0
16.2	0.2907	0.0153	0	0.0153
16.2333	0.2894	0.0022	0.0005	0.0027
16.2667	0.2888	0.0153	0.0005	0.0159
16.3	0.2891	0.0153	0.0019	0.0172
16.3333	0.2881	0.0153	0.0005	0.0159
16.3667	-0.0262	0.0022	0.0005	0.0027
16.4	-0.0236	0.0153	0	0.0153
16.4333	-0.0265	0	0.0005	0.0005
16.4667	-0.0239	0.0022	0.0005	0.0027
16.5	-0.0252	0.0022	0.0005	0.0027
16.5333	-0.0275	0.0153	0.0019	0.0172
16.5667	-0.0232	0	0.0005	0.0005
16.6	-0.0255	0.0022	0.0005	0.0027
16.6333	-0.0252	0.0022	0.0005	0.0027
16.6667	-0.0236	0.0153	0.0019	0.0172
16.7	-0.0223	0.0153	0.0005	0.0159
16.7333	-0.0239	0.0022	0	0.0022
16.7667	-0.0288	0.0022	0.0005	0.0027
16.8	-0.0255	0.0153	0.0019	0.0172
16.8333	-0.0223	0.0022	0	0.0022
16.8667	-0.0236	0.0022	0.0005	0.0027
16.9	-0.0236	0.0022	0	0.0022
16.9333	-0.0242	0	0.0005	0.0005
16.9667	-0.0213	0.0022	0.0005	0.0027
17	-0.0242	0	0.0019	0.0019
17.0333	-0.0226	0.0022	0.0005	0.0027
17.0667	-0.0249	0.0022	0.0019	0.0041
17.1	-0.0252	0.0022	0.0005	0.0027
17.1333	-0.0275	0	0.0005	0.0005
17.1667	-0.0226	0	0.0005	0.0005

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
17.2	-0.0232	0.0153	0.0005	0.0159
17.2333	-0.0279	0.0022	0	0.0022
17.2667	-0.0255	0.0022	0.0019	0.0041
17.3	-0.0223	0.0153	0.0019	0.0172
17.3333	-0.0272	0.0022	0	0.0022
17.3667	-0.0252	0.0022	0.0005	0.0027
17.4	-0.0229	0.0022	0.0005	0.0027
17.4333	-0.0262	0	0.0005	0.0005
17.4667	-0.0348	0.0153	0	0.0153
17.5	-0.0348	0.0153	0.0032	0.0185
17.5333	-0.0341	0.0022	0.0005	0.0027
17.5667	-0.0341	0.0022	0	0.0022
17.6	-0.0358	0.0022	0	0.0022
17.6333	-0.0344	0	0.0005	0.0005
17.6667	-0.0292	0.0022	0.0005	0.0027
17.7	-0.0282	0.0022	0	0.0022
17.7333	-0.0259	0.0153	0.0019	0.0172
17.7667	-0.0229	0	0.0005	0.0005
17.8	-0.0249	0.0022	0	0.0022
17.8333	-0.018	0.0022	0	0.0022
17.8667	-0.016	0	0.0005	0.0005
17.9	-0.017	0.0153	0.0019	0.0172
17.9333	-0.015	0.0022	0.0019	0.0041
17.9667	-0.0094	0.0022	0	0.0022
18	-0.0068	0.0153	0	0.0153
18.0333	-0.0078	0.0022	0.0019	0.0041
18.0667	-0.0035	0.0153	0.0005	0.0159
18.1	-0.0042	0.0153	0.0005	0.0159
18.1333	-0.0015	0.0022	0.0019	0.0041
18.1667	0.0074	0.0022	0.0019	0.0041
18.2	0.0192	0.0022	0.0005	0.0027
18.2333	0.0271	0.0022	0.0005	0.0027
18.2667	0.037	0.0153	0	0.0153
18.3	0.0413	0.0153	0.0005	0.0159
18.3333	0.0495	0.0153	0.0005	0.0159
18.3667	0.0557	0.0022	0.0005	0.0027
18.4	0.0627	0.0153	0.0005	0.0159
18.4333	0.0715	0.0285	0.0005	0.029
18.4667	0.0824	0.0022	0.0005	0.0027
18.5	0.0952	0.0153	0	0.0153
18.5333	0.1081	0	0	0
18.5667	0.1216	0.0022	0.0005	0.0027
18.6	0.1314	0	0	0

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
18.6333	0.1407	0.0022	0.0019	0.0041
18.6667	0.1515	0.0022	0.0019	0.0041
18.7	0.1578	0.0153	0.0005	0.0159
18.7333	0.17	0.0153	0.0005	0.0159
18.7667	0.1828	0.0022	0	0.0022
18.8	0.1927	0.0022	0.0005	0.0027
18.8333	0.2016	0.0022	0.0005	0.0027
18.8667	0.217	0.0022	0	0.0022
18.9	0.2259	0	0.0019	0.0019
18.9333	0.2368	0.0022	0	0.0022
18.9667	0.2447	0.0022	0.0019	0.0041
19	0.2513	0.0022	0.0005	0.0027
19.0333	0.2624	0.0153	0.0005	0.0159
19.0667	0.2743	0.0153	0.0019	0.0172
19.1	0.2789	0.0153	0.0019	0.0172
19.1333	0.2825	0.0153	0.0005	0.0159
19.1667	0.2891	0	0	0
19.2	0.2861	0.0022	0.0005	0.0027
19.2333	0.2878	0	0.0019	0.0019
19.2667	0.2894	0.0022	0.0005	0.0027
19.3	0.2907	0.0153	0.0005	0.0159
19.3333	0.2917	0	0	0
19.3667	0.2954	0.0022	0.0005	0.0027
19.4	0.2924	0.0153	0.0005	0.0159
19.4333	0.296	0.0153	0.0019	0.0172
19.4667	0.2947	0.0022	0.0019	0.0041
19.5	0.2977	0.0022	0	0.0022
19.5333	0.297	0.0022	0.0005	0.0027
19.5667	0.2944	0.0153	0.0005	0.0159
19.6	0.2983	0.0022	0.0032	0.0054
19.6333	0.2977	0.0153	0.0019	0.0172
19.6667	0.3003	0.0153	0.0019	0.0172
19.7	0.3003	0.0022	0.0005	0.0027
19.7333	0.3042	0.0022	0	0.0022
19.7667	0.3042	0.0022	0	0.0022
19.8	0.3033	0.0022	0.0005	0.0027
19.8333	0.3029	0.0153	0.0019	0.0172
19.8667	0.3049	0.0285	0.0005	0.029
19.9	0.3089	0.0022	0	0.0022
19.9333	0.3042	0.0022	0	0.0022
19.9667	0.3052	0.0022	0.0019	0.0041
20	0.3075	0.0153	0.0005	0.0159
20.0333	0.3082	0.0153	0	0.0153

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
20.0667	0.3075	0	0.0005	0.0005
20.1	0.3095	0.0153	0.0019	0.0172
20.1333	0.3108	0	0.0005	0.0005
20.1667	0.3102	0	0.0019	0.0019
20.2	0.3121	0.0022	0	0.0022
20.2333	0.3105	0.0022	0.0005	0.0027
20.2667	0.3108	0	0	0
20.3	0.3125	0.0022	0.0005	0.0027
20.3333	0.3118	0.0153	0	0.0153
20.3667	0.3161	0.0022	0.0019	0.0041
20.4	0.3144	0.0022	0	0.0022
20.4333	0.3102	0.0022	0.0005	0.0027
20.4667	0.3072	0.0153	0	0.0153
20.5	0.301	0.0022	0.0032	0.0054
20.5333	0.295	0	0	0
20.5667	0.2884	0.0022	0.0005	0.0027
20.6	0.2865	0	0.0019	0.0019
20.6333	0.2845	0.0022	0.0005	0.0027
20.6667	0.2812	0	0.0019	0.0019
20.7	0.2779	0.0022	0.0005	0.0027
20.7333	0.2726	0.0153	0.0005	0.0159
20.7667	0.2746	0.0153	0.0005	0.0159
20.8	0.2733	0.0022	0	0.0022
20.8333	0.27	0.0022	0.0019	0.0041
20.8667	0.268	0.0022	0.0005	0.0027
20.9	0.2657	0	0	0
20.9333	0.2684	0.0022	0	0.0022
20.9667	0.2667	0.0022	0.0005	0.0027
21	0.2684	0.0153	0.0019	0.0172
21.0333	0.2674	0.0153	0.0019	0.0172
21.0667	0.2697	0.0022	0.0005	0.0027
21.1	0.27	0.0285	0	0.0285
21.1333	0.2707	0.0022	0.0019	0.0041
21.1667	0.2697	0.0285	0.0005	0.029
21.2	0.2743	0	0.0005	0.0005
21.2333	0.2753	0.0153	0.0005	0.0159
21.2667	0.2766	0.0153	0.0019	0.0172
21.3	0.2789	0.0022	0.0005	0.0027
21.3333	0.2786	0.0022	0	0.0022
21.3667	0.2805	0.0022	0.0005	0.0027
21.4	0.2819	0.0153	0	0.0153
21.4333	0.2868	0.0022	0.0005	0.0027
21.4667	0.2904	0.0153	0.0005	0.0159

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
21.5	0.2914	0.0153	0.0019	0.0172
21.5333	0.2921	0.0022	0.0019	0.0041
21.5667	0.2937	0.0022	0.0005	0.0027
21.6	0.2957	0	0.0005	0.0005
21.6333	0.2967	0	0.0019	0.0019
21.6667	0.2983	0	0	0
21.7	0.298	0.0022	0	0.0022
21.7333	0.3	0	0	0
21.7667	0.3003	0.0022	0.0005	0.0027
21.8	0.3006	0	0.0005	0.0005
21.8333	0.3	0.0022	0.0032	0.0054
21.8667	0.3052	0.0022	0.0005	0.0027
21.9	0.3023	0.0153	0.0005	0.0159
21.9333	0.3036	0.0153	0.0019	0.0172
21.9667	0.3029	0.0022	0.0005	0.0027
22	0.3049	0.0022	0.0005	0.0027
22.0333	0.3052	0.0022	0.0005	0.0027
22.0667	0.3039	0.0153	0.0019	0.0172
22.1	0.3023	0.0153	0.0019	0.0172
22.1333	0.3042	0.0022	0.0019	0.0041
22.1667	0.3023	0.0022	0.0032	0.0054
22.2	0.3016	0	0	0
22.2333	0.3046	0.0022	0.0005	0.0027
22.2667	0.3039	0.0022	0.0005	0.0027
22.3	0.3062	0.0022	0.0005	0.0027
22.3333	0.3056	0.0153	0.0005	0.0159
22.3667	0.3042	0.0153	0.0005	0.0159
22.4	0.3036	0.0022	0.0005	0.0027
22.4333	0.3049	0.0153	0.0005	0.0159
22.4667	0.3023	0.0022	0.0005	0.0027
22.5	0.3026	0.0153	0	0.0153
22.5333	0.3016	0.0022	0.0032	0.0054
22.5667	0.3023	0.0022	0.0005	0.0027
22.6	0.2986	0.0153	0.0005	0.0159
22.6333	0.2977	0.0022	0.0005	0.0027
22.6667	0.301	0	0.0005	0.0005
22.7	0.3006	0.0153	0.0005	0.0159
22.7333	0.3006	0.0022	0.0005	0.0027
22.7667	0.2957	0.0153	0.0005	0.0159
22.8	0.2983	0.0022	0.0005	0.0027
22.8333	0.2993	0.0153	0.0005	0.0159
22.8667	0.295	0.0022	0.0005	0.0027
22.9	0.2986	0.0153	0.0005	0.0159

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
22.9333	0.2963	0	0.0005	0.0005
22.9667	0.2993	0.0022	0.0005	0.0027
23	0.2973	0.0022	0.0005	0.0027
23.0333	0.2993	0.0022	0	0.0022
23.0667	0.2954	0.0022	0.0005	0.0027
23.1	0.2963	0.0022	0.0005	0.0027
23.1333	0.294	0.0022	0.0005	0.0027
23.1667	0.2947	0	0.0005	0.0005
23.2	0.2927	0.0153	0.0005	0.0159
23.2333	0.295	0.0022	0	0.0022
23.2667	0.2973	0.0022	0.0032	0.0054
23.3	0.2924	0.0153	0.0019	0.0172
23.3333	0.295	0.0022	0.0005	0.0027
23.3667	0.2931	0.0022	0.0005	0.0027
23.4	0.2944	0.0022	0.0005	0.0027
23.4333	0.2973	0.0153	0.0019	0.0172
23.4667	0.2947	0.0022	0.0005	0.0027
23.5	0.2937	0.0285	0.0019	0.0304
23.5333	0.2963	0.0022	0.0019	0.0041
23.5667	0.2954	0.0153	0.0005	0.0159
23.6	0.294	0.0022	0	0.0022
23.6333	0.2924	0.0022	0	0.0022
23.6667	0.2924	0.0153	0	0.0153
23.7	0.2924	0.0022	0	0.0022
23.7333	0.2931	0.0153	0.0005	0.0159
23.7667	0.2921	0.0022	0.0019	0.0041
23.8	0.2957	0.0022	0	0.0022
23.8333	0.2963	0.0153	0.0005	0.0159
23.8667	0.294	0.0022	0	0.0022
23.9	0.2944	0	0.0005	0.0005
23.9333	0.295	0.0022	0	0.0022
23.9667	0.2937	0.0022	0.0005	0.0027
24	0.2944	0.0153	0	0.0153
24.0333	0.2914	0.0022	0.0019	0.0041
24.0667	0.2937	0.0153	0.0019	0.0172
24.1	0.2957	0.0153	0.0005	0.0159
24.1333	0.2924	0.0153	0	0.0153
24.1667	0.2937	0.0022	0.0005	0.0027
24.2	0.2927	0.0022	0	0.0022
24.2333	0.2944	0.0285	0.0005	0.029
24.2667	0.2927	0.0153	0.0019	0.0172
24.3	0.294	0.0153	0.0005	0.0159
24.3333	0.2934	0.0022	0.0019	0.0041

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
24.3667	0.2924	0.0022	0.0005	0.0027
24.4	0.2694	0.0153	0.0019	0.0172
24.4333	0.2387	0.0153	0.0019	0.0172
24.4667	0.2058	0.0022	0.0019	0.0041
24.5	0.1775	0.0022	0.0005	0.0027
24.5333	0.1535	0.0153	0.0019	0.0172
24.5667	0.1298	0.0022	0.0019	0.0041
24.6	0.091	0.0153	0	0.0153
24.6333	0.064	0.0022	0.0019	0.0041
24.6667	0.0406	0.0022	0.0019	0.0041
24.7	0.0186	0.0022	0	0.0022
24.7333	0.006	0.0022	0.0005	0.0027
24.7667	-0.0058	0.0153	0.0019	0.0172
24.8	-0.013	0.0022	0	0.0022
24.8333	-0.0144	0.0022	0	0.0022
24.8667	-0.0127	0.0022	0.0032	0.0054
24.9	-0.0295	0.0022	0.0019	0.0041
24.9333	-0.0219	0.0153	0.0019	0.0172
24.9667	-0.0272	0.0022	0.0019	0.0041
25	-0.0223	0.0153	0.0019	0.0172
25.0333	-0.013	0.0022	0.0019	0.0041
25.0667	-0.0137	0.0022	0.0019	0.0041
25.1	-0.0153	0.0153	0.0005	0.0159
25.1333	-0.0127	0.0022	0.0005	0.0027
25.1667	-0.0137	0.0153	0.0005	0.0159
25.2	-0.0163	0.0153	0	0.0153
25.2333	-0.018	0.0022	0.0005	0.0027
25.2667	-0.014	0.0153	0.0005	0.0159
25.3	-0.0176	0.0285	0.0019	0.0304
25.3333	-0.0167	0.0153	0	0.0153
25.3667	-0.0186	0	0.0005	0.0005
25.4	-0.019	0.0022	0.0005	0.0027
25.4333	-0.0348	0.0022	0.0005	0.0027
25.4667	-0.0308	0.0153	0	0.0153
25.5	-0.0315	0	0.0005	0.0005
25.5333	-0.0338	0.0022	0.0019	0.0041
25.5667	-0.0325	0.0153	0.0019	0.0172
25.6	-0.0305	0.0022	0	0.0022
25.6333	-0.013	0.0022	0.0019	0.0041
25.6667	0.0074	0	0.0005	0.0005
25.7	0.0311	0.0285	0.0019	0.0304
25.7333	0.0502	0.0022	0.0019	0.0041
25.7667	0.0719	0.0153	0.0032	0.0185

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
25.8	0.0952	0.0022	0.0005	0.0027
25.8333	0.1117	0.0153	0.0019	0.0172
25.8667	0.1321	0	0.0005	0.0005
25.9	0.1525	0.0153	0	0.0153
25.9333	0.1723	0.0153	0.0005	0.0159
25.9667	0.1887	0.0153	0.0019	0.0172
26	0.2071	0.0153	0.0005	0.0159
26.0333	0.2256	0	0.0005	0.0005
26.0667	0.2424	0	0	0
26.1	0.2536	0	0.0005	0.0005
26.1333	0.2707	0.0022	0.0005	0.0027
26.1667	0.2822	0.0022	0.0005	0.0027
26.2	0.299	0.0022	0.0005	0.0027
26.2333	0.3151	0.0153	0.0005	0.0159
26.2667	0.3194	0.0022	0	0.0022
26.3	0.32	0.0022	0.0019	0.0041
26.3333	0.3141	0.0153	0.0019	0.0172
26.3667	0.3154	0	0.0019	0.0019
26.4	0.3128	0.0153	0.0005	0.0159
26.4333	0.3121	0.0153	0	0.0153
26.4667	0.3082	0.0153	0.0005	0.0159
26.5	0.3069	0.0022	0	0.0022
26.5333	0.3121	0.0022	0.0019	0.0041
26.5667	0.3164	0.0022	0.0005	0.0027
26.6	0.3161	0.0153	0.0032	0.0185
26.6333	0.3089	0.0022	0.0019	0.0041
26.6667	0.3036	0.0153	0.0005	0.0159
26.7	0.2963	0.0022	0.0019	0.0041
26.7333	0.294	0.0153	0.0019	0.0172
26.7667	0.2931	0.0022	0	0.0022
26.8	0.2904	0.0022	0.0045	0.0067
26.8333	0.2881	0.0153	0.0005	0.0159
26.8667	0.2881	0.0022	0.0019	0.0041
26.9	0.2855	0.0153	0.0019	0.0172
26.9333	0.2835	0.0022	0	0.0022
26.9667	0.2825	0.0022	0.0019	0.0041
27	0.2805	0.0022	0.0019	0.0041
27.0333	0.2805	0.0153	0.0019	0.0172
27.0667	0.2822	0.0022	0.0005	0.0027
27.1	0.2779	0.0022	0	0.0022
27.1333	0.2776	0.0022	0.0005	0.0027
27.1667	0.2786	0.0153	0.0019	0.0172
27.2	0.2776	0.0022	0	0.0022

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
27.2333	0.2779	0.0022	0	0.0022
27.2667	0.2792	0.0022	0.0005	0.0027
27.3	0.2782	0.0022	0	0.0022
27.3333	0.2776	0.0022	0.0019	0.0041
27.3667	0.2753	0.0022	0.0005	0.0027
27.4	0.2746	0.0153	0.0005	0.0159
27.4333	0.2779	0.0153	0.0005	0.0159
27.4667	0.2759	0.0022	0	0.0022
27.5	0.275	0.0153	0.0032	0.0185
27.5333	0.275	0.0022	0.0019	0.0041
27.5667	0.2773	0.0022	0.0019	0.0041
27.6	0.2756	0.0153	0.0005	0.0159
27.6333	0.2776	0	0.0019	0.0019
27.6667	0.2786	0.0153	0	0.0153
27.7	0.2782	0.0022	0.0005	0.0027
27.7333	0.2815	0.0022	0.0005	0.0027
27.7667	0.2822	0.0022	0.0005	0.0027
27.8	0.2848	0.0153	0.0005	0.0159
27.8333	0.2852	0.0153	0.0019	0.0172
27.8667	0.2852	0.0022	0.0019	0.0041
27.9	0.2868	0.0153	0.0019	0.0172
27.9333	0.2884	0.0285	0	0.0285
27.9667	0.2924	0.0153	0	0.0153
28	0.2931	0.0022	0.0005	0.0027
28.0333	0.2947	0.0022	0	0.0022
28.0667	0.2921	0	0	0
28.1	0.2937	0	0.0019	0.0019
28.1333	0.3	0.0022	0.0005	0.0027
28.1667	0.2996	0.0022	0.0005	0.0027
28.2	0.3023	0.0022	0.0005	0.0027
28.2333	0.3036	0.0022	0.0005	0.0027
28.2667	0.3056	0	0.0019	0.0019
28.3	0.3072	0.0022	0.0005	0.0027
28.3333	0.3059	0.0022	0.0005	0.0027
28.3667	0.3056	0.0022	0.0005	0.0027
28.4	0.3075	0.0022	0.0005	0.0027
28.4333	0.3029	0.0022	0.0005	0.0027
28.4667	0.3	0.0153	0.0032	0.0185
28.5	0.2986	0.0022	0.0005	0.0027
28.5333	0.2986	0.0022	0.0019	0.0041
28.5667	0.3019	0.0153	0.0019	0.0172
28.6	0.3036	0.0153	0.0005	0.0159
28.6333	0.2983	0.0153	0.0005	0.0159

