

# TEST REPORT

Accepted for Use

# Intertek

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**RENDERED TO**

AREVA NP Inc.

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	AREVA NP Inc.
58-9224039-000	

**PRODUCTS EVALUATED:**

Arlon Silicone Impregnated Fiberglass Fabric, IDEAL Clamp 9/16" All Stainless Steel 64 Series, Unifrax Fiberfrax® Durablanket®, Quantum Silicones QSi 5558MC Silicone Elastomer, Dow Corning® Sylgard 170 Silicone Elastomer, Promatec SF-150NH High-Density Silicone Elastomer, Dow Corning® 732 Multi-Purpose Sealant and Dow Corning® 790 Silicone Building Sealant

**EVALUATION PROPERTY:** Seismic Pressure Resistance (Seismic Pressure Test 4)

**Report of Testing pressure resistance capabilities for compliance with the applicable requirements of AREVA NP Inc. Test Plan, Document No. 51-9208265-000**

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# 1 Table of Contents

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<b>ITEM</b>	<b>PAGE</b>
1 Table of Contents	2
2 Introduction	3
3 Test Samples	3
4 Testing and Evaluation Methods	4
5 Testing and Evaluation Results	16
6 Conclusions	22
Appendices	
Appendix A: Assembly Drawings	23
Appendix B: Data	24
Appendix C: Photographs	135
Appendix D: Test Plan	158
Appendix E: Commercial Grade Dedication-Related Documents	186
Appendix F: Quality Documents	188
Revision Summary / Last Page of Report	202



## 2 Introduction

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Intertek Testing Services NA (Intertek) has conducted testing for AREVA NP Inc., on the seismic pressure resistance capabilities of Arlon Silicone Impregnated Fiberglass Fabric, IDEAL Clamp 9/16" All Stainless Steel 64 Series, Unifrax Fiberfrax® Durablanket®, Quantum Silicones QSil 5558MC Silicone Elastomer, Dow Corning® Sylgard 170 Silicone Elastomer, Promatec SF-150NH High-Density Silicone Elastomer, Dow Corning® 732 Multi-Purpose Sealant and Dow Corning® 790 Silicone Building Sealant through a 12" thick concrete deck, for compliance with the applicable requirements of and in accordance with AREVA NP Inc. Document No. 51-9208265-000, *Detailed Test Plan for Conducting Seismic Pressure Test 4*. This evaluation took place on October 22, 2013.

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 6 without any changes. Refer to AREVA Doc. 58-9223133-000 or Intertek Test Report No. 101276459SAT-001B for details on Pressure Test 6.

## 3 Test Samples

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### 3.1. SAMPLE SELECTION

The sealant materials were not independently selected for testing; they were supplied by AREVA NP Inc., and were received in several shipments from June 13 to September 10, 2013. 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
Arlon 56493F031 Boot Material	080212Z7F	NA
Ideal Hose Clamps	64720, 64104, 64880 (Series Numbers)	NA
Durablanket® S	32039	NA
QSil 5558 MC	130606	6/14/2014
DC- 790 Sealant	0007390959	4/24/2014
DC- 170 Elastomer	063B03	6/30/2014
SF-150NH Elastomer	NH093B04	3/31/2014
DC- 732 Sealant	0007251823	5/29/2014

Information regarding receiving dates and origin of all the materials in the test assembly can be found in Appendix F: Quality Documents of Pressure Test 6 (Intertek Test Report No. 101276459SAT-001B; AREVA document 58-9223133-000). All samples were received in good condition at the Evaluation Center.

### 3.2. SAMPLE AND ASSEMBLY DESCRIPTION

The test assembly used in this test was the same assembly tested first as Pressure Test 6. A detailed description of the test assembly can be found in AREVA NP Inc. Engineering Record 51-9208265-000, *Detailed Test Plan for Conducting Seismic Pressure Test 4* which is contained in Appendix D. For drawings of the concrete deck and penetrations please refer to Appendix A of Pressure Test 6 (Intertek Report No. 101276459SAT-001B; AREVA document 58-9223133-000). The test assembly consisted of a 12" thick concrete slab measuring approximately 96" x 96" (8' x 8'). Within this slab there were four penetrations, two (2) 12" diameter openings, and two 16" x 16" blockouts. 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).