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
28.6667	0.3	0.0153	0.0019	0.0172
28.7	0.3033	0.0022	0.0005	0.0027
28.7333	0.3023	0.0022	0.0005	0.0027
28.7667	0.298	0.0153	0	0.0153
28.8	0.2954	0.0022	0.0005	0.0027
28.8333	0.2973	0.0153	0.0019	0.0172
28.8667	0.2894	0.0285	0.0032	0.0317
28.9	0.2875	0.0022	0.0005	0.0027
28.9333	0.2888	0.0022	0	0.0022
28.9667	0.2907	0.0153	0	0.0153
29	0.2904	0.0022	0.0005	0.0027
29.0333	0.2875	0.0022	0.0005	0.0027
29.0667	0.2904	0.0022	0.0019	0.0041
29.1	0.2914	0.0022	0.0005	0.0027
29.1333	0.2894	0.0022	0.0005	0.0027
29.1667	0.2888	0.0022	0.0005	0.0027
29.2	0.2907	0.0285	0.0019	0.0304
29.2333	0.2894	0.0153	0.0005	0.0159
29.2667	0.2891	0.0022	0.0005	0.0027
29.3	0.2881	0.0022	0	0.0022
29.3333	0.2924	0.0153	0.0005	0.0159
29.3667	0.2901	0.0153	0.0005	0.0159
29.4	0.2901	0.0022	0	0.0022
29.4333	0.2907	0.0153	0.0005	0.0159
29.4667	0.2917	0.0022	0.0005	0.0027
29.5	0.2934	0.0022	0	0.0022
29.5333	0.2917	0	0	0
29.5667	0.2937	0	0	0
29.6	0.2927	0.0285	0	0.0285
29.6333	0.2921	0.0153	0.0005	0.0159
29.6667	0.2937	0.0022	0	0.0022
29.7	0.2937	0.0153	0.0005	0.0159
29.7333	0.2947	0.0153	0.0005	0.0159
29.7667	0.296	0	0.0005	0.0005
29.8	0.294	0.0022	0.0019	0.0041
29.8333	0.2937	0	0.0019	0.0019
29.8667	0.2931	0.0022	0.0005	0.0027
29.9	0.2947	0.0153	0.0005	0.0159
29.9333	0.2944	0.0022	0	0.0022
29.9667	0.294	0.0022	0.0019	0.0041
30	0.2973	0.0022	0.0005	0.0027
30.0333	0.2963	0	0.0005	0.0005
30.0667	0.296	0.0153	0.0005	0.0159

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
30.1	0.2983	0	0.0019	0.0019
30.1333	0.2996	0.0022	0	0.0022
30.1667	0.2996	0.0022	0.0005	0.0027
30.2	0.299	0.0153	0.0005	0.0159
30.2333	0.2983	0.0153	0.0005	0.0159
30.2667	0.297	0.0153	0.0019	0.0172
30.3	0.2977	0.0022	0	0.0022
30.3333	0.2947	0.0153	0.0005	0.0159
30.3667	0.2963	0.0153	0.0005	0.0159
30.4	0.2983	0	0.0005	0.0005
30.4333	0.297	0.0022	0.0032	0.0054
30.4667	0.2977	0.0022	0.0019	0.0041
30.5	0.3013	0.0285	0.0005	0.029
30.5333	0.2973	0.0022	0.0005	0.0027
30.5667	0.2973	0.0153	0.0005	0.0159
30.6	0.3003	0.0022	0	0.0022
30.6333	0.3019	0.0153	0.0019	0.0172
30.6667	0.3003	0.0285	0.0019	0.0304
30.7	0.2977	0.0022	0.0019	0.0041
30.7333	0.2996	0.0153	0.0019	0.0172
30.7667	0.299	0.0022	0.0005	0.0027
30.8	0.3006	0	0	0
30.8333	0.2986	0.0153	0.0005	0.0159
30.8667	0.3033	0.0153	0	0.0153
30.9	0.3029	0.0153	0.0005	0.0159
30.9333	0.3023	0	0.0019	0.0019
30.9667	0.3019	0.0153	0.0005	0.0159
31	0.3013	0	0.0019	0.0019
31.0333	0.3036	0.0022	0.0019	0.0041
31.0667	0.3003	0.0153	0	0.0153
31.1	0.3036	0.0153	0	0.0153
31.1333	0.3046	0.0022	0	0.0022
31.1667	0.3029	0.0022	0.0005	0.0027
31.2	0.3029	0.0022	0.0019	0.0041
31.2333	0.3029	0.0022	0.0019	0.0041
31.2667	0.2957	0.0022	0.0019	0.0041
31.3	0.294	0.0022	0.0005	0.0027
31.3333	0.2934	0.0022	0.0005	0.0027
31.3667	0.2954	0.0022	0.0019	0.0041
31.4	0.2927	0.0153	0.0005	0.0159
31.4333	0.2934	0.0022	0.0005	0.0027
31.4667	0.2921	0.0153	0.0005	0.0159
31.5	0.2963	0	0.0005	0.0005

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
31.5333	0.296	0.0153	0.0005	0.0159
31.5667	0.2947	0.0153	0.0005	0.0159
31.6	0.2983	0	0.0005	0.0005
31.6333	0.2944	0.0022	0.0005	0.0027
31.6667	0.2934	0.0285	0.0005	0.029
31.7	0.296	0.0022	0.0005	0.0027
31.7333	0.2921	0.0022	0.0019	0.0041
31.7667	0.2746	0.0022	0	0.0022
31.8	0.2174	0.0022	0	0.0022
31.8333	0.1726	0.0022	0.0005	0.0027
31.8667	0.1295	0.0022	0.0005	0.0027
31.9	-0.0255	0.0285	0	0.0285
31.9333	-0.0269	0.0022	0.0005	0.0027
31.9667	-0.0252	0.0153	0.0005	0.0159
32	-0.0246	0.0153	0.0005	0.0159
32.0333	-0.0226	0.0022	0.0019	0.0041
32.0667	-0.0242	0	0.0019	0.0019
32.1	-0.0249	0.0153	0.0019	0.0172
32.1333	-0.0239	0.0022	0	0.0022
32.1667	-0.0252	0.0022	0	0.0022
32.2	-0.0262	0.0022	0.0005	0.0027
32.2333	-0.0242	0.0153	0.0019	0.0172
32.2667	-0.0226	0.0153	0.0005	0.0159
32.3	-0.0252	0.0153	0	0.0153
32.3333	-0.0236	0	0	0
32.3667	-0.0262	0	0.0019	0.0019
32.4	-0.0361	0.0022	0	0.0022
32.4333	-0.0358	0.0153	0.0019	0.0172
32.4667	-0.0358	0.0153	0.0005	0.0159
32.5	-0.0374	0.0285	0.0005	0.029
32.5333	-0.04	0.0022	0.0019	0.0041
32.5667	-0.0417	0	0.0005	0.0005
32.6	-0.0423	0.0022	0.0005	0.0027
32.6333	-0.044	0.0153	0.0019	0.0172
32.6667	-0.0417	0.0022	0.0005	0.0027
32.7	-0.044	0.0022	0.0005	0.0027
32.7333	-0.044	0.0022	0.0019	0.0041
32.7667	-0.0466	0.0022	0.0019	0.0041
32.8	-0.0433	0	0.0019	0.0019
32.8333	-0.0453	0.0022	0	0.0022
32.8667	-0.0436	0.0153	0.0005	0.0159
32.9	-0.039	0.0022	0.8185	0.8207
32.9333	-0.0384	0	0.8264	0.8264

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
32.9667	-0.0232	0	0.8369	0.8369
33	-0.0071	0.0022	0.85	0.8522
33.0333	0.0107	0.0022	0.8579	0.8601
33.0667	0.0245	0.0022	0.8632	0.8654
33.1	0.0403	0	0.8737	0.8737
33.1333	0.0577	0.0022	0.8724	0.8746
33.1667	0.0696	0	0.8789	0.8789
33.2	0.0788	0.0153	0.8803	0.8956
33.2333	0.0877	0.0022	0.8816	0.8838
33.2667	0.0943	0.0022	0.8855	0.8877
33.3	0.0831	0.0022	0.8882	0.8903
33.3333	0.063	0.0153	0.8882	0.9035
33.3667	0.0442	0.0153	0.8934	0.9088
33.4	0.0284	0	0.8842	0.8842
33.4333	0.0133	0	0.8868	0.8868
33.4667	0.0047	0.0153	0.7711	0.7865
33.5	-0.0005	0.0022	0.6186	0.6208
33.5333	-0.0107	0.0153	0.4989	0.5143
33.5667	-0.0144	0	0.395	0.395
33.6	-0.0193	0.0153	0.3161	0.3315
33.6333	-0.017	0.0022	0.0005	0.0027
33.6667	-0.0223	0.0022	0.0005	0.0027
33.7	-0.0226	0.0022	0.0005	0.0027
33.7333	-0.0226	0.0022	0.0005	0.0027
33.7667	-0.0255	0.0022	0.0019	0.0041
33.8	-0.0282	0.0022	0.0019	0.0041
33.8333	-0.0265	0.0285	0	0.0285
33.8667	-0.0272	0.0153	0.0019	0.0172
33.9	-0.0285	0.0153	0.0019	0.0172
33.9333	-0.0262	0.0022	0.0005	0.0027
33.9667	-0.0285	0.0153	0.0019	0.0172
34	-0.0292	0.0022	0.0005	0.0027
34.0333	-0.0279	0.0153	0.0005	0.0159
34.0667	-0.0265	0.0022	0	0.0022
34.1	-0.0137	0.0153	0	0.0153
34.1333	0.0044	0.0022	0.0019	0.0041
34.1667	0.0278	0.0153	0.0005	0.0159
34.2	0.0528	0.0022	0.0005	0.0027
34.2333	0.0715	0.0285	0.0019	0.0304
34.2667	0.0946	0.0285	0	0.0285
34.3	0.1196	0.0022	0.0019	0.0041
34.3333	0.141	0.0022	0.0019	0.0041
34.3667	0.1637	0.0022	0.0005	0.0027

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
34.4	0.1815	0	0	0
34.4333	0.2039	0.0153	0.0005	0.0159
34.4667	0.2187	0.0022	0	0.0022
34.5	0.2387	0	0	0
34.5333	0.2588	0.0022	0.0005	0.0027
34.5667	0.2753	0.0022	0.0019	0.0041
34.6	0.2891	0.0022	0.0019	0.0041
34.6333	0.2993	0.0022	0.0005	0.0027
34.6667	0.3184	0.0153	0.0032	0.0185
34.7	0.3289	0.0022	0	0.0022
34.7333	0.3421	0.0022	0	0.0022
34.7667	0.3533	0.0153	0.0005	0.0159
34.8	0.3635	0.0022	0.0005	0.0027
34.8333	0.3724	0.0022	0	0.0022
34.8667	0.3832	0.0022	0.0005	0.0027
34.9	0.3948	0.0022	0.0005	0.0027
34.9333	0.401	0.0022	0.0005	0.0027
34.9667	0.4086	0.0022	0.0019	0.0041
35	0.4155	0.0153	0	0.0153
35.0333	0.426	0.0022	0.0005	0.0027
35.0667	0.4352	0.0022	0	0.0022
35.1	0.4372	0.0022	0.0005	0.0027
35.1333	0.4468	0.0022	0.0005	0.0027
35.1667	0.454	0.0285	0.0019	0.0304
35.2	0.4576	0.0022	0.0005	0.0027
35.2333	0.4626	0.0153	0.0005	0.0159
35.2667	0.4728	0.0153	0.0005	0.0159
35.3	0.4767	0.0153	0.0005	0.0159
35.3333	0.479	0.0022	0.0005	0.0027
35.3667	0.4849	0.0153	0.0019	0.0172
35.4	0.4899	0.0153	0.0005	0.0159
35.4333	0.4955	0	0.0005	0.0005
35.4667	0.5004	0.0022	0.0005	0.0027
35.5	0.5053	0.0153	0	0.0153
35.5333	0.5109	0.0022	0.0005	0.0027
35.5667	0.5146	0.0022	0.0005	0.0027
35.6	0.5182	0.0022	0.0019	0.0041
35.6333	0.5244	0.0153	0	0.0153
35.6667	0.5267	0.0153	0	0.0153
35.7	0.53	0.0153	0.0005	0.0159
35.7333	0.5307	0.0022	0.0005	0.0027
35.7667	0.534	0.0022	0.0005	0.0027
35.8	0.5366	0.0022	0	0.0022

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
35.8333	0.5435	0.0022	0.0005	0.0027
35.8667	0.5478	0.0285	0.0019	0.0304
35.9	0.5471	0.0022	0.0019	0.0041
35.9333	0.5481	0	0	0
35.9667	0.5534	0.0022	0.0005	0.0027
36	0.558	0	0.0005	0.0005
36.0333	0.5583	0.0022	0.0005	0.0027
36.0667	0.5593	0.0285	0.0019	0.0304
36.1	0.5639	0.0153	0.0005	0.0159
36.1333	0.5679	0.0022	0.0005	0.0027
36.1667	0.5715	0.0153	0.0005	0.0159
36.2	0.5702	0.0153	0.0019	0.0172
36.2333	0.5755	0.0153	0.0005	0.0159
36.2667	0.5771	0.0153	0.0019	0.0172
36.3	0.5778	0.0022	0.0019	0.0041
36.3333	0.5801	0.0153	0.0005	0.0159
36.3667	0.5801	0.0022	0.0019	0.0041
36.4	0.582	0.0153	0	0.0153
36.4333	0.586	0	0.0019	0.0019
36.4667	0.5863	0.0153	0.0032	0.0185
36.5	0.5919	0.0022	0.0005	0.0027
36.5333	0.5926	0	0.0005	0.0005
36.5667	0.5962	0.0022	0	0.0022
36.6	0.5955	0.0022	0	0.0022
36.6333	0.5942	0	0.0005	0.0005
36.6667	0.5982	0.0153	0.0005	0.0159
36.7	0.5998	0.0153	0.0005	0.0159
36.7333	0.5972	0.0022	0.0005	0.0027
36.7667	0.5985	0.0022	0.0005	0.0027
36.8	0.5982	0.0022	0.0019	0.0041
36.8333	0.5949	0.0022	0	0.0022
36.8667	0.5945	0	0.0005	0.0005
36.9	0.5903	0.0153	0.0005	0.0159
36.9333	0.5939	0.0022	0	0.0022
36.9667	0.5899	0.0153	0.0005	0.0159
37	0.5876	0.0153	0.0005	0.0159
37.0333	0.5909	0	0.0019	0.0019
37.0667	0.5883	0.0153	0.0019	0.0172
37.1	0.583	0.0153	0	0.0153
37.1333	0.5866	0.0022	0.0019	0.0041
37.1667	0.5853	0.0153	0.0005	0.0159
37.2	0.5814	0.0022	0.0019	0.0041
37.2333	0.5807	0.0022	0.0005	0.0027

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
37.2667	0.5771	0.0153	0.0005	0.0159
37.3	0.5807	0.0285	0	0.0285
37.3333	0.5761	0.0153	0.0005	0.0159
37.3667	0.5741	0.0022	0.0019	0.0041
37.4	0.5751	0.0153	0.0005	0.0159
37.4333	0.5718	0.0153	0.0005	0.0159
37.4667	0.5735	0	0	0
37.5	0.5708	0.0153	0.0005	0.0159
37.5333	0.5715	0.0153	0.0005	0.0159
37.5667	0.5702	0.0285	0.0019	0.0304
37.6	0.5685	0.0153	0.0005	0.0159
37.6333	0.5676	0	0.0005	0.0005
37.6667	0.5676	0.0022	0.0005	0.0027
37.7	0.5656	0.0022	0.0019	0.0041
37.7333	0.5659	0.0022	0.0019	0.0041
37.7667	0.5672	0	0.0019	0.0019
37.8	0.5685	0.0022	0.0005	0.0027
37.8333	0.5669	0.0022	0.0005	0.0027
37.8667	0.5666	0.0153	0	0.0153
37.9	0.5669	0	0.0032	0.0032
37.9333	0.5669	0.0022	0.0019	0.0041
37.9667	0.5689	0	0.0005	0.0005
38	0.5649	0.0153	0.0019	0.0172
38.0333	0.5669	0.0153	0.0005	0.0159
38.0667	0.5649	0.0022	0.0019	0.0041
38.1	0.5689	0.0153	0.0005	0.0159
38.1333	0.5672	0.0022	0.0005	0.0027
38.1667	0.5639	0.0022	0.0019	0.0041
38.2	0.5649	0.0022	0.0019	0.0041
38.2333	0.5652	0.0153	0.0005	0.0159
38.2667	0.5629	0	0.0019	0.0019
38.3	0.5643	0.0153	0.0005	0.0159
38.3333	0.5656	0.0022	0.0005	0.0027
38.3667	0.5669	0.0022	0.0005	0.0027
38.4	0.5629	0.0022	0	0.0022
38.4333	0.5669	0.0022	0.0019	0.0041
38.4667	0.5669	0.0022	0.0005	0.0027
38.5	0.5676	0.0285	0.0019	0.0304
38.5333	0.5652	0.0022	0.0019	0.0041
38.5667	0.5659	0.0022	0.0005	0.0027
38.6	0.5669	0.0022	0.0005	0.0027
38.6333	0.5652	0.0153	0.0019	0.0172
38.6667	0.5643	0.0022	0	0.0022

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
38.7	0.5669	0	0.0005	0.0005
38.7333	0.5679	0.0022	0.0005	0.0027
38.7667	0.5676	0.0022	0.0019	0.0041
38.8	0.5689	0.0153	0.0005	0.0159
38.8333	0.5682	0.0022	0.0005	0.0027
38.8667	0.5692	0.0153	0.0005	0.0159
38.9	0.5712	0.0022	0	0.0022
38.9333	0.5725	0.0153	0.0019	0.0172
38.9667	0.5689	0.0022	0.0005	0.0027
39	0.5731	0.0153	0.0005	0.0159
39.0333	0.5728	0.0022	0	0.0022
39.0667	0.5728	0.0022	0	0.0022
39.1	0.5738	0	0.0005	0.0005
39.1333	0.5745	0.0022	0	0.0022
39.1667	0.5738	0.0022	0.0019	0.0041
39.2	0.5751	0.0022	0.0019	0.0041
39.2333	0.5725	0.0022	0.0005	0.0027
39.2667	0.5764	0.0153	0.0019	0.0172
39.3	0.5761	0.0022	0	0.0022
39.3333	0.5758	0.0022	0.0005	0.0027
39.3667	0.5735	0.0022	0.0019	0.0041
39.4	0.5735	0.0022	0.0005	0.0027
39.4333	0.5771	0.0285	0.0005	0.029
39.4667	0.5761	0.0022	0.0005	0.0027
39.5	0.5751	0.0153	0.0005	0.0159
39.5333	0.5738	0.0153	0	0.0153
39.5667	0.5764	0.0153	0.0005	0.0159
39.6	0.5755	0.0022	0.0019	0.0041
39.6333	0.5791	0	0	0
39.6667	0.5755	0.0022	0.0019	0.0041
39.7	0.5748	0	0.0019	0.0019
39.7333	0.5784	0.0022	0.0005	0.0027
39.7667	0.5751	0.0285	0.0005	0.029
39.8	0.5771	0	0.0005	0.0005
39.8333	0.5764	0.0153	0.0019	0.0172
39.8667	0.5758	0.0153	0.0005	0.0159
39.9	0.5797	0.0153	0.0005	0.0159
39.9333	0.5774	0.0022	0.0005	0.0027
39.9667	0.5764	0.0022	0.0019	0.0041
40	0.5791	0.0153	0.0019	0.0172
40.0333	0.5787	0	0.0019	0.0019
40.0667	0.5774	0.0022	0.0019	0.0041
40.1	0.5791	0.0022	0.0019	0.0041

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
40.1333	0.581	0.0022	0	0.0022
40.1667	0.5758	0.0153	0.0005	0.0159
40.2	0.5807	0.0022	0.0019	0.0041
40.2333	0.5758	0.0022	0.0005	0.0027
40.2667	0.5771	0.0022	0.0019	0.0041
40.3	0.5755	0	0.0005	0.0005
40.3333	0.5784	0.0153	0.0005	0.0159
40.3667	0.5768	0.0153	0.0019	0.0172
40.4	0.5771	0.0153	0	0.0153
40.4333	0.5791	0.0153	0.0019	0.0172
40.4667	0.5787	0.0153	0.0019	0.0172
40.5	0.581	0.0153	0.0005	0.0159
40.5333	0.5794	0.0153	0.0032	0.0185
40.5667	0.5781	0.0022	0	0.0022
40.6	0.5804	0.0022	0.0032	0.0054
40.6333	0.5768	0.0022	0.0032	0.0054
40.6667	0.5797	0.0022	0.0005	0.0027
40.7	0.5764	0.0022	0	0.0022
40.7333	0.5751	0.0022	0.0005	0.0027
40.7667	0.5787	0.0153	0.0019	0.0172
40.8	0.5817	0.0153	0.0005	0.0159
40.8333	0.5761	0.0022	0	0.0022
40.8667	0.5778	0.0153	0.0032	0.0185
40.9	0.5784	0.0285	0	0.0285
40.9333	0.5794	0	0.0019	0.0019
40.9667	0.5804	0.0022	0.0019	0.0041
41	0.5797	0.0022	0.0019	0.0041
41.0333	0.5814	0.0153	0	0.0153
41.0667	0.5794	0.0022	0.0005	0.0027
41.1	0.5807	0.0022	0	0.0022
41.1333	0.5817	0.0153	0	0.0153
41.1667	0.5801	0.0022	0.0005	0.0027
41.2	0.5794	0.0153	0.0019	0.0172
41.2333	0.5791	0.0022	0	0.0022
41.2667	0.5807	0.0153	0.0019	0.0172
41.3	0.5801	0	0	0
41.3333	0.582	0	0.0019	0.0019
41.3667	0.5801	0.0022	0.0019	0.0041
41.4	0.5804	0.0022	0.0019	0.0041
41.4333	0.5801	0.0022	0.0005	0.0027
41.4667	0.5791	0.0022	0.0005	0.0027
41.5	0.5817	0.0022	0.0005	0.0027
41.5333	0.5738	0.0153	0.0019	0.0172

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
41.5667	0.5439	0.0153	0	0.0153
41.6	0.4942	0.0022	0.0005	0.0027
41.6333	0.4458	0.0022	0.0005	0.0027
41.6667	0.3964	0.0153	0.0005	0.0159
41.7	0.3582	0.0285	0.0019	0.0304
41.7333	0.3177	0.0153	0.0019	0.0172
41.7667	0.2829	0.0022	0	0.0022
41.8	0.222	0	0	0
41.8333	0.1887	0.0022	0.0005	0.0027
41.8667	-0.0318	0.0022	0.0019	0.0041
41.9	-0.0308	0.0153	0.0005	0.0159
41.9333	-0.0308	0.0022	0.0005	0.0027
41.9667	-0.0334	0.0022	0.0032	0.0054
42	-0.0348	0.0285	0.0019	0.0304
42.0333	-0.0325	0.0022	0	0.0022
42.0667	-0.0305	0.0153	0	0.0153
42.1	-0.0305	0	0	0
42.1333	-0.0295	0.0285	0.0005	0.029
42.1667	-0.0315	0.0022	0.0019	0.0041
42.2	-0.0308	0.0153	0	0.0153
42.2333	-0.0295	0.0022	0.0019	0.0041
42.2667	-0.0295	0.0022	0	0.0022
42.3	-0.0315	0.0022	0	0.0022
42.3333	-0.0292	0.0153	0	0.0153
42.3667	-0.0275	0.0153	0.0005	0.0159
42.4	-0.0288	0.0022	0.0005	0.0027
42.4333	-0.0282	0.0022	0.0032	0.0054
42.4667	-0.0232	0.0022	0.0019	0.0041
42.5	-0.0255	0.0153	0.0019	0.0172
42.5333	-0.0275	0.0022	0.0005	0.0027
42.5667	-0.0252	0.0153	1.0183	1.0337
42.6	-0.0512	0.0153	0.971	0.9863
42.6333	0.0432	0.0022	0.9447	0.9469
42.6667	-0.0515	0.0153	0.9329	0.9482
42.7	-0.0506	0	0.9197	0.9197
42.7333	-0.0486	0.0153	0.9105	0.9259
42.7667	-0.0489	0.0022	0.9039	0.9061
42.8	-0.0453	0.0153	0.8789	0.8943
42.8333	-0.0483	0.0022	0.8093	0.8114
42.8667	-0.0443	0.0022	0.7304	0.7325
42.9	-0.039	0.0153	0.6475	0.6629
42.9333	-0.0417	0.0022	0.5883	0.5905
42.9667	-0.041	0.0153	0.5318	0.5471

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
43	-0.0407	0.0153	0.4845	0.4998
43.0333	-0.0381	0	0.4397	0.4397
43.0667	-0.0338	0	0.399	0.399
43.1	-0.0374	0	0.3766	0.3766
43.1333	-0.0358	0	0.3543	0.3543
43.1667	-0.0361	0	0.324	0.324
43.2	-0.0311	0.0285	0.3017	0.3302
43.2333	-0.0334	0.0022	0.0005	0.0027
43.2667	-0.0302	0.0022	0.0005	0.0027
43.3	-0.0325	0.0022	0.0019	0.0041
43.3333	-0.0348	0.0022	0.0005	0.0027
43.3667	-0.0321	0	0.0019	0.0019
43.4	-0.0328	0.0022	0.0019	0.0041
43.4333	-0.0325	0.0153	0.0005	0.0159
43.4667	-0.0328	0.0153	0.0019	0.0172
43.5	-0.0331	0.0285	0.0019	0.0304
43.5333	-0.0344	0.0022	0.0032	0.0054
43.5667	-0.0367	0.0153	0.0019	0.0172
43.6	-0.0203	0.0022	0.0019	0.0041
43.6333	0.0199	0.0153	0	0.0153
43.6667	0.0577	0.0285	0.0005	0.029
43.7	0.0962	0.0153	0.0019	0.0172
43.7333	0.1311	0.0022	0.0005	0.0027
43.7667	0.1683	0.0153	0	0.0153
43.8	0.2006	0.0153	0	0.0153
43.8333	0.2348	0.0153	0	0.0153
43.8667	0.269	0.0022	0.0019	0.0041
43.9	0.2986	0	0	0
43.9333	0.3306	0.0153	0.0019	0.0172
43.9667	0.3579	0.0285	0.0019	0.0304
44	0.3888	0.0022	0	0.0022
44.0333	0.4158	0.0022	0	0.0022
44.0667	0.4418	0.0022	0	0.0022
44.1	0.4665	0.0153	0.0005	0.0159
44.1333	0.4915	0.0022	0.0005	0.0027
44.1667	0.5221	0.0153	0	0.0153
44.2	0.5455	0.0022	0.0019	0.0041
44.2333	0.5656	0.0022	0	0.0022
44.2667	0.5922	0.0022	0	0.0022
44.3	0.613	0.0153	0.0032	0.0185
44.3333	0.6301	0.0153	0	0.0153
44.3667	0.6419	0.0022	0.0005	0.0027
44.4	0.6462	0.0022	0	0.0022

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
44.4333	0.6535	0.0153	0.0005	0.0159
44.4667	0.661	0.0153	0.0005	0.0159
44.5	0.6663	0	0	0
44.5333	0.6666	0.0022	0.0005	0.0027
44.5667	0.6686	0.0022	0	0.0022
44.6	0.6614	0.0022	0.0005	0.0027
44.6333	0.6525	0	0.0019	0.0019
44.6667	0.6377	0.0022	0.0005	0.0027
44.7	0.6232	0	0.0019	0.0019
44.7333	0.6163	0.0153	0.0005	0.0159
44.7667	0.6054	0	0.0005	0.0005
44.8	0.608	0.0153	0.0019	0.0172
44.8333	0.6169	0.0022	0.0019	0.0041
44.8667	0.6251	0.0153	0.0005	0.0159
44.9	0.6228	0.0022	0	0.0022
44.9333	0.6094	0.0153	0.0019	0.0172
44.9667	0.5853	0	0.0005	0.0005
45	0.5843	0	0.0005	0.0005
45.0333	0.5873	0.0022	0.0045	0.0067
45.0667	0.5876	0.0022	0	0.0022
45.1	0.588	0	0.0019	0.0019
45.1333	0.5883	0.0022	0.0019	0.0041
45.1667	0.5906	0.0022	0	0.0022
45.2	0.5936	0.0022	0.0005	0.0027
45.2333	0.5919	0.0153	0.0005	0.0159
45.2667	0.5955	0.0153	0.0005	0.0159
45.3	0.5959	0.0022	0.0019	0.0041
45.3333	0.5945	0.0022	0.0019	0.0041
45.3667	0.5965	0.0153	0	0.0153
45.4	0.5886	0.0285	0.0032	0.0317
45.4333	0.5863	0	0.0005	0.0005
45.4667	0.5893	0.0022	0.0019	0.0041
45.5	0.5873	0.0153	0	0.0153
45.5333	0.5906	0.0022	0.0019	0.0041
45.5667	0.588	0.0022	0.0019	0.0041
45.6	0.5804	0.0022	0.0005	0.0027
45.6333	0.5738	0	0.0005	0.0005
45.6667	0.5755	0.0153	0.0019	0.0172
45.7	0.5771	0	0	0
45.7333	0.5768	0.0153	0.0019	0.0172
45.7667	0.5764	0.0153	0.0005	0.0159
45.8	0.5738	0.0022	0.0005	0.0027
45.8333	0.5774	0.0022	0.0019	0.0041

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
45.8667	0.5761	0.0285	0	0.0285
45.9	0.5774	0.0022	0.0005	0.0027
45.9333	0.5794	0.0285	0	0.0285
45.9667	0.5768	0.0153	0.0005	0.0159
46	0.5797	0.0153	0.0019	0.0172
46.0333	0.5797	0.0022	0	0.0022
46.0667	0.5807	0.0153	0.0005	0.0159
46.1	0.5824	0.0022	0.0005	0.0027
46.1333	0.5794	0.0022	0	0.0022
46.1667	0.5804	0.0153	0.0019	0.0172
46.2	0.5778	0.0153	0.0019	0.0172
46.2333	0.5817	0.0153	0.0019	0.0172
46.2667	0.5817	0.0022	0.0019	0.0041
46.3	0.583	0.0153	0.0019	0.0172
46.3333	0.582	0.0022	0.0005	0.0027
46.3667	0.5814	0.0153	0.0005	0.0159
46.4	0.5807	0.0153	0	0.0153
46.4333	0.5837	0.0022	0	0.0022
46.4667	0.5804	0.0153	0.0019	0.0172
46.5	0.5833	0.0022	0.0005	0.0027
46.5333	0.5814	0.0022	0.0005	0.0027
46.5667	0.581	0.0022	0.0019	0.0041
46.6	0.5853	0.0022	0.0005	0.0027
46.6333	0.584	0.0153	0.0019	0.0172
46.6667	0.5804	0.0022	0.0005	0.0027
46.7	0.5843	0.0022	0	0.0022
46.7333	0.5847	0	0.0019	0.0019
46.7667	0.5833	0.0153	0.0005	0.0159
46.8	0.5824	0.0153	0	0.0153
46.8333	0.5843	0.0022	0.0019	0.0041
46.8667	0.5827	0.0022	0.0019	0.0041
46.9	0.584	0.0022	0.0019	0.0041
46.9333	0.5824	0.0022	0.0019	0.0041
46.9667	0.5863	0.0022	0.0019	0.0041
47	0.5863	0.0153	0.0005	0.0159
47.0333	0.5863	0.0022	0	0.0022
47.0667	0.5863	0.0022	0.0005	0.0027
47.1	0.5807	0.0153	0.0005	0.0159
47.1333	0.5807	0.0022	0.0005	0.0027
47.1667	0.5837	0.0022	0.0005	0.0027
47.2	0.5824	0.0153	0	0.0153
47.2333	0.5804	0.0022	0.0005	0.0027
47.2667	0.5843	0.0153	0.0019	0.0172

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
47.3	0.583	0.0022	0.0019	0.0041
47.3333	0.584	0.0022	0.0019	0.0041
47.3667	0.5843	0.0022	0.0032	0.0054
47.4	0.582	0.0022	0.0005	0.0027
47.4333	0.5804	0.0153	0.0005	0.0159
47.4667	0.5797	0.0022	0	0.0022
47.5	0.5761	0.0153	0	0.0153
47.5333	0.5787	0.0153	0	0.0153
47.5667	0.5791	0.0153	0	0.0153
47.6	0.5758	0.0153	0.0005	0.0159
47.6333	0.5741	0.0022	0.0005	0.0027
47.6667	0.5768	0.0022	0.0005	0.0027
47.7	0.5768	0	0.0019	0.0019
47.7333	0.5771	0.0153	0.0005	0.0159
47.7667	0.5764	0.0153	0	0.0153
47.8	0.5781	0.0153	0.0019	0.0172
47.8333	0.5755	0.0022	0.0019	0.0041
47.8667	0.5751	0.0022	0.0019	0.0041
47.9	0.5787	0.0153	0.0019	0.0172
47.9333	0.5738	0	0.0019	0.0019
47.9667	0.5741	0.0153	0.0019	0.0172
48	0.5758	0.0022	0.0005	0.0027
48.0333	0.5728	0.0022	0	0.0022
48.0667	0.5735	0.0153	0.0019	0.0172
48.1	0.5718	0.0285	0.0005	0.029
48.1333	0.5708	0.0022	0.0005	0.0027
48.1667	0.5695	0.0022	0.0019	0.0041
48.2	0.5728	0.0153	0.0005	0.0159
48.2333	0.5708	0.0153	0.0019	0.0172
48.2667	0.5702	0.0153	0	0.0153
48.3	0.5689	0.0153	0.0019	0.0172
48.3333	0.5708	0.0153	0	0.0153
48.3667	0.5708	0.0153	0.0005	0.0159
48.4	0.5699	0.0153	0.0005	0.0159
48.4333	0.5705	0.0153	0.0019	0.0172
48.4667	0.5718	0.0022	0.0032	0.0054
48.5	0.5669	0	0.0005	0.0005
48.5333	0.5708	0.0153	0.0005	0.0159
48.5667	0.5718	0.0022	0.0019	0.0041
48.6	0.5712	0	0.0019	0.0019
48.6333	0.5669	0.0022	0	0.0022
48.6667	0.5659	0	0.0005	0.0005
48.7	0.5692	0.0022	0.0005	0.0027

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
48.7333	0.5699	0.0022	0	0.0022
48.7667	0.5708	0	0	0
48.8	0.5718	0	0.0005	0.0005
48.8333	0.5672	0.0153	0.0019	0.0172
48.8667	0.5669	0.0022	0.0032	0.0054
48.9	0.5656	0.0022	0.0005	0.0027
48.9333	0.5672	0.0153	0	0.0153
48.9667	0.5699	0.0022	0.0005	0.0027
49	0.5649	0.0153	0.0019	0.0172
49.0333	0.5676	0.0285	0.0005	0.029
49.0667	0.5656	0.0153	0.0005	0.0159
49.1	0.5682	0.0153	0	0.0153
49.1333	0.5662	0.0153	0	0.0153
49.1667	0.5679	0.0022	0.0019	0.0041
49.2	0.5649	0.0022	0.0019	0.0041
49.2333	0.5639	0.0153	0	0.0153
49.2667	0.5656	0.0153	0.0005	0.0159
49.3	0.5659	0.0022	0	0.0022
49.3333	0.5652	0.0153	0.0005	0.0159
49.3667	0.5708	0.0022	0.0005	0.0027
49.4	0.5682	0	0	0
49.4333	0.5695	0.0153	0.0005	0.0159
49.4667	0.5636	0.0022	0.0005	0.0027
49.5	0.5656	0.0022	0	0.0022
49.5333	0.5669	0.0022	0.0005	0.0027
49.5667	0.5666	0.0022	0.0005	0.0027
49.6	0.5656	0.0153	0.0019	0.0172
49.6333	0.5646	0.0153	0	0.0153
49.6667	0.5643	0.0153	0	0.0153
49.7	0.5669	0.0022	0.0005	0.0027
49.7333	0.5666	0	0.0019	0.0019
49.7667	0.5682	0	0.0032	0.0032
49.8	0.5682	0.0153	0.0005	0.0159
49.8333	0.5695	0.0022	0	0.0022
49.8667	0.5679	0.0022	0.0019	0.0041
49.9	0.5659	0.0022	0	0.0022
49.9333	0.5656	0.0153	0	0.0153
49.9667	0.5692	0.0153	0.0019	0.0172
50	0.5679	0.0022	0.0005	0.0027
50.0333	0.5676	0.0022	0.0019	0.0041
50.0667	0.5672	0.0153	0.0019	0.0172
50.1	0.5682	0.0153	0.0019	0.0172
50.1333	0.5587	0.0153	0.0019	0.0172

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
50.1667	0.5238	0.0022	0.0005	0.0027
50.2	0.4991	0.0153	0.0019	0.0172
50.2333	0.4708	0.0022	0.0019	0.0041
50.2667	0.4448	0.0022	0.0019	0.0041
50.3	0.4217	0.0022	0.0019	0.0041
50.3333	0.3921	0	0.0005	0.0005
50.3667	0.3464	0.0022	0.0019	0.0041
50.4	0.2647	0.0022	0.0005	0.0027
50.4333	0.2035	0.0022	0.0005	0.0027
50.4667	0.1535	0.0153	0.0005	0.0159
50.5	0.1104	0.0022	0.0019	0.0041
50.5333	0.0837	0.0153	0.0005	0.0159
50.5667	0.0505	0.0153	0.0019	0.0172
50.6	0.0311	0.0022	0	0.0022
50.6333	0.01	0.0153	0	0.0153
50.6667	-0.0028	0.0153	0.0005	0.0159
50.7	-0.016	0.0153	0.0005	0.0159
50.7333	-0.0183	0.0022	0.0019	0.0041
50.7667	-0.0196	0.0153	0	0.0153
50.8	-0.0219	0.0022	0.0005	0.0027
50.8333	-0.0229	0.0153	0	0.0153
50.8667	-0.0229	0.0153	0.0005	0.0159
50.9	-0.0246	0.0022	0.0005	0.0027
50.9333	-0.0229	0.0153	0	0.0153
50.9667	-0.0232	0.0153	0	0.0153
51	-0.0255	0	0.0019	0.0019
51.0333	-0.0262	0.0153	0.0019	0.0172
51.0667	-0.0232	0.0022	0.0005	0.0027
51.1	-0.0249	0.0022	0.0019	0.0041
51.1333	-0.0236	0.0022	0	0.0022
51.1667	-0.0259	0.0022	0.0005	0.0027
51.2	-0.0232	0.0022	0.0005	0.0027
51.2333	-0.0229	0.0022	0	0.0022
51.2667	-0.0269	0.0022	0	0.0022
51.3	-0.0239	0.0153	0.0005	0.0159
51.3333	-0.0229	0.0153	0.0005	0.0159
51.3667	-0.0308	0.0022	0	0.0022
51.4	-0.0298	0.0022	0.0005	0.0027
51.4333	-0.0308	0	0.0005	0.0005
51.4667	-0.0308	0.0022	0.0005	0.0027
51.5	-0.0371	0	0.0005	0.0005
51.5333	-0.0361	0.0022	0.0005	0.0027
51.5667	-0.0407	0.0153	0.0005	0.0159

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
51.6	-0.0358	0.0022	0.0019	0.0041
51.6333	-0.039	0.0153	0.0019	0.0172
51.6667	-0.0436	0.0153	0	0.0153
51.7	-0.039	0	0.0005	0.0005
51.7333	-0.0216	0.0022	0.0005	0.0027
51.7667	-0.0117	0	0.0019	0.0019
51.8	-0.0002	0.0022	0.0005	0.0027
51.8333	0.0139	0.0022	0.0019	0.0041
51.8667	0.0205	0.0153	0.0005	0.0159
51.9	0.0396	0.0153	0.0005	0.0159
51.9333	0.0574	0.0022	0.0005	0.0027
51.9667	0.0732	0.0022	0.0005	0.0027
52	0.0864	0.0153	0.8145	0.8299
52.0333	0.1025	0.0022	0.8277	0.8299
52.0667	0.118	0.0153	0.8369	0.8522
52.1	0.1288	0.0153	0.8474	0.8627
52.1333	0.114	0.0022	0.8527	0.8548
52.1667	0.0877	0.0153	0.854	0.8693
52.2	0.0692	0.0153	0.8592	0.8746
52.2333	0.0488	0.0022	0.8645	0.8667
52.2667	0.0307	0.0153	0.8645	0.8798
52.3	0.0166	0.0153	0.8566	0.8719
52.3333	0.0047	0.0022	0.8566	0.8588
52.3667	-0.0058	0.0153	0.8566	0.8719
52.4	-0.0134	0.0022	0.8527	0.8548
52.4333	-0.0213	0.0022	0.8079	0.8101
52.4667	-0.0232	0.0153	0.6475	0.6629
52.5	-0.0265	0.0153	0.5213	0.5366
52.5333	-0.0255	0.0022	0.4148	0.417
52.5667	-0.0269	0.0022	0.3175	0.3196
52.6	-0.0259	0.0153	0.0019	0.0172
52.6333	-0.0242	0.0022	0	0.0022
52.6667	-0.0262	0.0153	0.0019	0.0172
52.7	-0.0269	0.0153	0.0019	0.0172
52.7333	-0.0292	0.0022	0.0032	0.0054
52.7667	-0.0252	0.0153	0	0.0153
52.8	-0.0262	0.0153	0.0019	0.0172
52.8333	-0.0265	0.0153	0.0005	0.0159
52.8667	-0.0252	0.0022	0.0005	0.0027
52.9	-0.0292	0	0.0019	0.0019
52.9333	-0.0295	0.0022	0.0005	0.0027
52.9667	-0.0051	0.0022	0.0005	0.0027
53	0.0195	0.0022	0.0005	0.0027

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
53.0333	0.0459	0.0153	0	0.0153
53.0667	0.0646	0.0022	0	0.0022
53.1	0.0814	0.0022	0.0019	0.0041
53.1333	0.1005	0.0153	0.0019	0.0172
53.1667	0.1216	0.0153	0.0005	0.0159
53.2	0.1347	0.0153	0	0.0153
53.2333	0.1456	0.0022	0.0005	0.0027
53.2667	0.1617	0.0022	0.0005	0.0027
53.3	0.1723	0.0022	0.0005	0.0027
53.3333	0.1867	0.0153	0.0005	0.0159
53.3667	0.2002	0.0022	0.0019	0.0041
53.4	0.2075	0.0153	0.0005	0.0159
53.4333	0.2144	0.0153	0.0005	0.0159
53.4667	0.2259	0.0153	0.0005	0.0159
53.5	0.2338	0.0153	0.0005	0.0159
53.5333	0.2394	0.0285	0.0005	0.029
53.5667	0.2486	0.0022	0.0005	0.0027
53.6	0.2565	0	0.0005	0.0005
53.6333	0.2595	0.0153	0.0005	0.0159
53.6667	0.268	0.0022	0	0.0022
53.7	0.2746	0.0285	0.0005	0.029
53.7333	0.2789	0.0153	0	0.0153
53.7667	0.2832	0.0022	0.0019	0.0041
53.8	0.2884	0.0153	0.0005	0.0159
53.8333	0.2931	0.0153	0.0019	0.0172
53.8667	0.2983	0.0153	0.0019	0.0172
53.9	0.3016	0	0.0019	0.0019
53.9333	0.3013	0.0022	0.0019	0.0041
53.9667	0.3082	0.0022	0.0019	0.0041
54	0.3125	0.0153	0.0005	0.0159
54.0333	0.3148	0.0022	0	0.0022
54.0667	0.3184	0.0022	0.0005	0.0027
54.1	0.321	0.0153	0.0019	0.0172
54.1333	0.3227	0	0.0005	0.0005
54.1667	0.3263	0.0022	0.0005	0.0027
54.2	0.3286	0.0285	0.0019	0.0304
54.2333	0.3319	0.0153	0.0019	0.0172
54.2667	0.3312	0.0022	0.0005	0.0027
54.3	0.3365	0	0.0005	0.0005
54.3333	0.3372	0.0153	0.0019	0.0172
54.3667	0.3411	0.0153	0	0.0153
54.4	0.346	0.0022	0.0019	0.0041
54.4333	0.3533	0.0153	0.0005	0.0159