## 4 Testing and Evaluation Methods

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This Test Plan in Appendix D defines the test methods, acceptance criteria and test report documentation requirements for penetration seal Seismic Pressure Test 4. 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 seal Seismic Pressure Test 4 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 seismic 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
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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





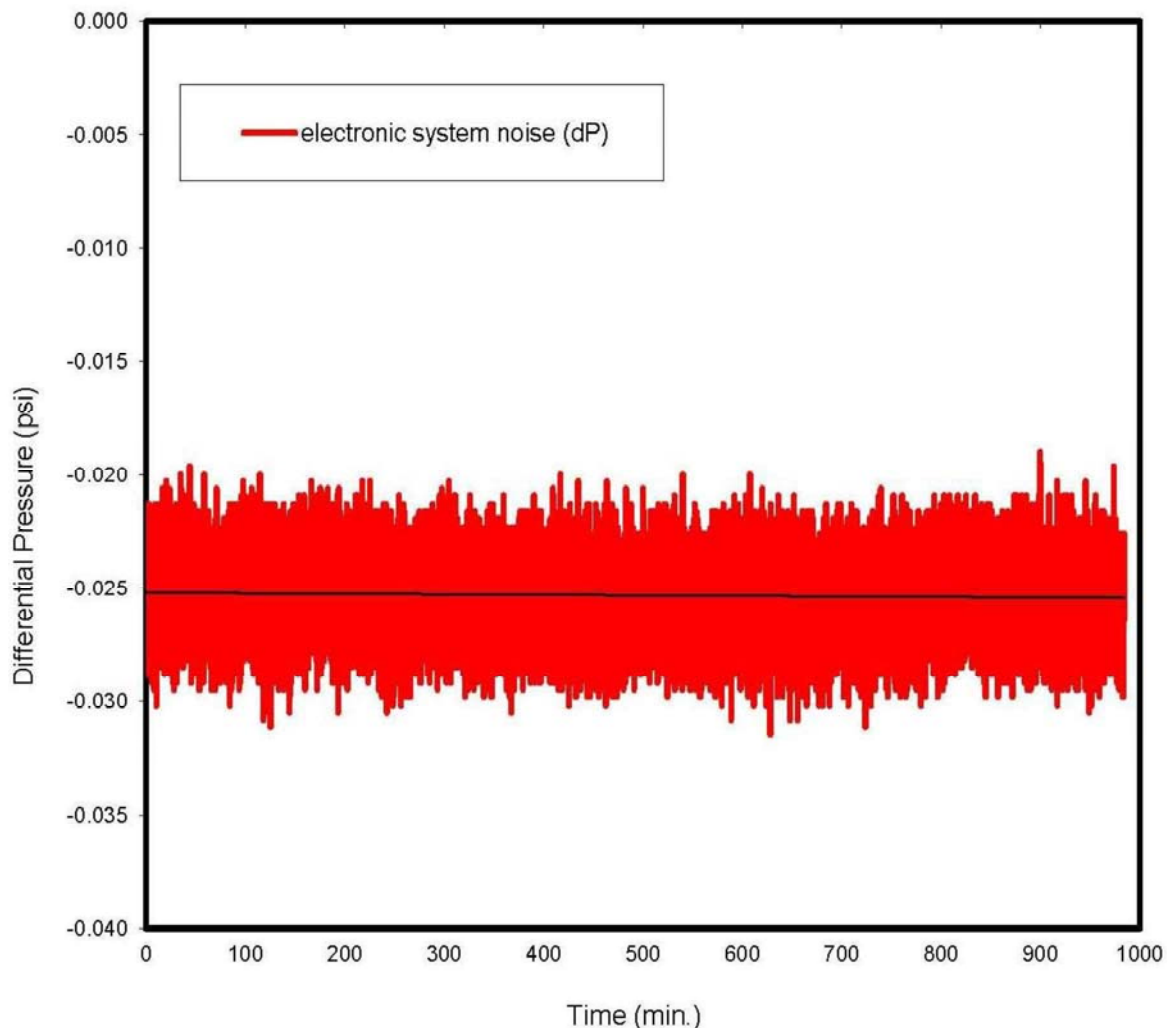
Dedicated CPU

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.

### 16-hr Average Electronic Noise (dP = -0.0253 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. 51-9208265-000

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" [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 were required to be considered concurrently with a seismic event.

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

### 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	45 (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: Although Seismic Pressure Test 4 is testing the same seal assemblies that were tested in Pressure Test 6, Seismic Pressure Test 4 is only intended to seismically qualify boot seal assemblies and silicone elastomer seal materials installed in piping penetrations. The high density seal material contained in this test specimen (i.e., the penetration with SF-150NH material) is not being seismically qualified by this test. The SF-150NH material has a nominal density of approximately 150 pcf, which is significantly higher than the other materials contained in this test. Therefore, the SF-150NH material must be subjected to much higher pressures in order to be seismically qualified. For this reason, the SF-150NH material will be evaluated under Seismic Pressure Test 7, which is described in AREVA Test Plan document 51-9209334-000.

For the silicone elastomer seals materials contained in Seismic Pressure Test 4, a nominal density of 85 pcf was used for the purposes of determining the test penetration seal's weight per square foot. 85 pcf bounds both the DC-170 and QSil 5558MC silicone elastomer seal materials with margin. 85 pcf times a seal depth of 8", yields a seal weight of approximately 56.7 psf. Based on Figure B-2.1 of Reference 12.1, the corresponding seismic pressure for a seal weight of 56.7 psf is approximately 44.7 inches w.g. Therefore, for Seismic Pressure Test 4 an equivalent seismic pressure of 45 inches w.g. shall be used to seismically qualify the silicone elastomer seal materials.