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
54.4667	0.3566	0.0022	0	0.0022
54.5	0.3605	0.0022	0.0005	0.0027
54.5333	0.3648	0.0285	0.0005	0.029
54.5667	0.3674	0.0022	0.0019	0.0041
54.6	0.3707	0	0	0
54.6333	0.376	0.0022	0.0019	0.0041
54.6667	0.3793	0.0022	0.0032	0.0054
54.7	0.3839	0.0285	0.0019	0.0304
54.7333	0.3918	0.0022	0.0019	0.0041
54.7667	0.398	0.0153	0.0019	0.0172
54.8	0.4013	0.0153	0	0.0153
54.8333	0.4079	0.0022	0.0019	0.0041
54.8667	0.4168	0	0.0005	0.0005
54.9	0.4227	0.0022	0.0019	0.0041
54.9333	0.4264	0.0153	0.0005	0.0159
54.9667	0.4329	0.0022	0.0005	0.0027
55	0.4382	0.0022	0.0019	0.0041
55.0333	0.4412	0.0153	0.0019	0.0172
55.0667	0.4445	0.0153	0.0019	0.0172
55.1	0.4484	0.0022	0.0019	0.0041
55.1333	0.4517	0.0022	0.0019	0.0041
55.1667	0.4593	0.0022	0	0.0022
55.2	0.4596	0.0022	0.0005	0.0027
55.2333	0.4658	0.0022	0.0005	0.0027
55.2667	0.4649	0.0022	0.0019	0.0041
55.3	0.4698	0.0022	0.0019	0.0041
55.3333	0.4744	0.0153	0	0.0153
55.3667	0.477	0.0153	0.0019	0.0172
55.4	0.4853	0.0153	0.0019	0.0172
55.4333	0.4879	0.0153	0.0005	0.0159
55.4667	0.4938	0.0153	0.0019	0.0172
55.5	0.4968	0	0.0019	0.0019
55.5333	0.4997	0.0153	0.0019	0.0172
55.5667	0.506	0.0153	0.0005	0.0159
55.6	0.5076	0.0022	0.0019	0.0041
55.6333	0.5129	0.0285	0.0005	0.029
55.6667	0.5149	0.0153	0.0019	0.0172
55.7	0.5211	0.0153	0.0019	0.0172
55.7333	0.5244	0.0022	0.0005	0.0027
55.7667	0.5241	0.0022	0.0005	0.0027
55.8	0.531	0.0022	0	0.0022
55.8333	0.5323	0.0022	0.0019	0.0041
55.8667	0.5346	0.0022	0.0005	0.0027

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
55.9	0.5383	0.0285	0.0005	0.029
55.9333	0.5409	0.0022	0.0005	0.0027
55.9667	0.5425	0.0022	0.0019	0.0041
56	0.5448	0.0022	0	0.0022
56.0333	0.5471	0.0022	0	0.0022
56.0667	0.5504	0.0153	0.0019	0.0172
56.1	0.5531	0.0022	0.0019	0.0041
56.1333	0.5534	0.0022	0.0019	0.0041
56.1667	0.556	0.0285	0.0019	0.0304
56.2	0.5603	0.0153	0.0019	0.0172
56.2333	0.5616	0.0022	0	0.0022
56.2667	0.5623	0.0022	0	0.0022
56.3	0.5669	0.0022	0.0019	0.0041
56.3333	0.5676	0.0022	0.0019	0.0041
56.3667	0.5695	0.0022	0.0019	0.0041
56.4	0.5685	0.0022	0.0019	0.0041
56.4333	0.5712	0	0	0
56.4667	0.5689	0.0022	0.0005	0.0027
56.5	0.5741	0	0.0019	0.0019
56.5333	0.5774	0.0285	0.0005	0.029
56.5667	0.5794	0.0022	0	0.0022
56.6	0.5797	0.0022	0	0.0022
56.6333	0.5784	0.0153	0.0019	0.0172
56.6667	0.5804	0	0.0005	0.0005
56.7	0.5833	0.0022	0.0019	0.0041
56.7333	0.5843	0.0022	0.0005	0.0027
56.7667	0.5827	0.0022	0	0.0022
56.8	0.5857	0.0153	0.0032	0.0185
56.8333	0.5883	0.0022	0.0005	0.0027
56.8667	0.5873	0.0153	0.0005	0.0159
56.9	0.5906	0.0022	0.0019	0.0041
56.9333	0.5903	0.0153	0.0019	0.0172
56.9667	0.5889	0.0022	0	0.0022
57	0.5857	0	0	0
57.0333	0.588	0.0022	0.0005	0.0027
57.0667	0.5857	0.0022	0.0005	0.0027
57.1	0.584	0.0022	0.0019	0.0041
57.1333	0.5837	0.0153	0.0005	0.0159
57.1667	0.584	0.0022	0.0005	0.0027
57.2	0.5843	0.0153	0.0005	0.0159
57.2333	0.584	0.0022	0	0.0022
57.2667	0.5847	0.0022	0.0019	0.0041
57.3	0.5804	0.0022	0.0005	0.0027

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
57.3333	0.5797	0.0022	0.0005	0.0027
57.3667	0.5791	0.0153	0.0019	0.0172
57.4	0.5787	0.0022	0	0.0022
57.4333	0.5768	0.0153	0.0019	0.0172
57.4667	0.5771	0.0022	0	0.0022
57.5	0.5768	0.0153	0.0019	0.0172
57.5333	0.5748	0.0153	0.0005	0.0159
57.5667	0.5738	0.0022	0	0.0022
57.6	0.5787	0.0022	0.0019	0.0041
57.6333	0.5768	0.0022	0	0.0022
57.6667	0.5787	0.0022	0.0019	0.0041
57.7	0.5761	0.0153	0.0005	0.0159
57.7333	0.5735	0.0022	0	0.0022
57.7667	0.5748	0.0285	0.0005	0.029
57.8	0.5764	0.0022	0.0019	0.0041
57.8333	0.5735	0	0.0019	0.0019
57.8667	0.5715	0.0153	0.0005	0.0159
57.9	0.5741	0	0.0005	0.0005
57.9333	0.5745	0.0022	0.0032	0.0054
57.9667	0.5705	0.0022	0.0019	0.0041
58	0.5728	0.0153	0.0019	0.0172
58.0333	0.5741	0.0153	0.0019	0.0172
58.0667	0.5755	0.0153	0.0019	0.0172
58.1	0.5738	0	0	0
58.1333	0.5715	0.0022	0.0005	0.0027
58.1667	0.5738	0.0153	0.0005	0.0159
58.2	0.5702	0.0153	0.0019	0.0172
58.2333	0.5748	0.0153	0.0005	0.0159
58.2667	0.5771	0	0.0005	0.0005
58.3	0.5715	0.0022	0.0005	0.0027
58.3333	0.5748	0.0153	0.0019	0.0172
58.3667	0.5722	0.0153	0.0019	0.0172
58.4	0.5755	0.0022	0.0019	0.0041
58.4333	0.5768	0.0022	0.0019	0.0041
58.4667	0.5735	0.0022	0.0032	0.0054
58.5	0.5755	0.0022	0.0005	0.0027
58.5333	0.5781	0.0153	0.0019	0.0172
58.5667	0.5751	0.0022	0.0019	0.0041
58.6	0.5768	0.0022	0.0019	0.0041
58.6333	0.5778	0	0.0019	0.0019
58.6667	0.5761	0.0022	0	0.0022
58.7	0.5751	0	0.0032	0.0032
58.7333	0.5781	0.0153	0.0005	0.0159

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
58.7667	0.5735	0.0022	0.0005	0.0027
58.8	0.5748	0.0022	0.0005	0.0027
58.8333	0.5751	0.0153	0.0019	0.0172
58.8667	0.5761	0.0153	0.0019	0.0172
58.9	0.5794	0.0022	0.0032	0.0054
58.9333	0.5784	0.0153	0.0019	0.0172
58.9667	0.5797	0	0.0005	0.0005
59	0.5751	0.0022	0.0019	0.0041
59.0333	0.5794	0	0.0005	0.0005
59.0667	0.5778	0.0153	0.0005	0.0159
59.1	0.5778	0.0153	0.0005	0.0159
59.1333	0.5778	0.0153	0	0.0153
59.1667	0.5804	0.0153	0.0005	0.0159
59.2	0.5794	0.0285	0.0005	0.029
59.2333	0.5781	0.0022	0.0005	0.0027
59.2667	0.5794	0.0285	0.0019	0.0304
59.3	0.5755	0.0022	0.0005	0.0027
59.3333	0.5794	0	0	0
59.3667	0.5768	0	0.0032	0.0032
59.4	0.5774	0.0022	0.0032	0.0054
59.4333	0.5768	0.0022	0.0005	0.0027
59.4667	0.5791	0	0.0019	0.0019
59.5	0.5781	0.0153	0.0019	0.0172
59.5333	0.5784	0.0153	0.0005	0.0159
59.5667	0.5755	0.0022	0.0019	0.0041
59.6	0.5784	0.0153	0	0.0153
59.6333	0.5797	0.0022	0.0019	0.0041
59.6667	0.5768	0.0153	0.0032	0.0185
59.7	0.5801	0.0022	0	0.0022
59.7333	0.5781	0.0022	0.0005	0.0027
59.7667	0.5797	0.0285	0.0005	0.029
59.8	0.5784	0.0153	0.0005	0.0159
59.8333	0.5787	0	0.0005	0.0005
59.8667	0.5787	0.0022	0.0005	0.0027
59.9	0.5801	0.0022	0.0005	0.0027
59.9333	0.5804	0	0.0005	0.0005
59.9667	0.582	0.0022	0.0019	0.0041
60	0.5764	0.0153	0	0.0153
60.0333	0.5797	0.0153	0	0.0153
60.0667	0.5807	0.0022	0.0005	0.0027
60.1	0.5804	0.0153	0.0005	0.0159
60.1333	0.5791	0.0022	0.0005	0.0027
60.1667	0.5791	0	0	0

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
60.2	0.5781	0.0153	0	0.0153
60.2333	0.5787	0	0.0019	0.0019
60.2667	0.5817	0.0022	0.0005	0.0027
60.3	0.5824	0.0285	0.0032	0.0317
60.3333	0.5768	0.0285	0.0019	0.0304
60.3667	0.5787	0.0153	0.0019	0.0172
60.4	0.5801	0.0285	0.0005	0.029
60.4333	0.5797	0.0153	0.0005	0.0159
60.4667	0.5781	0.0022	0.0005	0.0027
60.5	0.5817	0.0022	0.0005	0.0027
60.5333	0.5794	0.0022	0.0005	0.0027
60.5667	0.5797	0.0153	0.0019	0.0172
60.6	0.5804	0	0.0005	0.0005
60.6333	0.5814	0.0022	0.0005	0.0027
60.6667	0.5764	0.0153	0.0032	0.0185
60.7	0.5824	0.0022	0.0019	0.0041
60.7333	0.5794	0.0022	0.0019	0.0041
60.7667	0.5837	0.0153	0.0005	0.0159
60.8	0.581	0.0022	0.0005	0.0027
60.8333	0.5807	0.0022	0.0019	0.0041
60.8667	0.582	0.0022	0	0.0022
60.9	0.5791	0.0022	0.0005	0.0027
60.9333	0.582	0.0153	0.0005	0.0159
60.9667	0.5837	0.0022	0.0005	0.0027
61	0.5814	0	0	0
61.0333	0.5824	0.0022	0	0.0022
61.0667	0.5824	0	0	0
61.1	0.581	0.0022	0	0.0022
61.1333	0.5801	0.0022	0.0005	0.0027
61.1667	0.5837	0	0.0019	0.0019
61.2	0.5778	0.0153	0.0019	0.0172
61.2333	0.5804	0	0	0
61.2667	0.5787	0.0153	0.0032	0.0185
61.3	0.5804	0.0022	0.0005	0.0027
61.3333	0.5807	0	0.0005	0.0005
61.3667	0.5784	0.0022	0.0019	0.0041
61.4	0.5837	0.0022	0.0032	0.0054
61.4333	0.5781	0.0022	0.0005	0.0027
61.4667	0.5768	0.0022	0.0019	0.0041
61.5	0.5817	0.0022	0.0019	0.0041
61.5333	0.5801	0.0022	0.0005	0.0027
61.5667	0.5833	0.0153	0.0019	0.0172
61.6	0.5797	0.0153	0	0.0153

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
61.6333	0.581	0.0153	0.0019	0.0172
61.6667	0.5814	0	0.0019	0.0019
61.7	0.5787	0.0022	0.0005	0.0027
61.7333	0.581	0.0022	0	0.0022
61.7667	0.557	0.0153	0.0005	0.0159
61.8	0.4994	0	0	0
61.8333	0.4524	0.0022	0	0.0022
61.8667	0.4063	0.0022	0.0019	0.0041
61.9	0.3595	0.0022	0.0005	0.0027
61.9333	0.3214	0	0	0
61.9667	0.2871	0	0.0019	0.0019
62	0.2539	0	0.0005	0.0005
62.0333	0.2223	0	0.0005	0.0005
62.0667	0.1923	0	0.0019	0.0019
62.1	0.1713	0.0153	0.0005	0.0159
62.1333	0.1482	0.0022	0	0.0022
62.1667	0.1265	0.0153	0.0005	0.0159
62.2	0.1091	0.0285	0.0019	0.0304
62.2333	0.0801	0.0022	0.0019	0.0041
62.2667	0.0557	0.0022	0.0005	0.0027
62.3	0.0357	0.0153	0	0.0153
62.3333	0.0143	0.0022	0.0019	0.0041
62.3667	0.0021	0.0022	0	0.0022
62.4	-0.0012	0.0022	0.0005	0.0027
62.4333	-0.0042	0.0022	0.0005	0.0027
62.4667	-0.0071	0.0153	0.0019	0.0172
62.5	-0.0114	0.0285	0.0019	0.0304
62.5333	-0.0285	0.0022	0	0.0022
62.5667	-0.0338	0.0153	0.0019	0.0172
62.6	-0.0298	0.0022	0.0005	0.0027
62.6333	-0.0321	0.0285	0.0019	0.0304
62.6667	-0.0321	0.0153	0.0005	0.0159
62.7	-0.0311	0.0022	0.0005	0.0027
62.7333	-0.0262	0.0022	0	0.0022
62.7667	-0.0259	0.0022	0.0005	0.0027
62.8	-0.0255	0.0022	0.0005	0.0027
62.8333	-0.0259	0.0153	0.0019	0.0172
62.8667	-0.0229	0.0022	0.0019	0.0041
62.9	-0.0219	0.0153	0.0005	0.0159
62.9333	-0.0232	0.0022	0.9684	0.9706
62.9667	-0.0492	0.0022	0.9302	0.9324
63	-0.0486	0.0022	0.8934	0.8956
63.0333	-0.0473	0.0153	0.8553	0.8706

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
63.0667	-0.0417	0.0022	0.7567	0.7588
63.1	-0.044	0.0022	0.683	0.6852
63.1333	-0.0397	0.0153	0.6094	0.6247
63.1667	-0.0377	0.0285	0.5436	0.5721
63.2	-0.0404	0.0153	0.491	0.5064
63.2333	-0.0334	0.0153	0.4503	0.4656
63.2667	-0.0384	0.0153	0.4253	0.4406
63.3	-0.0354	0.0153	0.4121	0.4275
63.3333	-0.0341	0.0022	0.4016	0.4038
63.3667	-0.0325	0.0153	0.3832	0.3985
63.4	-0.0344	0.0022	0.3727	0.3749
63.4333	-0.0325	0.0022	0.3595	0.3617
63.4667	-0.0331	0.0153	0.3359	0.3512
63.5	-0.0325	0.0022	0.3201	0.3223
63.5333	-0.0302	0.0153	0.303	0.3183
63.5667	-0.0325	0.0153	0.0019	0.0172
63.6	-0.0328	0.0022	0	0.0022
63.6333	-0.0302	0	0	0
63.6667	-0.0305	0.0022	0.0005	0.0027
63.7	-0.0311	0.0153	0	0.0153
63.7333	-0.0321	0.0153	0.0005	0.0159
63.7667	-0.0295	0.0153	0.0005	0.0159
63.8	-0.0298	0.0153	0.0019	0.0172
63.8333	-0.0328	0	0	0
63.8667	-0.0325	0.0153	0.0019	0.0172
63.9	-0.0325	0.0022	0	0.0022
63.9333	-0.0295	0	0.0019	0.0019
63.9667	-0.0288	0.0022	0	0.0022
64	-0.0325	0.0285	0.0019	0.0304
64.0333	-0.0302	0.0022	0.0019	0.0041
64.0667	-0.0298	0.0153	0.0019	0.0172
64.1	-0.0302	0.0285	0.0019	0.0304
64.1333	-0.0298	0.0022	0.0019	0.0041
64.1667	-0.0321	0.0153	0.0019	0.0172
64.2	-0.0285	0.0022	0.0005	0.0027
64.2333	-0.0279	0.0022	0.0005	0.0027
64.2667	-0.0068	0.0153	0.0005	0.0159
64.3	0.0301	0.0022	0.0019	0.0041
64.3333	0.066	0.0022	0.0005	0.0027
64.3667	0.1005	0.0022	0.0019	0.0041
64.4	0.1374	0.0153	0.0005	0.0159
64.4333	0.169	0.0153	0.0019	0.0172
64.4667	0.2025	0.0022	0.0019	0.0041

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
64.5	0.2325	0.0153	0.0005	0.0159
64.5333	0.2631	0.0153	0	0.0153
64.5667	0.2963	0.0153	0.0005	0.0159
64.6	0.324	0.0153	0	0.0153
64.6333	0.351	0.0022	0.0019	0.0041
64.6667	0.3829	0.0153	0	0.0153
64.7	0.4059	0.0153	0.0019	0.0172
64.7333	0.4293	0	0.0019	0.0019
64.7667	0.4563	0.0153	0	0.0153
64.8	0.4823	0.0022	0.0019	0.0041
64.8333	0.5027	0.0153	0.0019	0.0172
64.8667	0.5294	0.0153	0.0019	0.0172
64.9	0.5511	0.0022	0.0019	0.0041
64.9333	0.5735	0.0153	0.0005	0.0159
64.9667	0.5965	0.0022	0.0019	0.0041
65	0.613	0.0153	0.0005	0.0159
65.0333	0.6242	0.0153	0	0.0153
65.0667	0.6317	0.0153	0.0019	0.0172
65.1	0.6363	0.0022	0.0019	0.0041
65.1333	0.6426	0.0022	0	0.0022
65.1667	0.6354	0.0022	0.0005	0.0027
65.2	0.6248	0.0153	0.0005	0.0159
65.2333	0.6166	0.0022	0.0005	0.0027
65.2667	0.612	0.0022	0.0032	0.0054
65.3	0.607	0.0153	0.0005	0.0159
65.3333	0.6077	0.0153	0.0005	0.0159
65.3667	0.6097	0.0153	0.0019	0.0172
65.4	0.6123	0.0022	0.0019	0.0041
65.4333	0.6018	0.0153	0.0005	0.0159
65.4667	0.5995	0.0022	0.0019	0.0041
65.5	0.6034	0.0153	0.0019	0.0172
65.5333	0.6051	0	0.0019	0.0019
65.5667	0.6024	0.0022	0.0005	0.0027
65.6	0.5886	0.0022	0.0005	0.0027
65.6333	0.5876	0.0153	0.0019	0.0172
65.6667	0.588	0.0285	0	0.0285
65.7	0.586	0.0153	0.0019	0.0172
65.7333	0.5883	0.0022	0.0005	0.0027
65.7667	0.5883	0.0153	0.0019	0.0172
65.8	0.5883	0.0153	0.0019	0.0172
65.8333	0.5876	0	0.0019	0.0019
65.8667	0.5873	0.0153	0	0.0153
65.9	0.5824	0.0153	0.0019	0.0172

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
65.9333	0.5863	0.0022	0.0005	0.0027
65.9667	0.5866	0.0022	0	0.0022
66	0.5817	0.0022	0.0019	0.0041
66.0333	0.583	0.0153	0	0.0153
66.0667	0.586	0.0285	0.0005	0.029
66.1	0.5843	0	0.0019	0.0019
66.1333	0.583	0.0153	0	0.0153
66.1667	0.5807	0.0153	0	0.0153
66.2	0.5843	0.0153	0.0019	0.0172
66.2333	0.5837	0.0022	0.0005	0.0027
66.2667	0.584	0.0022	0	0.0022
66.3	0.5817	0.0153	0.0019	0.0172
66.3333	0.5833	0.0153	0.0005	0.0159
66.3667	0.5807	0.0022	0.0032	0.0054
66.4	0.5843	0.0022	0	0.0022
66.4333	0.5814	0.0022	0.0005	0.0027
66.4667	0.5817	0.0153	0.0005	0.0159
66.5	0.5843	0.0022	0.0005	0.0027
66.5333	0.5807	0.0022	0	0.0022
66.5667	0.5814	0.0153	0.0005	0.0159
66.6	0.5817	0.0022	0.0019	0.0041
66.6333	0.5824	0.0022	0	0.0022
66.6667	0.583	0.0022	0	0.0022
66.7	0.581	0.0022	0.0032	0.0054
66.7333	0.582	0.0022	0.0019	0.0041
66.7667	0.5797	0.0153	0.0005	0.0159
66.8	0.5797	0.0022	0.0019	0.0041
66.8333	0.5837	0.0153	0.0019	0.0172
66.8667	0.5833	0.0153	0.0019	0.0172
66.9	0.584	0.0285	0.0005	0.029
66.9333	0.5801	0.0022	0.0005	0.0027
66.9667	0.5814	0.0022	0.0019	0.0041
67	0.5843	0.0022	0.0019	0.0041
67.0333	0.586	0.0285	0.0019	0.0304
67.0667	0.586	0.0022	0.0032	0.0054
67.1	0.5847	0.0022	0.0005	0.0027
67.1333	0.583	0.0022	0.0005	0.0027
67.1667	0.5843	0.0153	0.0005	0.0159
67.2	0.5833	0.0022	0.0019	0.0041
67.2333	0.582	0.0153	0.0005	0.0159
67.2667	0.583	0.0022	0.0005	0.0027
67.3	0.583	0.0153	0	0.0153
67.3333	0.5833	0.0022	0.0019	0.0041

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
67.3667	0.5853	0.0153	0.0005	0.0159
67.4	0.584	0.0153	0.0019	0.0172
67.4333	0.5857	0.0153	0.0005	0.0159
67.4667	0.586	0.0022	0.0019	0.0041
67.5	0.5866	0.0022	0.0005	0.0027
67.5333	0.5876	0.0022	0.0005	0.0027
67.5667	0.5847	0.0022	0.0005	0.0027
67.6	0.5863	0.0022	0	0.0022
67.6333	0.587	0.0022	0.0019	0.0041
67.6667	0.586	0.0022	0.0019	0.0041
67.7	0.5876	0.0022	0.0019	0.0041
67.7333	0.588	0.0022	0.0019	0.0041
67.7667	0.5893	0.0022	0.0005	0.0027
67.8	0.5899	0.0153	0.0005	0.0159
67.8333	0.5866	0.0153	0.0019	0.0172
67.8667	0.5916	0.0153	0.0019	0.0172
67.9	0.5896	0.0022	0.0005	0.0027
67.9333	0.5903	0.0153	0.0019	0.0172
67.9667	0.5899	0.0022	0.0005	0.0027
68	0.5912	0.0153	0.0005	0.0159
68.0333	0.5909	0.0153	0.0019	0.0172
68.0667	0.5909	0.0022	0.0019	0.0041
68.1	0.5899	0.0022	0.0005	0.0027
68.1333	0.5909	0.0153	0.0005	0.0159
68.1667	0.5886	0.0153	0.0019	0.0172
68.2	0.5843	0.0153	0.0005	0.0159
68.2333	0.5837	0.0022	0.0019	0.0041
68.2667	0.5847	0.0022	0	0.0022
68.3	0.586	0.0153	0.0005	0.0159
68.3333	0.586	0.0022	0	0.0022
68.3667	0.5847	0.0022	0.0005	0.0027
68.4	0.5853	0.0153	0.0005	0.0159
68.4333	0.5866	0.0022	0.0005	0.0027
68.4667	0.5876	0.0022	0	0.0022
68.5	0.5886	0.0022	0.0005	0.0027
68.5333	0.587	0.0153	0	0.0153
68.5667	0.5886	0.0153	0.0019	0.0172
68.6	0.587	0.0022	0.0019	0.0041
68.6333	0.5857	0.0022	0.0019	0.0041
68.6667	0.5873	0.0022	0.0019	0.0041
68.7	0.5866	0.0153	0.0005	0.0159
68.7333	0.585	0.0153	0.0005	0.0159
68.7667	0.5873	0.0022	0.0019	0.0041

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Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
68.8	0.588	0.0285	0.0019	0.0304
68.8333	0.5866	0.0022	0.0005	0.0027
68.8667	0.5899	0	0.0005	0.0005
68.9	0.5876	0.0022	0	0.0022
68.9333	0.588	0.0022	0.0019	0.0041
68.9667	0.5883	0.0022	0	0.0022
69	0.5889	0.0153	0.0019	0.0172
69.0333	0.5896	0.0153	0.0019	0.0172
69.0667	0.5932	0.0022	0	0.0022
69.1	0.5909	0	0.0005	0.0005
69.1333	0.5909	0	0.0019	0.0019
69.1667	0.5899	0.0022	0	0.0022
69.2	0.5909	0.0153	0.0005	0.0159
69.2333	0.5893	0.0022	0.0005	0.0027
69.2667	0.5919	0.0022	0	0.0022
69.3	0.5896	0.0022	0.0005	0.0027
69.3333	0.5929	0.0022	0.0005	0.0027
69.3667	0.5912	0.0022	0	0.0022
69.4	0.5949	0	0.0005	0.0005
69.4333	0.5955	0.0285	0	0.0285
69.4667	0.5949	0.0022	0.0005	0.0027
69.5	0.5866	0.0022	0.0005	0.0027
69.5333	0.5804	0.0022	0.0005	0.0027
69.5667	0.5833	0.0022	0.0019	0.0041
69.6	0.5843	0	0.0005	0.0005
69.6333	0.581	0.0153	0.0019	0.0172
69.6667	0.5817	0.0022	0.0005	0.0027
69.7	0.583	0.0022	0.0032	0.0054
69.7333	0.5787	0.0153	0	0.0153
69.7667	0.5853	0.0153	0.0005	0.0159
69.8	0.584	0	0.0032	0.0032
69.8333	0.5863	0.0153	0.0019	0.0172
69.8667	0.5853	0.0022	0.0019	0.0041
69.9	0.5847	0.0022	0.0019	0.0041
69.9333	0.5847	0.0022	0.0019	0.0041
69.9667	0.5866	0.0022	0.0005	0.0027
70	0.5886	0.0153	0.0019	0.0172
70.0333	0.586	0	0.0005	0.0005
70.0667	0.5873	0.0022	0	0.0022
70.1	0.5866	0.0022	0.0019	0.0041
70.1333	0.5853	0	0	0
70.1667	0.5873	0.0153	0.0005	0.0159
70.2	0.5889	0	0.0019	0.0019

Areva NP, Inc. Project No. G101276459-SAT-016 January 21, 2014

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
70.2333	0.5863	0.0153	0.0005	0.0159
70.2667	0.5873	0.0022	0.0005	0.0027
70.3	0.5666	0.0022	0.0005	0.0027
70.3333	0.5406	0	0	0

APPENDIX C
Photographs


2013/12/17


2014/01/20


2014/01/20


2014/01/20


2014/01/20


2014/01/20

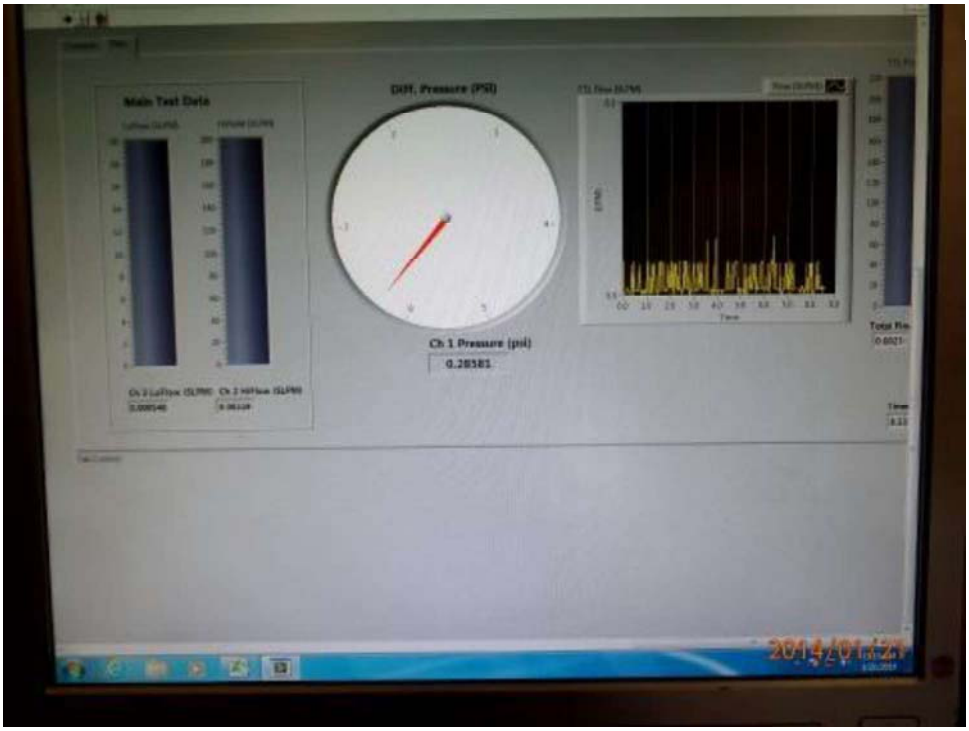

2014/01/20


SEISMIC TEST 8
(RE-TEST)
2014/01/20


2014/01/20


SEISMIC TEST B
(RE-TEST)


63°F 26%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Diff. Pressure (PSI)
Ch 1 Pressure (psi)
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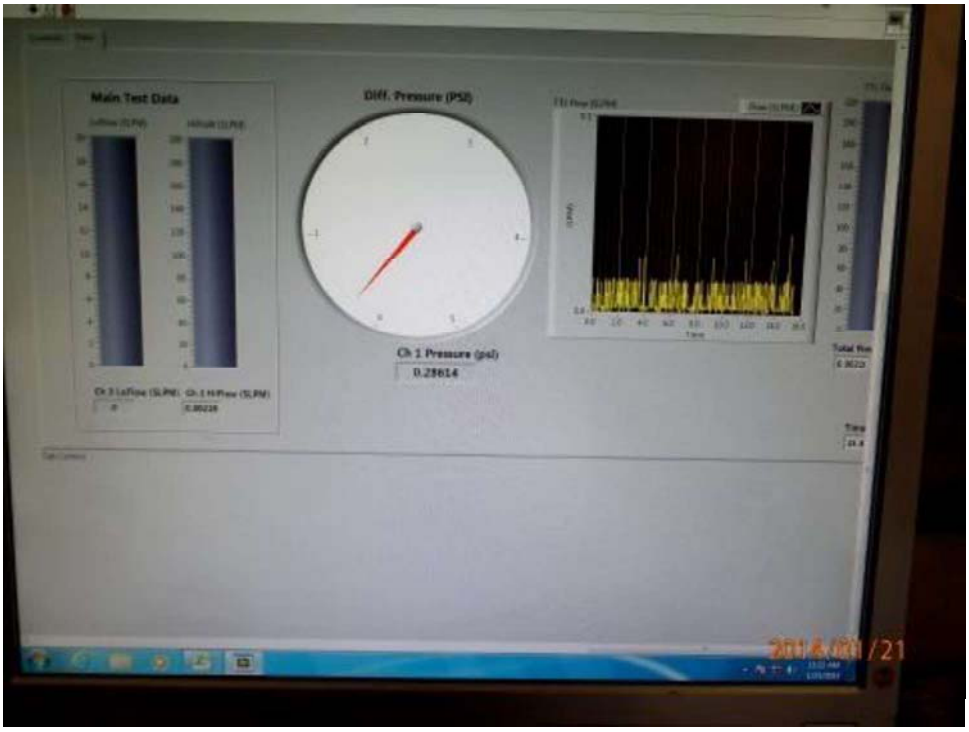
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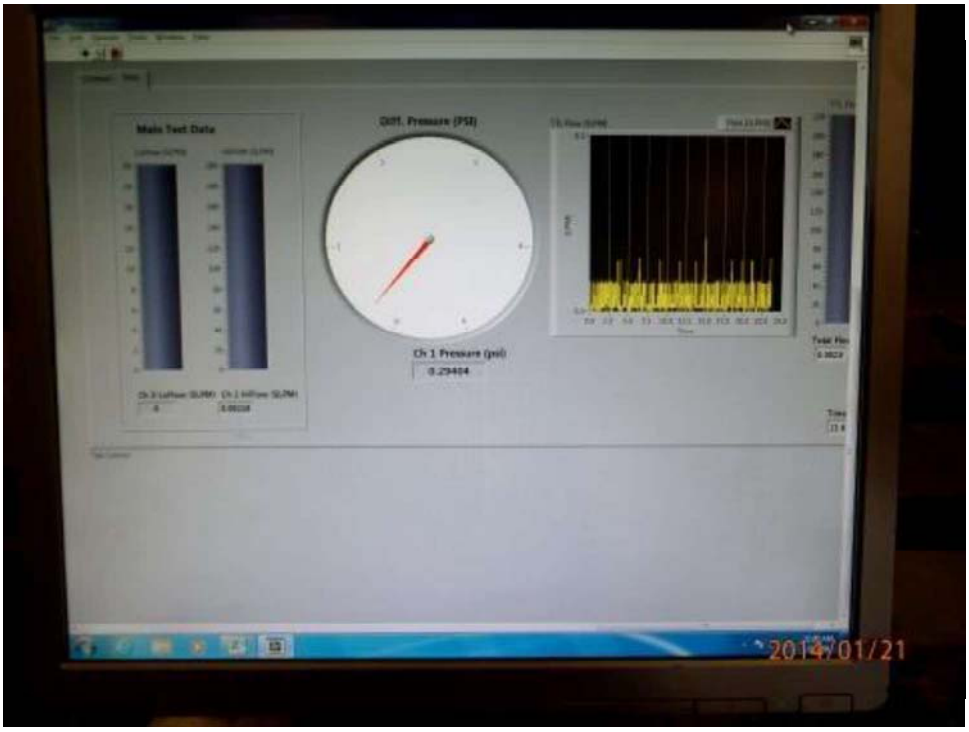
2014/01/21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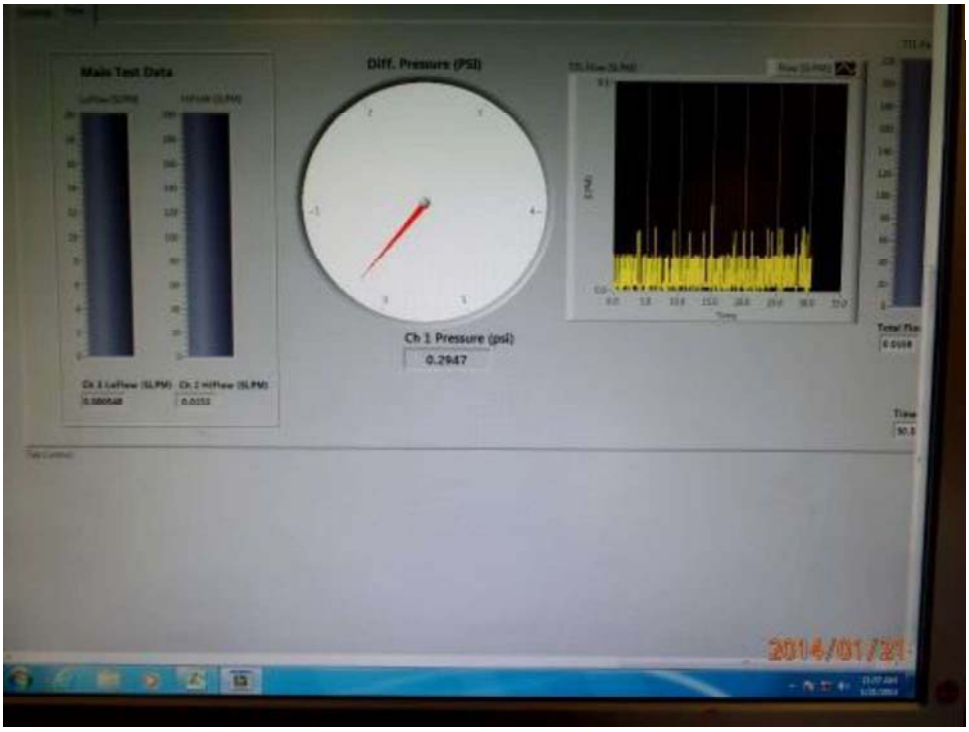
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Ch 1 Pressure (psi)
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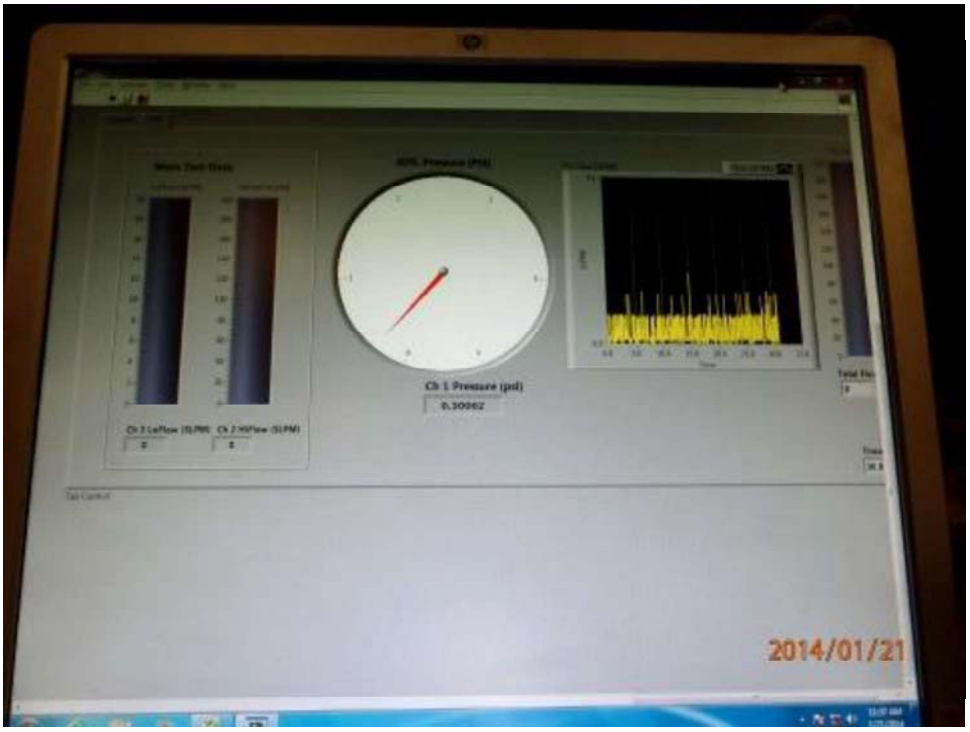
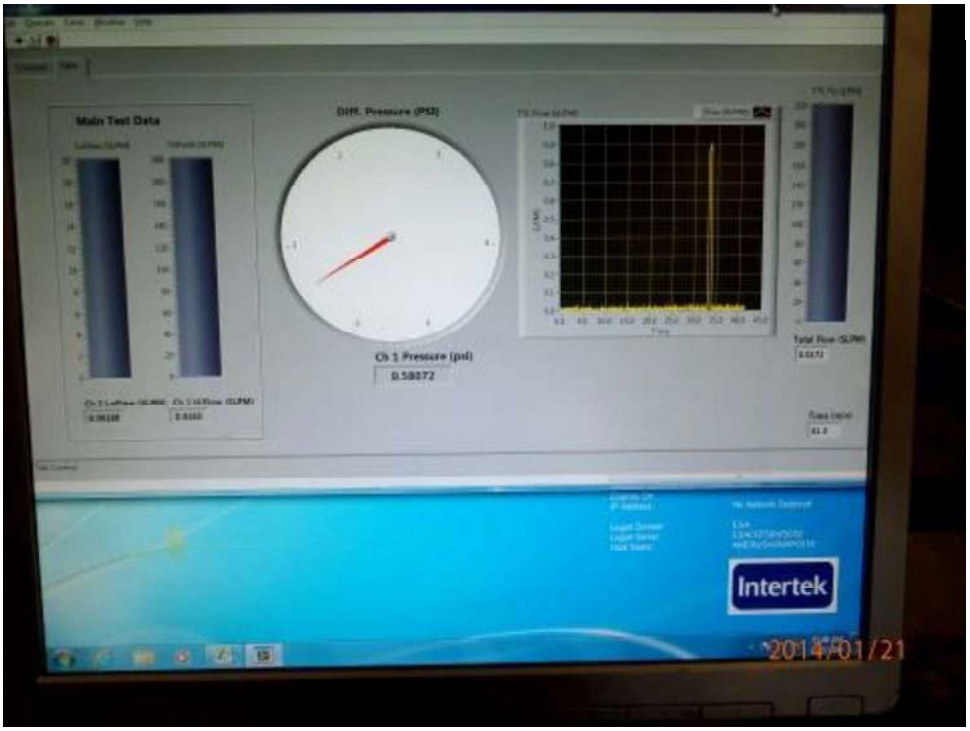
2014/01/21