The boot seal assemblies in Seismic Pressure Test 4 are considered to be bounded by the 45 inches w.g. pressure being applied for silicone elastomer seal materials. Boot seal assemblies are comprised of multiple components each having a different mass. Example 3 in Attachment C of Reference 12.1 of the Test Plan implies that a boot seal will have a known weight. This is not the case, since a boot assembly is not a pre-manufactured component, but rather it is an assembly of materials custom made at the penetration for each required application. The boot assemblies contained in Seismic Pressure Test 4 are bounded by the 45 inches w.g. pressure with substantial margin based on the following logic:

Boot assemblies are comprised of a silicone rubber boot installed on both sides of the penetration, with a 12" depth of ceramic fiber blanket material installed in the annular space between the pipe and the inside of the penetration. Stainless steel hose clamps are used to clamp the boot fabric to the pipe and the sleeve on both sides of the penetration (4 clamp locations total). Each clamp location, as well as the longitudinal boot fabric seam, contain varying amounts of silicone caulk applied as an adhesive at these locations. This compilation of materials is bounded silicone elastomer seal material weight of 56.7 psf as described below.

For a one square foot boot assembly, the annular space between the pipe and the opening would be filled with a 12" depth of 6 pcf ceramic fiber blanket material installed with blanket material compressed approximately 50%. Discounting the space occupied by the pipe, a conservative approximation of the mass of the ceramic fiber blanket material would be 12 lbs (approximated as 1 sqft times 1 ft depth times 6 pcf times 50% compression equals 12 lbs). The amount of boot fabric required for a one square foot boot assembly on one side of the penetration is much less than 1 square yard. Boot fabric weighs approximately 33.1 ounces per square yard (~ 2 lbs).