Ch 1 Pressure (psi)
2014/01/21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Ch 1 Pressure (psi)
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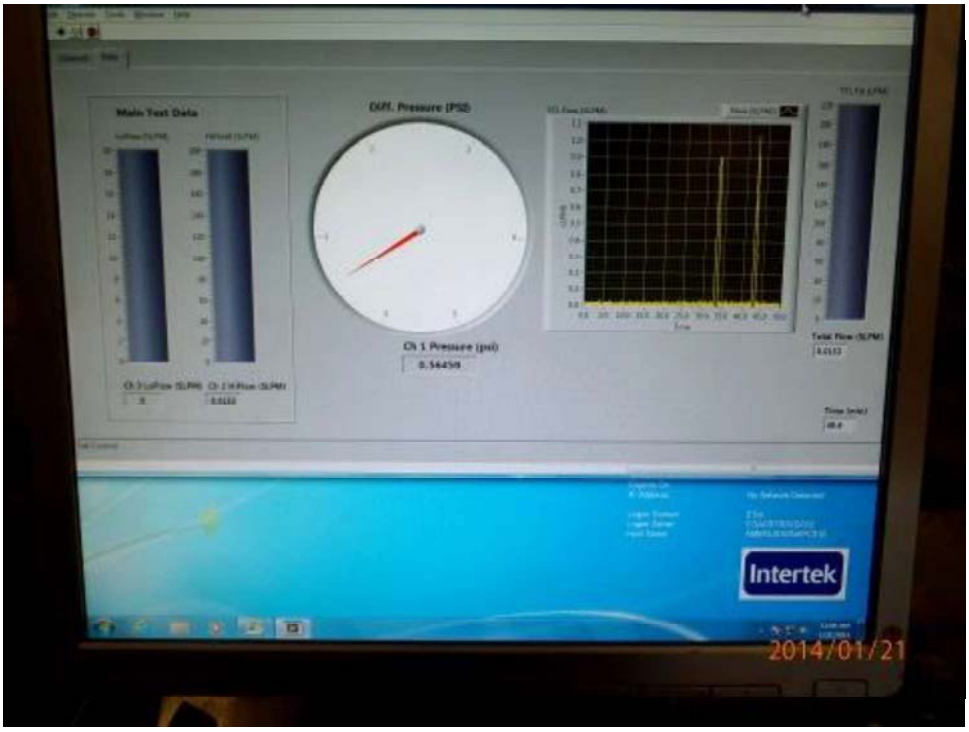
2014/01/21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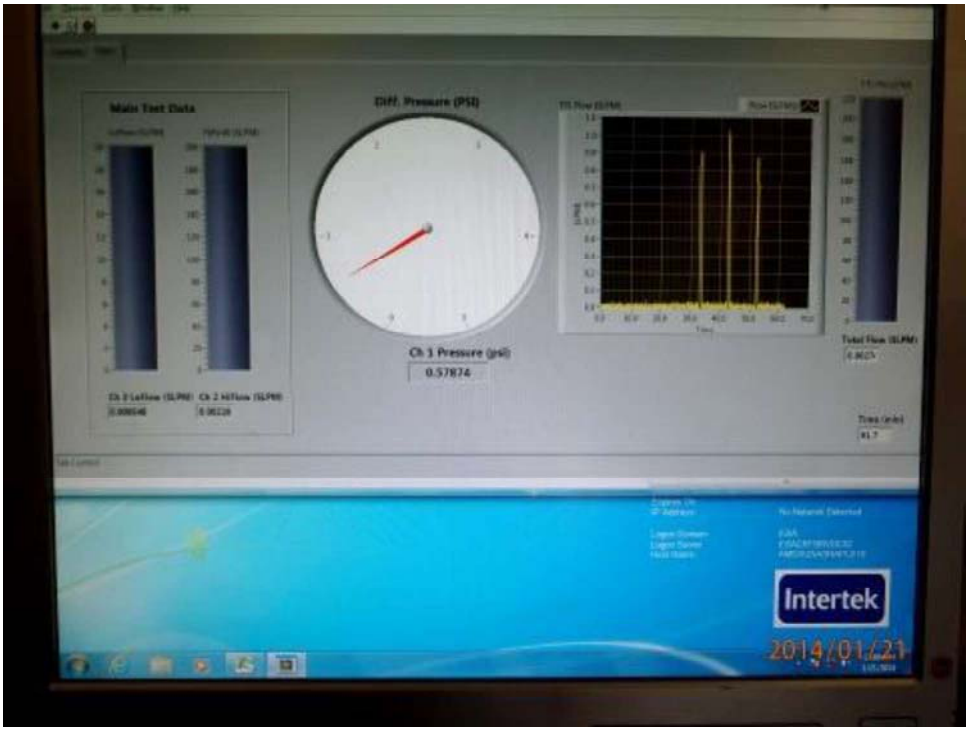
Ch 1 Pressure (psi)
Intertek
2014/01/21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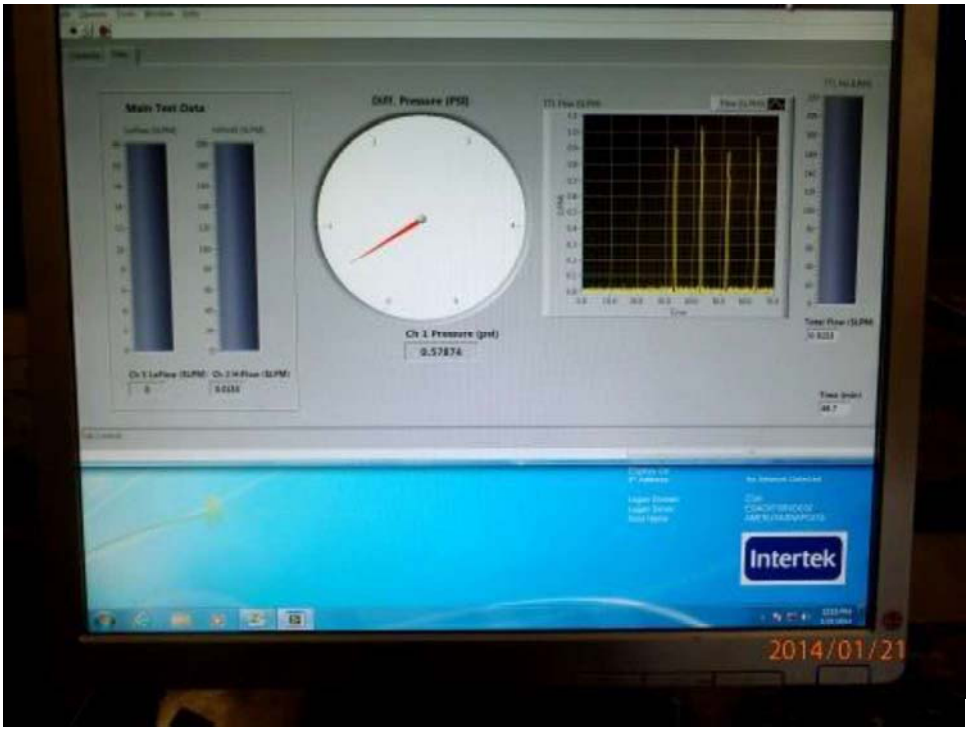
Intertek
2014/01/21


Main Test Data
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Ch 1 Pressure (psi)
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Intertek
2014/01/21


2014/01/22


2014/01/22

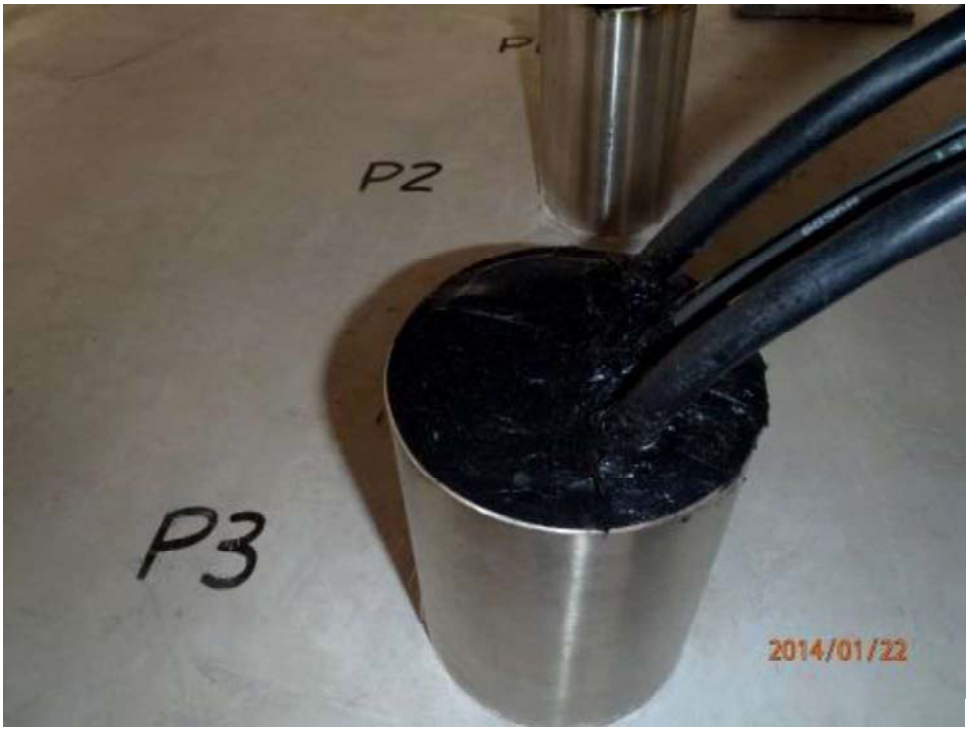

2014/01/22


2014/01/22


2014/01/22


2014/01/22


P6
P4
2014/01/22


P2
P3
2014/01/22


P1
P2
2014/01/22


P6
P5
2014/01/22


P1


P6
2014/01/22

APPENDIX D
Test Plan

Controlled Document

20004-020 (10/21/2013)

AREVA

AREVA NP Inc.

Engineering Information Record

Document No.: 51 - 9217022 - 000

Detailed Test Plan for Conducting MOX Seismic Pressure Test 8

[redacted]

Mike Dey
Staff Engineer

[redacted]

Michael A. Brown
Quality Supervisor

Page 1 of 26

AREVA

20004-020 (10/21/2013)
Document No.: 51-9217022-000

Detailed Test Plan for Conducting MOX Seismic Pressure Test 8

Safety Related? ☒ YES ☐ NO

Does this document establish design or technical requirements? ☐ YES ☒ NO

Does this document contain assumptions requiring verification? ☐ YES ☒ NO

Does this document contain Customer Required Format? ☐ YES ☒ NO

Signature Block

Name and Title/Discipline	Signature	P/LP, R/LR, A-CRF, A	Date	Pages/Sections Prepared/Reviewed/ Approved or Comments
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Derrick Risner Engineer I / PEYF1-A	[redacted]	R	1-8-14	All
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Note: P/LP designates Preparer (P), Lead Preparer (LP)
R/LR designates Reviewer (R), Lead Reviewer (LR)
A-CRF designates Project Manager Approver of Customer Required Format (A-CRF)
A designates Approver/RTM – Verification of Reviewer Independence

Project Manager Approval of Customer References (N/A if not applicable)

Name (printed or typed)	Title (printed or typed)	Signature	Date
Perry Calos	Project Manager / IBL-A	[redacted]	1/8/14

MOX Services concurrence: [redacted] ineer 08Jan14
Name / Title Date

AREVA

20004-020 (10/21/2013)
Document No.: 51-9217022-000

Detailed Test Plan for Conducting MOX Seismic Pressure Test 8

Record of Revision

Revision No.	Pages/Sections/ Paragraphs Changed	Brief Description / Change Authorization
000	All	Initial Issue. This document contains the main body of the report (pages 1-18), Appendix A (1 page), Appendix B (4 page), Appendix C (1 page), and Appendix D (2 pages) for a total of 26 pages.

AREVA

Document No.: 51-9217022-000

Detailed Test Plan for Conducting MOX Seismic Pressure Test 8

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(continued)

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ACRONYMS

CGD	Commercial Grade Dedication
CGI	Commercial Grade Item
IROFS	Items Relied On For Safety
MOX	Mixed Oxide
MFFF	Mixed Oxide Fuel Fabrication Facility
QL	Quality Level
pcf	pounds per cubic foot
psf	pounds per square foot
SSC	Structures, Systems and Components
w.g.	Water Gauge

Penetration Seal Materials

DC-732	Dow Corning 732 Multi-Purpose Sealant
Fiber	Unifrax Fiberfrax® Durablanket® S (6 pcf density)

AREVA

Document No.: 51-9217022-000

Detailed Test Plan for Conducting MOX Seismic Pressure Test 8

BACKGROUND

AREVA Inc. (AREVA) is assisting Shaw AREVA MOX Services (MOX Services) in the development and implementation of a penetration seal program for the Mixed Oxide Fuel Fabrication Facility (MFFF). One aspect of the MOX penetration seal program includes conducting various types of qualification tests of penetration seal assemblies to substantiate the performance capabilities of specific penetration seal designs. Seismic pressure testing is one type of qualification testing that needs to be performed in order to demonstrate the capability of MOX penetration seal designs to survive a seismic event. Other types of qualification testing, such as fire testing and pressure testing of penetration seal assemblies, are addressed by other test plans.

1.0 PURPOSE

The purpose of this test plan is to define the test assemblies, test methods and acceptance criteria for conducting a seismic pressure test in support of the MOX penetration seal program.

This test plan defines the test methods, acceptance criteria and test report documentation requirements for penetration seal Seismic Pressure Test 8. Additionally, this detailed test plan defines the roles and responsibilities of MOX Services, AREVA, the selected testing laboratory, and any other subcontracted entity engaged in support of seismic pressure testing efforts.

This detailed test plan also describes the procurement plan for materials associated with penetration seals in Seismic Pressure Test 8 and identifies the entities responsible for procuring the various components of the test assembly based on the quality level assigned to each component.

This test plan also establishes minimum quality requirements for the penetration seal materials used in the test assembly and links quality requirements in the AREVA QA program to customer/project quality requirements.

The configuration being tested by Seismic Pressure Test 8 is the same assembly that was tested under Pressure Test 10 (51-9209319 [Ref. 12.8]). This configuration is described in detail in Section 2.2 of this Test Plan.

2.0 OBJECTIVE

The primary objective of this test plan is to evaluate the seismic resistance capabilities of the test assembly using alternating pressures at the air pressure increments above atmospheric pressure provided in Section 9.2.

The specific configurations to be tested are described below. Critical characteristics and the associated limiting parameters that will be substantiated by a successful test are also provided.

2.1 Test Deck Description

The test deck will consist of a 12" thick concrete slab measuring approximately 96" x 96" (8' x 8') [Note: Final test slab size to be determined by Intertek and documented in the final test report]. Within this slab will be six (6) precast conduit segments sized to replicate cast-in-place conduit penetrations found in the MOX facility. The test deck will be horizontally oriented with a hemispherical 72" diameter steel pressure vessel mounted above and below the precast openings in the slab.

> Note: It is anticipated that the slab with the internal conduit seals used for Pressure Test 10 will not be damaged during Pressure Test 10 and will be available for reuse in this seismic pressure test. For the purpose of Seismic Pressure Test 8, no changes will be made to the seals installed for Pressure Test 10 (51-9209319 Ref. 12.8).

Additionally, most of the openings (penetrations) in the MOX facility have been cast with a ¾" bevel on both sides of the opening. However, the penetrations in this pressure test consist of conduits cast into the slab, which do not contain beveled edges; therefore, the bevel feature will not be included in this test plan.

Drawings showing the general layout of the test deck (test slab) for this seismic pressure test can be found in Appendix A.

> Note: If the slab from Pressure Test 10 was damaged during testing or is otherwise not available, this test plan will require revision.

2.2 Test Description

There are six conduits to be sealed and tested in Seismic Pressure Test 8.

The openings to be sealed and tested in Pressure Test 10 are small, medium and large sized conduits of stainless steel (SS) and ridged galvanized steel (RGS) cast into concrete. Cables will be installed in the conduits. The test will be performed with the test deck oriented in the horizontal position, and pressurized as described in Section 9.

Conduit sizes of ¾", 3" and 4" SS and ¾", 3" and 6" RGS were selected because they represent the lower and upper bounding conditions (with 3" added as a size in between) expected at the MOX facility.

The penetrating items for this test deck will include the following:

- (1) ¾" diameter stainless steel (SS) conduit with a single CPSE jacketed cable installed in the conduit.
- (1) 3" diameter stainless steel (SS) conduit with a single piece of two different XLPE jacketed cables installed in the conduit.
- (1) 4" diameter stainless steel (SS) conduit with two pieces of Modified XLPO jacketed cable and two pieces of LSZH-XLPO jacketed cable installed in the conduit.
- (1) 6" diameter rigid galvanized steel (RGS) conduit with two pieces of Modified XLPO jacketed cable and two pieces of LSZH-XLPO jacketed cable installed in the conduit.
- (1) 3" diameter rigid galvanized steel (RGS) conduit with single piece of two different XLPE jacketed cables installed in the conduit.
- (1) ¾" diameter rigid galvanized steel (RGS) conduit with a single CPSE jacketed cable installed in the conduit.

The cables will be routed such that no cut cable ends will exist on the top side (pressurized side) of the penetration. This configuration will prevent the possibility of air leakage through the inside of a cable from influencing the results of the test. See Appendix A drawings for additional details.

The ends of the conduits (both top and bottom) will be sealed with an approximate 2 inch thick layer of Unifrax Fiberfrax® Durablanket® S topped with an approximate ½ inch thick layer of Dow Corning® 732 Multi-Purpose Sealant.

The penetrating items will be located within the openings as shown in Appendix A. The test will be performed with the test deck oriented in the horizontal position and in accordance with Section 9.0.

2.3 Critical Characteristics and Limiting Parameters Being Tested

The specific critical characteristics and associated limiting parameters being tested for Seismic Pressure Test 8 are as follows:

- ¾" to 6" RGS conduits including seal interface with CPSE jacketed cable, XLPE jacketed cable, Modified XLPO jacketed cable and LSZH-XLPO jacketed cable cables
- ¾" to 4" SS conduits including seal interface with CPSE jacketed cable, XLPE jacketed cable, Modified XLPO jacketed cable and LSZH-XLPO jacketed cable cables

3.0 ACCEPTANCE CRITERIA

Seismically qualified penetration seals at the MOX facility are required to remain in the opening (penetration) during and after a Design Earthquake seismic event. In order demonstrate that a penetration seal will remain in place, the seal will have to be evaluated for two conditions: 1) The seismic inertia of the self-weight of the seal will have to be evaluated; and 2) The seismic deflection of the commodities penetrating the seal will have to be considered.

Seismic pressure testing will be used to evaluate the seismic inertia of the self-weight of the seal assembly. This will be accomplished by applying a pressure to alternating sides of the penetration seal to demonstrate that the seal will not become dislodged from the opening due to the seismic inertia of the self-weight of the seal. The seismic deflection of commodities that penetrate the seal will be addressed by a separate analysis.

Ultimately, the overall seismic qualification of MOX penetration seal assemblies will be captured in a penetration seal seismic qualification report that will tie together the results of seismic pressure testing with other analyses performed to address seismic deflection of commodities that penetrate the seal.

The acceptance criterion for evaluating the seismic inertia of the seal self-weight is calculated in MOX Services Calculation "Penetration Seal Seismic Requirements" [Reference 12.1] and expressed as an equivalent pressure. Testing at this equivalent pressure will qualify that a penetration seal assembly will remain in place (i.e., the penetration seal cannot become dislodged from the opening or otherwise catastrophically fail such that a substantial leakage path is created) during the design earthquake seismic event.

The relative movement of the items penetrating a seal and the movement of the wall / seal during a seismic event are not considered as a part of this test. A separate engineering evaluation is required to evaluate the effect of movement on a seal with penetrating items during a seismic event.

No pressure inducing events are required to be considered concurrently with a seismic event.

Table 9-1 identifies the differential pressure levels (stages) for conducting seismic pressures tests, as well as, the acceptance criteria in order for the penetration seal assemblies to meet the seismic pressure testing requirements.

4.0 RESPONSIBILITIES

The following roles and responsibilities apply to this detailed test plan.

4.1 MOX Services

4.1.1 Provide review and concurrence of this detailed seismic pressure test plan.

4.1.2 Provide concurrence for any revisions made to this detailed seismic pressure test plan during test specimen construction activities.

4.1.3 Provide some of the materials for test assembly construction from MOX Services surplus or scrap (if available).

4.1.4 Reserves the right to witness seismic pressure testing.

4.2 AREVA

4.2.1 Develop this detailed seismic pressure test plan.

4.2.2 Provide management and oversight of all aspects of the MOX penetration seal test program.

4.2.3 Select the seismic pressure testing facility and establish sub-contract agreements.

4.2.4 Provide engineering instructions to the testing laboratory for performance of the test including test parameters, acceptance criteria, requirements for documenting the test results in a final test report, etc.

4.2.5 Procure any penetration seal materials, devices or components required to be Safety Related (QL-1) as designated in the procurement plan section of the test plan.

4.2.6 Notify MOX Services at least 10 days prior to test date to facilitate MOX Services decision to witness the seismic pressure test.

4.2.7 Witness the seismic pressure tests.

4.2.8 Perform post-test examinations.

4.2.9 Review, approve and issue final test report.

4.3 Testing Laboratory

4.3.1 Notify AREVA at least 5 days prior to the start of test assembly construction activities.

4.3.2 Construct test deck in accordance with this detailed test plan and AREVA direction.

4.3.3 Procure test deck materials and any other test assembly components identified under the Testing Laboratory scope in the procurement plan section of this detailed test plan.

4.3.4 Procure testing equipment necessary for seismic pressure testing services in accordance with the detailed seismic pressure test plans and verify that the testing equipment is properly calibrated.

4.3.5 Provide seismic pressure testing services in accordance with this approved detailed seismic pressure test plan.

4.3.6 Assist AREVA, as necessary, in conducting detailed post-test destructive examinations of the test assembly.

4.3.7 Dispose of test assembly upon completion of the seismic pressure test.

4.3.8 Generate a final test report in accordance with test plan requirements.

4.4 Other Subcontracted Entities

There are no other Subcontractors for this seismic pressure test plan.

5.0 PROCUREMENT PLAN

Penetration seal seismic pressure testing involves many elements beyond the penetration seal material being qualified. Some of these elements include the test deck or test slab, several different types of penetrating items, supports for penetrating items, various fasteners for securing test articles and laboratory instrumentation to the test assembly, etc. Not all elements of the test program are required to be procured to the same quality level as the penetration seal material to satisfy the quality requirements of the end product (e.g., QL-1 qualified penetration seals). The following procurement plan takes into consideration the required quality level of the various materials envisioned to be required for a typical penetration seal seismic pressure test and prescribes an approach for material procurement which considers cost, schedule and quality requirements.

5.1 Penetration Seal Materials

The vast majority of penetration seals that will be installed throughout the MFFF are designated QL-1. MOX Services defines QL-1 in PP9-1, "SSC Quality Levels & Marking Design Documents" [Reference 12.2] as follows:

> *QL-1 SSCs are typically IROFS (all IROFS are QL-1 and may be either SSCs or Administrative Controls) credited in the Integrated Safety Analysis with a required function to prevent or mitigate design basis events such that high-consequence events are made highly unlikely; intermediate-consequence events are made unlikely; or to prevent criticality. For example, the failure of an IROFS item could cause:*
>
> 1. *Loss of a primary confinement feature leading to release of material resulting in exceeding 10CFR70.61 performance requirements;*
> 2. *Failure to satisfy the double contingency principle for the prevention of a criticality accident; or*
> 3. *Loss of other safety function required to meet 10CFR70.61 performance requirements.*

This definition correlates with the following definition of "Nuclear Safety Related" in AREVA Administrative Procedure (AP) 1702-25, "Assignment of Nuclear Safety Classification to Products and Services" [Reference 12.3]:

> *Definition of "Nuclear Safety Related"*
>
> *Company products and services are considered to be nuclear safety related if they involve the evaluation, specification, design or change in design, operation, or performance of structures, systems, and components which must function directly, or must support other systems which function, to ensure any of the following:*
>
> - *The integrity of the reactor coolant pressure boundary*

- *The capability to shut down the reactor and maintain it in a safe shutdown condition*
- *The capability to prevent or mitigate the consequences of accidents which could result in potential offsite radiation exposures greater than accepted limits.*

On this basis, permanent penetration seal materials used in this test program shall be procured by AREVA or supplied by MOX Services and suitably base-lined so that future procurements of the same commercial materials can undergo the commercial grade dedication process in support Nuclear Safety Related (i.e., MOX QL-1) plant installations. Only the primary seal material specified as a part of the final seal design and which are left in place during testing become an integral part of the seal assembly and need to be base-lined for future dedication of similarly procured materials.