Considering there are two boots required for each assembly (one boot on each side of the wall), a conservative approximation of the mass of the boot material would be 4 lbs. A bead of silicone caulk is installed and spread at the longitudinal seam of the boot and at the boot to pipe and boot to sleeve interface. A conservative approximation for the mass of caulk required to assemble and install a one square foot boot assembly on both sides of a wall or floor penetration would be 2 lbs. The stainless steel hose clamps are completely self-supported by their compressive force and thus, they do not add to the mass of the overall boot seal assembly. Therefore, a conservative total mass for a one square foot boot assembly is 18 lbs (or 18 psf; approximated by 12 lbs of ceramic fiber plus 4 lbs of boot fabric plus 2 lbs of silicone caulk for a 1 square foot penetration sealed with a boot assembly). This mass is approximately 1/3 the mass per square foot for the silicone elastomer seal material being qualified in Seismic Pressure Test 4. Therefore, boot assembly seismic qualification is bounded by the 45 inches w.g. being applied in this test.

The test assembly was attached to the seismic pressure test apparatus and subjected to the pressures identified in the table above.

For Stage 1, the test assembly was attached to the seismic pressure test apparatus and subjected to air pressure test at the select pressure level identified in the table above. Once this pressure was 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 was achieved, the pressure was vented from the test chamber. Next, the pressure identified in the table 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 was 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 has 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 failed during this time, the time of failure was to be noted and the test stopped.

Following completion of Stage 4 seismic 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 8 inches and a seal material density of 85 pcf. Since the test was successful, subsequent testing pressures were evaluated for a 10 inch depth of material (56 inches w.g.) and a 12 inch depth of material (67 inches w.g.). These tests were designated Stages 1a-4a and 1b-4b, respectively.

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



## 5 Testing and Evaluation Results

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### 5.1. RESULTS AND OBSERVATIONS

The test was initiated at 10:30 a.m. on October 22, 2013. Scott Groesbeck, representing AREVA NP Inc. was present to witness the test. The ambient temperature at the start of the test was 70°F, with a relative humidity of 39%.

The test procedure followed that presented in Section 9.0 of the Test Plan, except that 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 56" 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. A similar process was followed, the top side pressure of 67 w.g. applied, and the test continued for Stages 1b-4b. 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.