The quality level of the penetration seal materials procured for this test plan is **Non-Safety**.

Note: Commercial Grade Dedication (CGD) must be performed for Commercial Grade Items (CGIs) used in Safety Related applications when procured from suppliers where specific quality controls for nuclear applications cannot be imposed in a practical manner in accordance with 56-9141754-001, "AREVA NP Inc. Quality Assurance Program" [Reference 12.4]. However, none of the seal materials to be procured and used in the test program are intended or approved for installation in the MOX facility. Therefore, CGD of penetration seal materials used for test purposes is not required.

For this seismic pressure test, the following materials shall be procured by AREVA and base-lined for future dedication activities.

1. Dow Corning 732 Multi-Purpose Sealant
2. Unifrax Fiberfrax® Durablanket® S (6 pcf density)

5.2 Test Deck/Test Slab

The test deck/test slab will be used to simulate a boundary in which the penetrating items (conduits) may be routed into which the penetration seal assemblies may be installed. The test deck/test slab is not considered an integral part of the penetration seal assembly being tested and therefore is not intended to replicate MOX-specific plant conditions and not considered integral in bounding the performance of the penetration seal assemblies (e.g., concrete blend, compressive strength, rebar size and spacing). The test deck/test slab will be comprised of normal weight reinforced concrete, unless otherwise stipulated in the detailed test plan.

There will be no openings cast into the test deck/test slab with the exception of cast in place conduits.

The testing laboratory shall be responsible for procuring all materials and components associated with the construction of the test deck/test slab, unless otherwise specified in the detailed test plan. The test deck shall comply with the requirements of the approved detailed test plan drawings contained in Appendix A, and shall be constructed in accordance with the testing facility's Quality Assurance Program.

The quality level of the test deck is **Non-safety**.

5.3 Penetrating Items

Penetrating items (e.g., conduits and cables) will be used in this seismic pressure test to simulate MOX-specific plant commodities during the seismic pressure test but are not considered an integral part of the penetration seal assembly being tested. Therefore, the quality level of the penetrating items is **Non-safety**.

Penetrating items for this seismic pressure test will come from MOX Services or the testing lab (Intertek). MOX Services supplied items are identified on the MOX Services Bill of Materials in Section B.2 of Appendix B. Test lab (Intertek) supplied items are identified on the Intertek Bill of Materials in Section B.3 of Appendix B.

6.0 SPECIAL PRECAUTIONS

6.1 Precautions for Construction of Test Assemblies

Observe testing facilities safe work practices for construction, lifting, and moving of test assemblies.

6.2 Precautions for Installation of Seal Assemblies

Observe specific precautions recommended by seal material manufacturer as noted on product literature and material safety data sheets contained in AREVA NP Inc. Document 01-9198306, *Installation Instruction Manual for MOX Penetration Seal Test Program* [Reference 12.5].

6.3 Precautions for Conducting Seismic Pressure Tests

Proper safety precautions shall be exercised to preclude personnel from direct exposure to loss of pressure events, unexpected disengaging of testing equipment from the test deck, and all other related hazards.

7.0 PREREQUISITES

7.1 General Test Configuration Requirements

The test assembly, including slab layout and penetration seal configurations shall be as specified by AREVA and in accordance with the drawings and information contained in Appendix A of this test plan, and AREVA NP Inc. Document 01-9198306, *Installation Instruction Manual for MOX Penetration Seal Test Program* [Reference 12.5].

7.2 Safety Related Materials

Penetration seal materials that are purchased **Non-Safety** for this test program but are to be base-lined for future Nuclear Safety Related via the Commercial Grade Dedication process are indicated on the AREVA Bill of Materials (Appendix B.1).

7.3 Dimensioned Drawings

All test articles shall conform to the dimensioned drawings supplied by AREVA and contained in Appendix A of this test plan. Any differences between designed and constructed/tested assemblies shall be noted in final drawings contained within the test report.

7.4 Test Configuration

All test articles shall be securely fastened to the test apparatus by the laboratory. All openings shall be sealed in accordance with test plan instructions, drawings (Appendix A) and AREVA Document 01-9198306 [Reference 12.5].

8.0 TEST ASSEMBLY CONSTRUCTION

8.1 Test Slab Construction

The Testing Laboratory shall construct the test slab, including placement of penetrating items, in accordance with the drawings contained in Appendices A of this Test Plan.

AREVA Quality Control representative (or approved designee) shall conduct an inspection of the test slab for compliance with the approved Test Plan drawings prior to installation of individual penetration seal test assemblies. Any differences between the approved Test Plan drawings and the as-built test slab configuration shall be corrected (if deemed necessary by the AREVA Test Engineer) or noted by the QC Inspector (if correction is not required). Completion of this verification shall be documented as required by AREVA Document 01-9198306, *Installation Instruction Manual for MOX Penetration Seal Test Program* [Reference 12.5].

8.2 Penetration Seal Installation

AREVA (or approved designee) shall install the penetration seal test assemblies in accordance with the drawings contained in Appendix A of this detailed test plan and in accordance with AREVA Document 01-9198306, *Installation Instruction Manual for MOX Penetration Seal Test Program* [Reference 12.5].

QA/QC verification of penetration seal installations shall be documented as required by AREVA Document 01-9198306, *Installation Instruction Manual for MOX Penetration Seal Test Program* [Reference 12.5].

8.3 Pre-Test Verifications

Prior to conducting the seismic pressure test, the AREVA Test Engineer shall sign-off indicating that the test article (test penetration) is complete and ready for testing as required by AREVA Document 01-9198306, *Installation Instruction Manual for MOX Penetration Seal Test Program* [Reference 12.5].

9.0 PROCEDURE

9.1 Seismic Pressure Test Apparatus

The seismic pressure test apparatus to be used for this seismic pressure test shall be constructed and maintained by the testing laboratory. Two hemispherical 72" diameter steel pressure vessels shall be used to construct the assembly. One side shall be used to induce the testing pressures above atmospheric pressure based on Table 9-1, while the other side shall measure the pressure increase or "leakage" through the penetration. The test apparatus shall be "leak-tight" and substantial enough to withstand the pressures created for test purposes. Attachment shall be sufficient to withstand the forces imposed on the pressure vessels during the test.

9.2 Process

The differential pressures calculated for seismic pressure testing purposes, as they apply to MFFF penetration seal designs, are discussed in Calculation DCS01-ZEQ-EQ-CAL-M-10118-0 [Reference 12.1]. The seismic pressure testing will be performed using the requirements for the seal material being tested based upon the seal weight per square foot found in Calculation DCS01-ZEQ-EQ-CAL-M-10118-0 [Reference 12.1].

The pressure levels to be used for this seismic pressure are specified in Table 9-1. The pressure used in each seismic pressure test is intended to bound a calculated differential pressure based on the

penetration seal material's weight per square foot as detailed in the referenced calculation, with additional margin. The penetration seal seismic requirements in the referenced calculation are based upon the seal system type and the seal material. The bounding differential pressure to be used for each penetration seal seismic pressure test, the test hold time at each pressure, the acceptance criteria to meet the seismic pressure testing requirements, and the basis for each pressure are identified in Table 9-1.

A hold time of 5 minutes has been established for each test stage to ensure that sufficient time at pressure is maintained to confirm that the penetration seal will not catastrophically fail (i.e., will not become dislodged from the opening. This hold time provides reasonable assurance that the penetration seal meets the requirements stated in Calculation DCS01-ZEQ-EQ-CAL-M-10118-0 [Reference 12.1].

Table 9-1: Differential Seismic Pressure Test Levels

Test Stage	Differential Pressure (inch w.g.)	Required Hold Time (minutes)	Acceptance Criteria	Basis for the Selected Differential Pressure
1-4	8 (Note 1)	5	Penetration Seal Remains in Opening (Does not become dislodged)	Testing at this differential pressure meets the seismic demand expressed as a pressure [Reference 12.1]

Note 1: An approximate density of 65 pcf was determined for Dow Corning 732 based on its published specific gravity of 1.04 (64.8 pcf using specific gravity of 1.04 and water at 70 degrees F). This approximate density was confirmed as being conservative by filling a P35A 3.5 oz sample cup full to the top with Dow Corning 732, weighing the sample, subtracting the weight of the empty cup to ascertain the sample material weight (mass), and then using formulas used to derive Table 8-1 of AREVA Document 51-9201312, latest revision [Reference12.9] to obtain the density of Dow Corning 732. The sample material weight (mass) was measured as 107.6 grams, which correlates to a material density of 60.7 pcf. 65 pcf times a seal depth of 0. 5" on each side of the penetration yields a seal weight of approximately 5.4 psf. 12 pcf (Unifrax Fiberfrax Durablanket S density (6 pcf) at 50 percent compression) times a seal depth of 4" (2" thickness on each side of the penetration) yields a seal weight of approximately 4.0 psf. Approximately 5.4 psf plus 4.0 psf yields a total seal weight of approximately 9.4 psf. Based on Figure B-1.1 of Reference 12.1, the corresponding seismic pressure for a seal weight of 9.4 psf is approximately 8 inches w.g. (7.42 inches w.g.). Therefore, for Seismic Pressure Test 8 an equivalent seismic pressure of 8 inches w.g. shall be used.

Refer to Appendix C for additional details associated with the density sample for Dow Corning 732 sealant.

The test assembly shall be attached to the seismic pressure test apparatus and subjected to the pressures identified in Table 9-1 as described below.

9.2.1 For Stage 1, the test assembly shall be attached to the pressure test apparatus and subjected to air pressure test at the select pressure level identified in Table 9-1. Once this pressure has been obtained, the pressure shall be maintained for the hold time specified in Table 9-1. If the penetration seal catastrophically fails during this time, the time of failure shall be noted and the test shall be stopped.

9.2.2 Once the designated hold time for Stage 1 has been achieved, the pressure shall be vented from the test chamber. Next, the pressure identified in Table 9-1 for Stage 2 shall be applied to the opposite side of the penetration seal and held for the designated hold time. If the penetration seal catastrophically fails during this time, the time of failure shall

be noted and the test shall be stopped.

9.2.3 Once the designated hold time for Stage 2 has been achieved, the pressure shall be vented from the test chamber. Next, the pressure identified in Table 9-1 for Stage 3 shall be applied to the original side of the penetration seal and held for the designated hold time. If the penetration seal catastrophically fails during this time, the time of failure shall be noted and the test shall be stopped.

9.2.4 Once the designated hold time for Stage 3 has been achieved, the pressure shall be vented from the test chamber. Finally, the pressure identified in Table 9-1 for Stage 4 shall be applied to the opposite side of the penetration seal and held for the designated hold time. If the penetration seal catastrophically fails during this time, the time of failure shall be noted and the test shall be stopped.

9.2.5 Following completion of Stage 4 pressure testing, the pressure shall be vented from the test chamber. At this point, the test may continue at the discretion of the AREVA test engineer and the testing laboratory manager in charge. Subsequent pressures, and hold times shall be recorded as directed by the AREVA test engineer.

NOTE: The pressure used for the testing performed above is based on a seal material depth of 0.5" of 732 caulk and a 2" depth of 6 pcf ceramic blanket at 50% compression installed on both sides of the barrier. Should the test be successful, a recommended subsequent testing pressure is 16 inches w.g., which represents the pressure associated with 1 inch of 732 caulk and 4" of ceramic blanket installed on both sides of the barrier (i.e., double the normal seal design).

9.2.6 If at any pressure level (or test stage) the penetration seal becomes dislodged from the opening or otherwise catastrophically fails, the pressure test shall be terminated and the time to failure and pressure at which the failure occurred shall be recorded.

9.3 Post Test Examination

Following completion of the seismic pressure test, visual and destructive (if deemed necessary) post-test examinations shall be performed. These examinations shall include, but not necessarily be limited to, the following:

Visual observations of penetration seal condition including:

- Integrity of seal and conditions on both sides of the penetration
- Location of greatest degradation
- Condition of seal to barrier interface
- Condition of seal to penetrating item interfaces
- Condition of penetrating items

Once visual observations are complete, destructive examinations may be used to obtain additional information or gain extra insights into penetration seal performance during the pressure tests.

10.0 DATA SYSTEMS

During the seismic pressure test, the any data systems connected to the test apparatus shall be controlled and monitored by the testing laboratory. Data recorded for these components shall be compiled and contained in the final seismic pressure test report.

11.0 TEST REPORT

The testing laboratory shall submit a report on the results of the test. The test report shall contain the collected data and required quality control documentation. The final test report shall be prepared in sufficient detail to summarize the total testing activity. The final report shall include as a minimum:

- Date of test
- Location of test
- Description of test apparatus and test articles
- Calibration documentation for all data systems connected to the test apparatus
- Test procedures used
- Acceptance criteria
- Provide quality control records
- Color digital photographs of the test project

12.0 REFERENCES

References identified with an (*) are maintained within the MOX Records System and are not retrievable from AREVA Records Management. These are acceptable references per AREVA Administrative Procedure 0402-01, Attachment 8. See page 2 for Project Manager Approval of customer references.

12.1 *Shaw AREVA MOX Services Calculation DCS01-ZEQ-EQ-CAL-M-10118-0, *"Penetration Seal Seismic Requirements"*

12.2 *Shaw AREVA MOX Services Procedure PP9-1, Revision 14, *"SSC Quality Levels & Marking Design Documents"*

12.3 AREVA NP Inc. Procedure 1702-25, Revision 018, *"Assignment of Nuclear Safety Classification to Products and Services"*

12.4 AREVA NP Inc. Document 56-9141754-001, *"AREVA NP Inc. Quality Assurance Program"*

12.5 AREVA NP Inc. Document 01-9198306, latest revision, *"Installation Instruction Manual for MOX Penetration Seal Test Program"*

12.6 *Shaw AREVA MOX Services Document DCS01-BRA-DS-TRD-B-01365-0, *"Technical Requirements Document for MFFF Penetration Seals"*

12.7 *Shaw AREVA MOX Services Specification DCS01-ZMJ-DS-SPE-M-21402-2, *"Equipment Seismic Qualification Specification"*

12.8 AREVA NP Inc. Document 51-9209319, latest revision, *"Detailed Test Plan for Conducting MOX Pressure Test 10"*

12.9 AREVA NP Inc. Document 51-9201312, latest revision, *"Sample Cup Verification and Material Density Table for MOX Penetration Seal Test Program"*

AREVA

Document No.: 51-9217022-000

Detailed Test Plan for Conducting MOX Seismic Pressure Test 8

APPENDIX A: TEST DECK/TEST SLAB DRAWINGS

It is anticipated that the slab with the silicone elastomer seal material used for Pressure Test 10 will not be damaged during Pressure Test 10 and will be available for reuse in this seismic pressure test. For the purpose of Seismic Pressure Test 8, no changes will be made to the seal assemblies installed for Pressure Test 10. For test slab drawings see Pressure Test 10 drawings in Appendix A of Document 51-9209319, *"Detailed Test Plan for Conducting MOX Pressure Test 10"* [Reference 12.8].

AREVA

Document No.: 51-9217022-000

Detailed Test Plan for Conducting MOX Seismic Pressure Test 8

APPENDIX B: BILL OF MATERIALS

This appendix contains the Bill of Materials for this seismic pressure test. The Bill of Materials in Section B.1 identifies materials to be provided by AREVA. The Bill of Materials in Section B.2 identifies materials to be provided by MOX Services. The Bill of Materials in Section B.3 identifies materials to be provided by Intertek.

AREVA

Document No.: 51-9217022-000

Detailed Test Plan for Conducting MOX Seismic Pressure Test 8

B.1 Table Bill of Materials for AREVA Supplied Items

Bill of Material for AREVA Supplied Items					
Item	**Description**	**Part Number**	**Quantity**	**Units**	**Total**
	None*				

None* - Assuming a successful Pressure Test 10, the seal will already be in place, no additional materials will be necessary.

AREVA

Document No.: 51-9217022-000

Detailed Test Plan for Conducting MOX Seismic Pressure Test 8

B.2 Bill of Materials for MOX Services Supplied Items

Bill of Material for MOX Services Supplied Items					
Item	**Description**	**Part Number**	**Quantity**	**Units**	**Total**
	None*				

None* - Assuming a successful Pressure Test 10, the penetrants will already be in place, no additional materials will be necessary.

AREVA

Document No.: 51-9217022-000

Detailed Test Plan for Conducting MOX Seismic Pressure Test 8

B.3 Bill of Materials for Intertek Supplied Items

Bill of Material for Intertek Supplied Items**					
Item	**Description**	**Part Number**	**Quantity**	**Units**	**Total**
	None*				

None* - Assuming a successful Pressure Test 10, the commodities will already be in place, no additional materials will be necessary

** *This BOM applies to Intertek Supplied Items other than materials required to construct the test slab. Construction of the test slab, including procurement of any materials required for the test slab, is the responsibility of Intertek.*

Page B-4

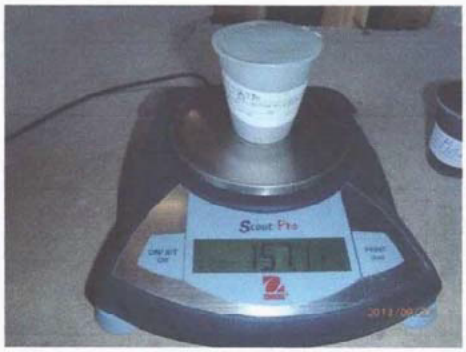
Intertek

AREVA

Document No.: 51-9217022-000

Detailed Test Plan for Conducting MOX Seismic Pressure Test 8

APPENDIX C: DOW CORNING 732 DENSITY SAMPLE



Dow Corning 732	Dow Corning 790
Lot # 0007251823	Lot# 000739059
Expiration Date 05/29/2015	Expiration Date 04/24/2014
Cup Weight 3.6 grams	Cup Weight 3.4 grams
Total Weight 111.2 grams	Total Weight 157.1 grams
Sample Weight 107.6 grams	Sample Weight 153.7
Sample Density 60.7 pcf	Sample Density 86.7 pcf

Scale Used: Scout Pro Model SP 401
AREVA Calibration ID# VH-13639
Calibrated on 05/23/2013
Due on11/23/2013

Prepared By: [redacted] Aaron Adrian Date: 9-27-13

Checked By: [redacted] Derrick Risner Date: 9/27/2013

Approved By: [redacted] L.S. Groesbeck Date: 9/27/13

AREVA

Document No.: 51-9217022-000

Detailed Test Plan for Conducting MOX Seismic Pressure Test 8

APPENDIX D: DESIGN VERIFICATION CHECKLIST

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AREVA

DESIGN VERIFICATION CHECKLIST

Document Identifier 51 - 9217022 - 000

Title Detailed Test Plan for Conducting MOX Seismic Pressure Test 8

1.	Were the inputs correctly selected and incorporated into design or analysis?	☒ Y	☐ N	☐ N/A
2.	Are assumptions necessary to perform the design or analysis activity adequately described and reasonable? Where necessary, are the assumptions identified for subsequent re-verifications when the detailed design activities are completed? Note: If there are no assumptions (of any type), then N/A shall be checked.	☐ Y	☐ N	☒ N/A
3.	Are the appropriate quality and quality assurance requirements specified? Or, for documents prepared per AREVA NP Inc. procedures, have the procedural requirements been met?	☒ Y	☐ N	☐ N/A
4.	If the design or analysis cites or is required to cite requirements or criteria based upon applicable codes, standards, specific regulatory requirements, including issue and addenda, are these properly identified, and are the requirements/criteria for design or analysis met?	☒ Y	☐ N	☐ N/A
5.	Have applicable construction and operating experience been considered?	☒ Y	☐ N	☐ N/A
6.	Have the design interface requirements been satisfied?	☒ Y	☐ N	☐ N/A
7.	Was an appropriate design or analytical method used?	☒ Y	☐ N	☐ N/A
8.	Is the output reasonable compared to inputs?	☒ Y	☐ N	☐ N/A
9.	Are the specified parts, equipment and processes suitable for the required application?	☒ Y	☐ N	☐ N/A
10.	Are the specified materials compatible with each other and the design environmental conditions to which the material will be exposed?	☒ Y	☐ N	☐ N/A
11.	Have adequate maintenance features and requirements been specified?	☐ Y	☐ N	☒ N/A
12.	Are accessibility and other design provisions adequate for performance of needed maintenance and repair?	☐ Y	☐ N	☒ N/A
13.	Has adequate accessibility been provided to perform the in-service inspection expected to be required during the plant life?	☐ Y	☐ N	☒ N/A
14.	Has the design properly considered radiation exposure to the public and plant personnel?	☐ Y	☐ N	☒ N/A
15.	Are the acceptance criteria incorporated in the design documents sufficient to allow verification that design requirements have been satisfactorily accomplished?	☒ Y	☐ N	☐ N/A
16.	Have adequate preoperational and subsequent periodic test requirements been appropriately specified?	☐ Y	☐ N	☒ N/A
17.	Are adequate handling, storage, cleaning and shipping requirements specified?	☒ Y	☐ N	☐ N/A
18.	Are adequate identification requirements specified?	☒ Y	☐ N	☐ N/A
19.	Is the document prepared and being released under the AREVA NP Inc. Quality Assurance Program? If not, are requirements for record preparation review, approval, retention, etc., adequately specified?	☒ Y	☐ N	☐ N/A

AREVA

Document No.: 51-9217022-000

Detailed Test Plan for Conducting MOX Seismic Pressure Test 8

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AREVA

DESIGN VERIFICATION CHECKLIST

Document Identifier 51 - 9217022 - 000

Comments on the preceding responses:

Verified By: Dacciele V Risner [redacted] 1/8/2014

(First, MI, Last) Printed / Typed Name | Signature | Date

APPENDIX E
Commercial Grade Dedication-Related Documents

The vast majority of penetration seals that will be installed throughout the MFFF will be designated as quality level QL-1. For this reason, permanent penetration seal materials used in this test program were procured by AREVA or supplied by MOX Services and suitably base-lined so that future procurements of the same commercial materials can undergo the Commercial Grade Dedication process in support Nuclear Safety Related (i.e., MOX QL-1) plant installations.