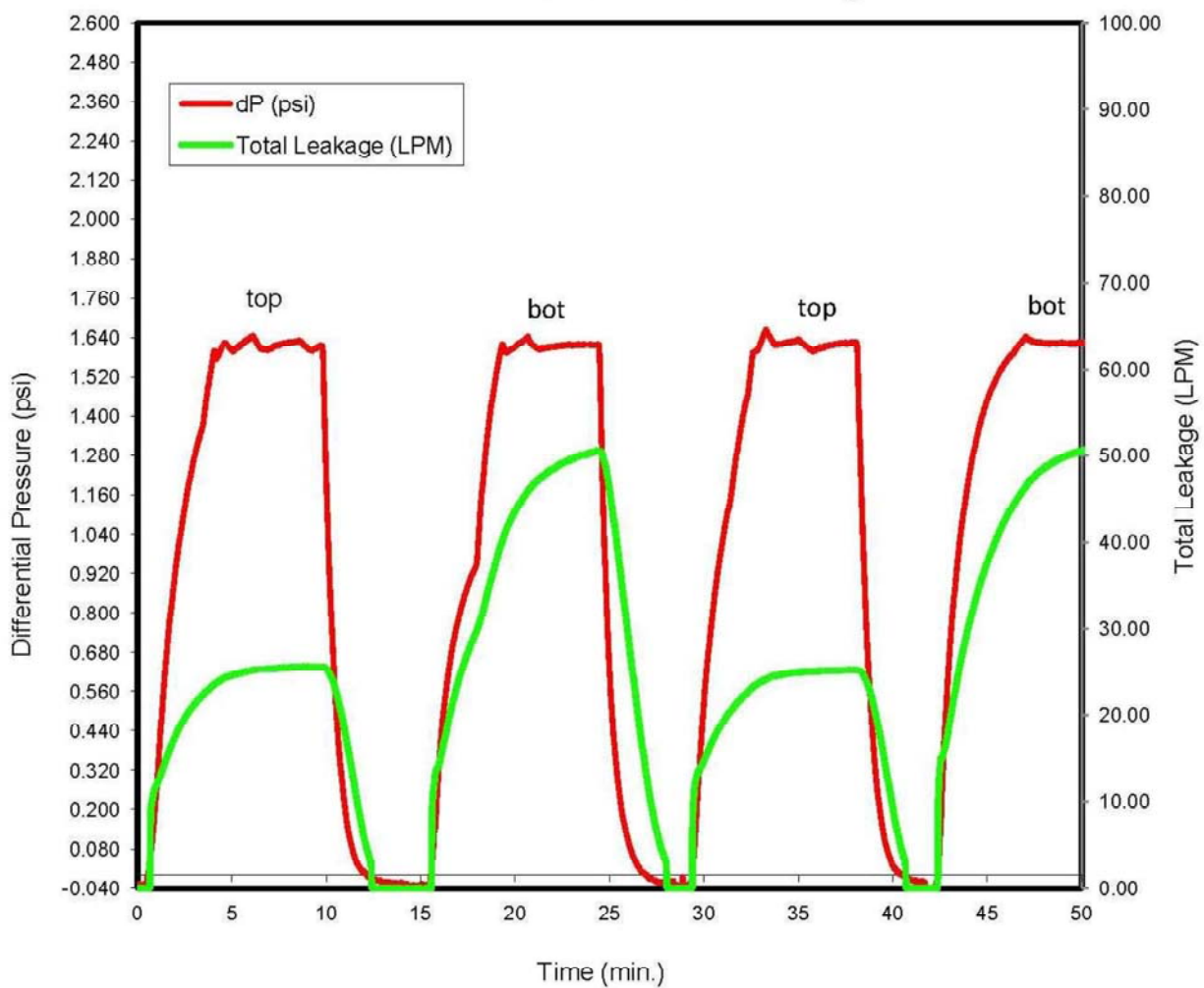
The graphs and table on the following page(s) provide a summary of results and observations for the various pressure stages, any observed leakage, and whether the seal remained in place. Appendix B of this test report contains the raw data for this test.

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 through a mass flow meter.

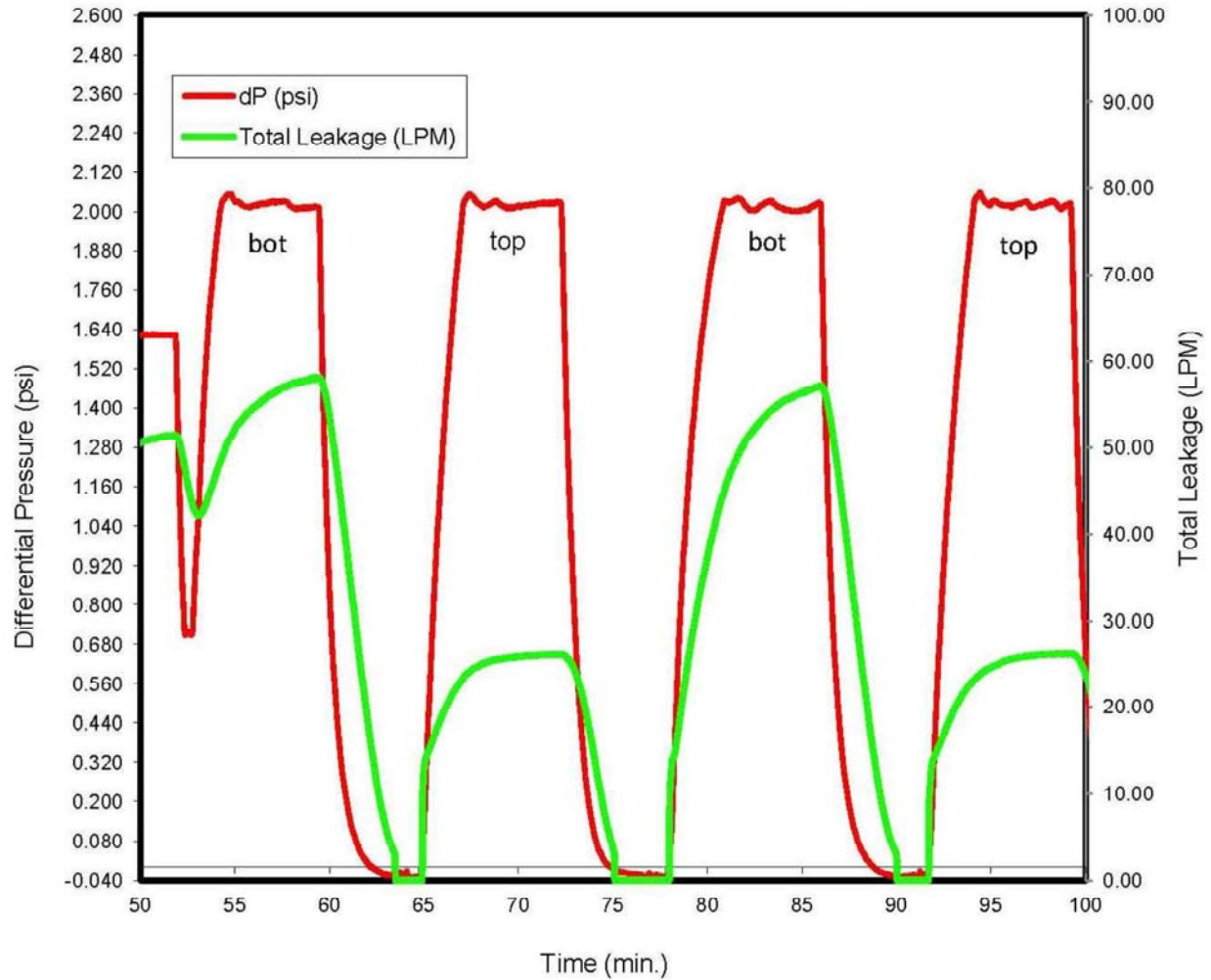
Additionally, it should be noted that when changing between mass flowmeters during a pressure test, valve lineups and flowpath routes are changed. The time it takes to manipulate the valves, differences in tubing sizes, orifice sizes and mass flowmeter throughput capacity all affect bonnet pressure on 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**  
**Chamber Differential Pressure and Seal Leakage**  
**Seismic Pressure Test 4 - 45-in w.g.**