Only the primary seal material(s) that were specified as a part of the final penetration seal design and left in place during the test needed to be base-lined for future dedication of similarly procured materials. For this test, the following AREVA documents contain information associated with materials that underwent the base-lining process. These documents establish material critical characteristics as a baseline for future Commercial Grade Dedication.

- AREVA Document 51-9212666-000, "Dow Corning 732 Multi-Purpose Sealant Critical Characteristics"
- AREVA Document 51-9212670-000, "Unifrax Durablanket S Critical Characteristics"

These documents are available from the AREVA Records Management System or the MOX Records Management System.

APPENDIX F
Quality Documents

The test assembly used in Seismic Pressure Test 8 was the same assembly tested in Pressure Test 10. For Quality Records of installation, Certificates of Conformance of the sealant materials, and QA Receiving Documents of the penetration materials for this, assembly, please see the Appendices in Intertek Report No. 101276459SAT-013, Pressure Test 10 (AREVA document 58-9224201-000).

LIST OF CALIBRATED EQUIPMENT

Description	Serial No.	Calibration Due Date
Thermo-Hygrometer	130548237	9/19/2015
Data Acquisition System	18041FE	7/20/2014*
Pressure Transducer	406707	7/16/2014*
Mass Flowmeter	4270050001001	2/1/2014*
Mass Flowmeter	4270050003001	2/7/2014*
Stop watch	130176393	3/29/2015

* See Intertek Corrective Action Request (CAR) 51-AMER-SAT-2014-INT and AREVA Contract Variation Approval Request (CVAR) 87-9224669-000

Build B
HORIZONTAL

ilac-MRA ACCREDITED Calibration Certificate No. 1750.01

Calibration complies with ISO/IEC 17025, ANSI/NCSL Z540-1, and 9001

Cert. No.: 4096-5373559

Traceable® Certificate of Calibration for Digital Humidity/Temp. Meter

Manufactured for and distributed by: Fisher Scientific, 300 Industry Drive, Pittsburgh, PA 15275-1001

Instrument Identification:

Model Numbers: 11-661-13, FB61254, 245C5 S/N: 130548237 Manufacturer: Control Company

Standards/Equipment:

Description	Serial Number	Due Date	NIST Traceable Reference
Chilled Mirror Hygrometer	31874/H2048MCR	6/14/15	11081
Digital Thermometer	41334977/41335007	9/26/13	4000-4643062

Certificate Information:

Technician: 104 Procedure: CAL-17 Cal Date: 9/19/13 **Cal Due: 9/19/15**

Test Conditions: 23.0°C 51.0 %RH 1013 mBar

Calibration Data: (New Instrument)

Unit(s)	Nominal	As Found	In Tol	Nominal	As Left	In Tol	Min	Max	±U	TUR
%RH		N.A.		42.95	42	Y	39	47	1.30	3.1:1
°C		N.A.		24.218	24	Y	23	25	0.590	1.7:1

This instrument was calibrated in compliance with ISO/IEC 17025:2005 and ANSI/NCSL Z540-1-1994 Part 1.

A Test Uncertainty Ratio of at least 4:1 is maintained unless otherwise stated and is calculated using the expanded measurement uncertainty. Uncertainty evaluation includes the instrument under test and is calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM). The uncertainty represents an expanded uncertainty using a coverage factor k=2 to approximate a 95% confidence level. In tolerance conditions are based on test results falling within specified limits with no reduction by the uncertainty of the measurement. The results contained herein relate only to the item calibrated. This certificate shall not be reproduced except in full, without written approval of Control Company.

The calibration results published in this certificate were obtained using equipment capable of producing results that are traceable to NIST and through NIST to the International System of Units (SI).

Nominal=Standard's Reading; As Left=Instrument's Reading; In Tol=In Tolerance; Min/Max=Acceptance Range; ±U=Expanded Measurement Uncertainty; TUR=Test Uncertainty Ratio; Accuracy=±(Max-Min)/2; Min = As Left Nominal(Rounded) - Tolerance; Max = As Left Nominal(Rounded) + Tolerance; Date=MM/DD/YY

[redacted] [redacted]

Maintaining Accuracy:

In our opinion once calibrated your Digital Humidity/Temp. Meter should maintain its accuracy. There is no exact way to determine how long calibration will be maintained. Digital Humidity/Temp. Meters change little, if any at all, but can be affected by aging, temperature, shock, and contamination.

Recalibration:

This device was calibrated using a single test point. Should additional test points be required, please contact Control Company for factory calibration and re-certification traceable to National Institute of Standards and Technology.

CONTROL COMPANY 4455 Rex Road Friendswood, TX 77546 USA
Phone 281 482-1714 Fax 281 482-9448 service@control3.com www.control3.com

Control Company is an ISO 17025:2005 Calibration Laboratory Accredited by (A2LA) American Association for Laboratory Accreditation, Certificate No. 1750.01.
Control Company is ISO 9001:2008 Quality Certified by (DNV) Det Norske Veritas, Certificate No. CERT-01805-2006-AQ-HOU-RvA.
International Laboratory Accreditation Cooperation (ILAC) - Multilateral Recognition Arrangement (MRA).

Intertek

16015 Shady Falls Road
Elmendorf, TX 78112
210-635-8100 210-635-8101 fax

Certificate of Verification

Verification Date:	**01/20/2014**
Re-verification Date:	**07/20/2014**
Manufacturer:	**National Insturments**
Model No.:	**USB-6210** **(Only use 3 channels)**
Serial No.:	**18041FE**
Equipment Description:	**Data Acquisition System**
Calibration Sources:	**Ronan SN: 11380 due 4/6/2014**
Performance:	**See the attached sheet**

Verification Performed By:

[redacted]
Staff Engineer

Verification Approved By:

[redacted]
Test Engineer

This Data Acquisition System was verified following the Draft "Work Instruction for Verifying Yokogawa Darwin Data Acquisition Systems" dated 8/28/2013

OMEGADYNE INC.
CERTIFICATE OF CALIBRATION

Model Number: PX409-005DWUV
Serial Number: 406707
Date: 7/15/2011
Job: R3274

Capacity: 5.00 PSID
Excitation: 10.00 Vdc
Technician: KAPOME

Pressure Connection: 1/4-18 NPT Male

WIRING CODE

Electrical Connection: Integral Cable 4-Cond
BLACK = - EXCITATION
WHITE = + SIGNAL
GREEN = - SIGNAL
RED = + EXCITATION

CALIBRATION WORKSHEET

NOTES

Pressure PSID	OUTPUT mVdc
0.00	0.007
2.50	50.008
5.00	100.016
2.50	50.007
0.00	0.007

NIST Traceable Number(s): C-1954, C-1289

Omegadyne Inc. certifies that the above instrumentation has been calibrated and tested to meet or to exceed the published specifications. This calibration was performed using instrumentation and standards that are traceable to the National Institute of Standards and Technology. This document also ensures that all testing performed complies with MIL-STD 45662-A, ISO 10012-1, and ANSI/NCSL Z540-1-1994 requirements. After Final Calibration our products are stored in an environmentally controlled stock room and are considered in bonded storage. Depending on environmental conditions and severity of use, factory calibration is recommended every one to three years after the initial service installation date.

[redacted]
Accepted and Certified By

7/15/2011
Date

OMEGA ENGINEERING, INC.
An OMEGA Technologies Company
ONE OMEGA DRIVE, BOX 4047, STAMFORD, CT, U.S.A. 06907-0047
(203) 359-1660 TELEX: 996404 CABLE: OMEGA FAX: (203) 359-7700
http://www.omega.com e-mail: info@omega.com

CERTIFICATE OF ACCURACY

This is to certify that meter serial number 4270050001001 is certified to an accuracy of +/- 1 % of 20 SCFM of N2 and has been calibrated using standards whose accuracies are traceable to the National Institute of Standards and Technology (N.I.S.T.) according to our procedures.

All traceable certifications and related procedures for the equipment used are on file.

Barometer Number:	N/A
Vol-U-Meter Number:	Base 1920 Cell 1898
Type of Gas:	N2
Gas Used for Calibration:	N2
Pressure Gauge Number:	1122
Timer Number:	N/A
Thermometer Number:	N/A
Voltmeter:	NA
Calibrated By:	[redacted]
Date Calibrated:	9-1-13

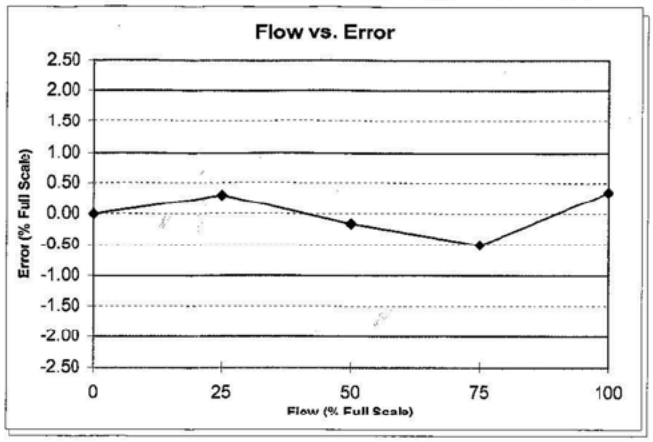
Uncertainty of measurements: +/- 0.3 % of reading

Calibrations were performed under a controlled Quality System Manual, which incorporates the requirements of ISO Guide 25, ISO 10012-1, ISO 9001 (1994) and ISO 13485. The released ISO 13485 registration (Medical Devices – Quality Management Systems – System Requirements for Regulatory Purposes) includes Design Controls and Metrology Systems.

0122220B FM-1011 REV B

OMEGA ENGINEERING, INC.
An OMEGA Technologies Company
ONE OMEGA DRIVE, BOX 4047, STAMFORD, CT, U.S.A. 06907-0047
(203) 359-1660 TELEX: 995404 CABLE OMEGA FAX: (203) 359-7700
http://www.omega.com e-mail: info@omega.com

Mass Flowmeter/Flow Controller Calibration Data Sheet



DATE	2/1/2013
TIME	7:59:59 AM
Shop Order No.	427005
Serial No.	4270050001001

GAS

Nameplate (Actual)	Nitrogen
Surrogate (Calibration)	Nitrogen (N2)

STANDARD CONDITIONS

Std. Pressure	101.32 kPa (760 Torr)
Std. Temperature	21.1 °C

PRESSURE

Inlet (P_1)	20 PSIG
Outlet (P_2)	N/A

TEMPERATURE

Calib. Temperature	21.9 °C
Oper. Temperature	70 °F

Max. Flow Rate	20 SLPM
Gas Factor	1
Calibrator	MT
Flow Standard	PICO 1898-1
Unit Accuracy	1.0 FS & 0.0 Rate
Calib. Attitude	Horizontal (base down)

Calibration Data

Setpoint (SLPM)	Flow Signal (Volts)	Device Flow (SLPM)	Actual Flow (SLPM)	% FS Error * (%)
00.00	0.000	00.00	00.00	0.00
05.00	1.253	05.01	05.07	0.30
10.00	2.502	10.01	09.98	-0.16
15.00	3.752	15.01	14.91	-0.50
20.00	5.000	20.00	20.07	0.35

* % Full Scale (FS) Error = (100)(Actual Flow - Device Flow) / Full Scale Flow

LEAK TEST DATA

Inboard (Externally Pressurized) Helium Leak Rate: < 1 x 10^{-8} atm cc/sec
Vacuum Pressure: < 5 milliTorr

Tested By: [redacted] **Date:** 2-1-13

FM-1119 Rev. K

OMEGA ENGINEERING, INC.
An OMEGA Technologies Company
ONE OMEGA DRIVE, BOX 4047, STAMFORD, CT, U.S.A. 06907-0047
(203) 359-1660 TELEX: 996404 CABLE: OMEGA FAX: (203) 359-7700
http://www.omega.com e-mail: info@omega.com

CERTIFICATE OF ACCURACY

This is to certify that meter serial number 4270050003001 is certified to an accuracy of +/- 1 % of 200 slpm of N2 and has been calibrated using standards whose accuracies are traceable to the National Institute of Standards and Technology (N.I.S.T.) according to our procedures.

All traceable certifications and related procedures for the equipment used are on file.

Barometer Number:	1667
Vol-U-Meter Number:	613
Type of Gas:	N2
Gas Used for Calibration:	N2
Pressure Gauge Number:	1950
Timer Number:	1876
Thermometer Number:	985
Voltmeter:	NA
Calibrated By:	[redacted]
Date Calibrated:	2-7-13

Uncertainty of measurements: +/- 0.3 % of reading

Calibrations were performed under a controlled Quality System Manual, which incorporates the requirements of ISO Guide 25, ISO 10012-1, ISO 9001 (1994) and ISO 13485. The released ISO 13485 registration (Medical Devices – Quality Management Systems – System Requirements for Regulatory Purposes) includes Design Controls and Metrology Systems.

0122220B FM-1011 REV B

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http://www.omega.com e-mail: info@omega.com

MASS FLOWMETER/FLOW CONTROLLER CALIBRATION DATA SHEET

SPECIFICATIONS

MODEL #: FMA-875A-V-NIST

SERIAL #: 4270050003001

FLOW RANGE: 200 SLPM

OPERATING TEMPERATURE: 70 F

NAMEPLATE (PROCESS) GAS: N2

SURROGATE (CALIBRATION) GAS: N2

STANDARD TEMPERATURE: 21.1 C

STANDARD PRESSURE: 101.32 kPa (760 Torr)

P1 (INLET PRESSURE): 20 PSIG

P2 (OUTLET PRESSURE): N/A

CALIBRATION TEMPERATURE: 18.7 C

CALIBRATION ATTITUDE (calibration attitude checked):

- ☒ Horizontal (base down)
- ☐ Horizontal (upside down)
- ☐ Horizontal (front down)
- ☐ Horizontal (back down)
- ☐ Vertical (inlet up)
- ☐ Vertical (inlet down)

CALIBRATION ACCURACY: ± 1 % OF FULL SCALE FLOW

CALIBRATION DATA

% FULL SCALE (Nominal)	FLOW SIGNAL OUTPUT (signal type checked) ☒ Vdc ☐ mAdc	STANDARD VOLUMETRIC FLOW (Units: SLPM)		ERROR * (% Full Scale)
		DEVICE	MEASURED	
100	5.000	200.000	200.079	.5395
75	3.750	150.000	149.317	-.3415
50	2.500	100.000	100.488	.2440
25	1.250	50.000	50.852	.4260
0	0.00	0.000	0.000	------

* % FULL SCALE ERROR = (100) (MEASURED FLOW - DEVICE FLOW) ÷ FULL SCALE FLOW

CALIBRATED BY: [redacted] DATE: 2-7-13

LEAK TEST DATA

INBOARD (EXTERNALLY-PRESSURIZED) HELIUM LEAK RATE: $\leq 1 \times 10^{-8}$ atm cc/sec

VACUUM PRESSURE: ≤5 millitorr

TESTED BY: [redacted] DATE: 2-1-13

FM-355-OE Rev. 0

Jeff Robinson 9/11/13

Calibration complies with ISO 9001
ISO/IEC 17025 AND ANSI/NCSL Z540-1

Cert. No.: 1045-5005294

Calibration Certificate No. 1750.01

Traceable® Certificate of Calibration for Watr/Shock Res Stpwch

Manufactured for and distributed by: Fisher Scientific, P.O. Box 1768, Pittsburgh, PA 15230

Instrument Identification:

Model: S40799-7 S/N: 130176939 Manufacturer: Control Company

Standards/Equipment:

Description	Serial Number	Due Date	NIST Traceable Reference
Non-Contact Frequency Counter	26.66879	7/02/13	1000320243

Certificate Information:

Technician: 150 Procedure: CAL-01 Cal Date: 3/29/13 **Cal Due: 3/29/15**

Test Conditions: 22.5°C 42.0 %RH 1020 mBar

Calibration Data: (New Instrument)

Unit(s)	Nominal	As Found	In Tol	Nominal	As Left	In Tol	Min	Max	±U	TUR
Sec/24hr		N.A.		0.000	-0.300	Y	-8.640	8.640	0.130	>4:1

This Instrument was calibrated using Instruments Traceable to National Institute of Standards and Technology.

A Test Uncertainty Ratio of at least 4:1 is maintained unless otherwise stated and is calculated using the expanded measurement uncertainty. Uncertainty evaluation includes the instrument under test and is calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM). The uncertainty represents an expanded uncertainty using a coverage factor k=2 to approximate a 95% confidence level. In tolerance conditions are based on test results falling within specified limits with no reduction by the uncertainty of the measurement. The results contained herein relate only to the item calibrated. This certificate shall not be reproduced except in full, without written approval of Control Company.

Nominal=Standard's Reading; As Left=Instrument's Reading; In Tol=In Tolerance; Min/Max=Acceptance Range; ±U=Expanded Measurement Uncertainty; TUR=Test Uncertainty Ratio; Accuracy=±(Max-Min)/2; Min = Nominal(Rounded) - Tolerance; Max = Nominal(Rounded) + Tolerance; Date=MM/DD/YY

[redacted] Nicol Rodriguez, Quality Manager

[redacted] Aaron Jacobs, Technical Manager

Maintaining Accuracy:

In our opinion once calibrated your Watr/Shock Res Stpwch should maintain its accuracy. There is no exact way to determine how long calibration will be maintained. Watr/Shock Res Stpwchs change little, if any at all, but can be affected by aging, temperature, shock, and contamination.

Recalibration:

For factory calibration and re-certification traceable to National Institute of Standards and Technology contact Control Company.

CONTROL COMPANY 4455 Rex Road Friendswood, TX 77546 USA
Phone 281 482-1714 Fax 281 482-9448 service@control3.com www.control3.com

TEST ARTICLE ATTRIBUTE CHECKLIST

PROJECT NO: 101276459SAT-016 **CLIENT :** AREVA

Project Description SEISMIC PRESSURE 8

		SAT	UNSAT
I.	**ASSEMBLY**		
	Proper materials used	[redacted]	
	Material documentation complete		
	Configuration/dimensions in accordance w/ approved drawings		
	Description of assembly: SEISMIC #8 (USING PRESSURE 10)		
II.	**ELECTRICAL CABLE**		
	Correct material used		
	Material documentation complete		
	Correct cable lay-in and fill requirements		
	Description of electrical cable: PER TEST PLAN		
III.	**THERMOCOUPLES**	N/A	
	Correct thermocouple type, certs received		
	Thermocouples positioned in accordance with test plan		
	Adequately labeled and secured		
	Quality Assurance verification done		
	Description of thermocouples:		
IV.	**FIRE BARRIER**	[redacted]	
	Name or type of material DC 732 + CFB		
	INTERTEK received material documentation provided by Client		
	Materials provided by INTERTEK properly documented		
	Materials installed by INTERTEK in accordance with test plan		
	INTERTEK Quality Assurance responsibilities determined		
	QA responsibilities of Client installation determined		
	Moisture check required ..... Yes ___ No X		
	Special requirements		

V. FINAL PREBURN VERIFICATION

Final visual inspection & approval (initials) INTERTEK [redacted] Client [redacted]

CALIBRATION DOCUMENTATION (S/N and calibration due date)

Data Acquisition Equipment: ~~SEE TEST DATA PACKAGE~~

Other Measurement Devices:

Temperature 63 Humidity 26 Date 1-21-14 Time of Test start 12:17P

INTERTEK pre-burn checklist performed by [redacted]

Client representative present to witness test [redacted]

Note: Verification to be made using initials by INTERTEK Quality Assurance or test personnel.

09-013-12/30/03

Intertek

TEST ACTIVITIES EVENT LOG

Note:
This Log is used to document the date and note the significant events during the completion of Test Project #G101276459SAT-016 for AREVA NP, Inc.

Page 1 of 1

ITEM	DATE	INIT'L
~~Concrete poured by Alamo Concrete~~	~~12/4/13~~	~~MD~~
Critical attributes of test slab verified	12/17/13	MD
Completed seal assemblies verified against the test plan	12/19/13	MD
Pressure Test #10 conducted	1/9/14	MD
Seismic Pressure Test #8 conducted using the same assembly	1/21/14	MD

9/12 NQAP-007.7.3

Certificate of Conformance

Client Name: AREVA NP Inc. Date: September 4, 2014

Project No: G101276459SAT-016

Intertek Testing Services NA (Intertek) has conducted testing for AREVA NP Inc., on the seismic pressure resistance capabilities of Dow Corning® 732 Multi-Purpose Sealant (DC-732) and Unifrax Durablanket® S (Durablanket) through a 12" thick concrete deck for compliance with the applicable requirements of and in accordance with AREVA NP Inc. Document No. 51-9217022-000, *Detailed Test Plan for Conducting MOX Seismic Pressure Test 8*. This test took place on January 21, 2014.

The materials, processes), and deliverable(s) in this project were managed under and conform to the test laboratory's 10CFR50 Appendix B Quality Assurance Program.

[redacted]

Michael A Brown
Quality Supervisor

September 4, 2014
Date

Intertek Testing Laboratory
16015 Shady Falls Road, Elmendorf TX 78112
210-635-8100

Quality Assurance Statement

Intertek is devoted to engineering, inspection, quality assurance and testing of building materials, products and assemblies. Intertek has developed and implemented a Quality Assurance Program designed to provide its clients with a planned procedure of order and document processing for inspection and testing services it provides to assure conformity to requirements, codes, standards and specifications. The Program is designed to meet the intent of ANSI 45.2 Quality Assurance Program Requirements for Nuclear Power Plants, and complies with the requirements of the ASME Code, SPPE, Military Standards and other less stringent programs. It is the Laboratory's intention to adhere strictly to this Program, to assure that the services offered to its clients remains of the highest quality and accuracy possible.

All QA Surveillance documents remain on file at the Laboratory, and are available for inspection by authorized personnel in the performance of an on-site QA Audit. All materials, services and supplies used herein were obtained with appropriate QA Certifications of Compliance.

REVISION SUMMARY

DATE	SUMMARY
September 4, 2014	Original Issue Date