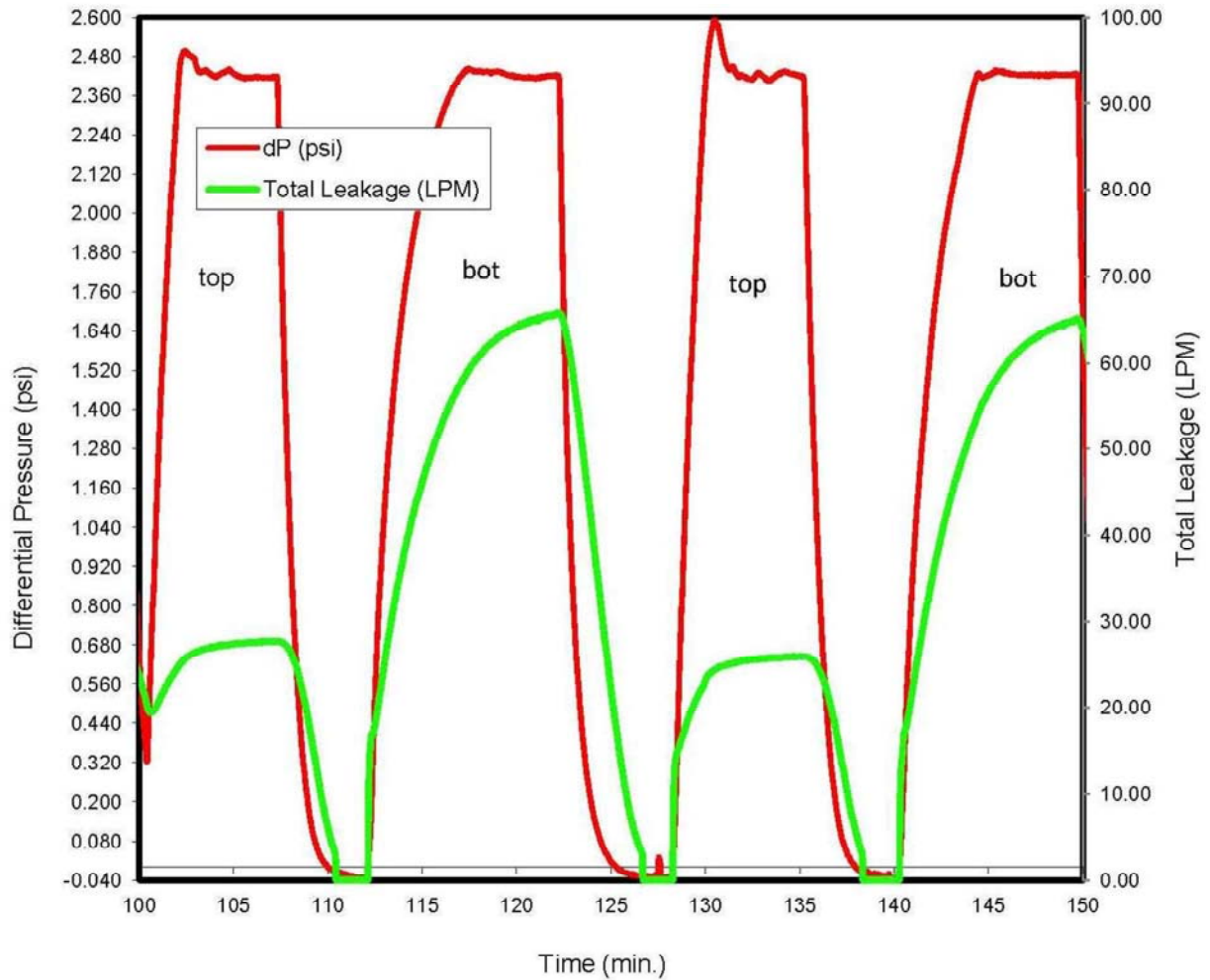


**Stage 1a-4a**  
**Chamber Differential Pressure and Seal Leakage**  
**Seismic Pressure Test 4 - 56-in w.g.**





**Stage 1b-4b**  
**Chamber Differential Pressure and Seal Leakage**  
**Seismic Pressure Test 4 - 67-in w.g.**



### 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	45	4.6	5	Seal Remains In Place	PASS
2	BOTTOM	45	19.5	5	Seal Remains In Place	PASS
3	TOP	45	33	5	Seal Remains In Place	PASS
4	BOTTOM	45	46.8	5	Seal Remains In Place	PASS
1a	BOTTOM	56	54.5	5	Seal Remains In Place	PASS
2a	TOP	56	67.2	5	Seal Remains In Place	PASS
3a	BOTTOM	56	80.7	5	Seal Remains In Place	PASS
4a	TOP	56	94.2	5	Seal Remains In Place	PASS
1b	TOP	67	103	5	Seal Remains In Place	PASS
2b	BOTTOM	67	117	5	Seal Remains In Place	PASS
3b	TOP	67	130	5	Seal Remains In Place	PASS
4b	BOTTOM	67	144.4	5	Seal Remains In Place	PASS

## 5.2. POST TEST EXAMINATION

Following completion of Seismic Pressure Test 4, 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.

Following visual inspection of the top side of the test assembly, pressure was applied to the bottom chamber and a soapy-water solution was sprayed on the top side of the seal. Leaks were observed at the following locations:

- Pen. 1 - Leaks at galvanized sleeve to concrete interface. Leaks at boot/pipe interface (See discussion below regarding destructive examination for the source of this leak).
- Pen. 2 – Leaks at DC-170/sleeve interface. Leaks at QSil 5558MC/sleeve interface.
- Pen. 3 – No leaks.
- Pen. 4 – Only leak is at sleeve seam bolt which was not caulked.

### Destructive Examination

A destructive examination of Pen. 1 was conducted to investigate the leak at the boot/pipe interface. This effort revealed that the leak was occurring at the clamp head due to a tiny fold in the boot material that created a tunnel for leakage. See pictures in Appendix C.

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

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Intertek Testing Services NA (Intertek) has conducted testing for AREVA NP Inc., on the seismic pressure resistance capabilities of Arlon Silicone Impregnated Fiberglass Fabric, IDEAL Clamp 9/16" All Stainless Steel 64 Series, Unifrax Fiberfrax® Durablanket®,S Quantum Silicones QSil 5558MC Silicone Elastomer, Dow Corning® Sylgard 170 Silicone Elastomer, Promatec SF-150NH High-Density Silicone Elastomer, Dow Corning® 732 Multi-Purpose Sealant and Dow Corning® 790 Silicone Building Sealant in a 12" thick concrete deck for compliance with the applicable requirements of and in accordance with AREVA NP Inc. Document No. 51-9208265-000, *Detailed Test Plan for Conducting Seismic Pressure Test 4*. This evaluation took place on October 22, 2013.

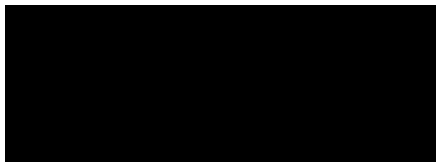
The seals in Seismic Pressure Test 4 met the acceptance criteria as defined in the Test Plan.

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.

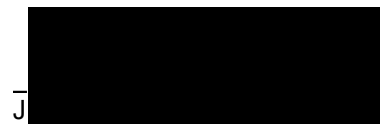
### INTERTEK TESTING SERVICES NA

Reported by:



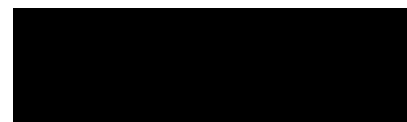
Mike Dey  
**Staff Engineer**

Reviewed by:



**Project Engineer, Fire Resistance**

Reviewed by:



Michael A. Brown  
**Quality Supervisor**

## APPENDIX A

### Assembly Drawings

The test assembly used in Seismic Pressure Test 4 was the same assembly tested in Pressure Test 6. A detailed description of the assembly is presented in the Test Plan in Appendix D. For drawings of the assembly, please refer to the final test report for Pressure Test 6 (Intertek Report No. 101276459SAT-001B; AREVA document 58-9223133-000).

## APPENDIX B

### Test Data

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
0	-0.0269	0.0055	0.001	0.0065
0.0333	-0.0242	0.0055	0	0.0055
0.0667	-0.0255	0.0055	0.001	0.0065
0.1	-0.0265	0.0055	0	0.0055
0.1333	-0.0295	0.0055	0.001	0.0065
0.1667	-0.0295	0	0	0
0.2	-0.0279	0	0.001	0.001
0.2333	-0.0288	0	0	0
0.2667	-0.0279	0	0	0
0.3	-0.0279	0.0055	0	0.0055
0.3333	-0.0252	0.0055	0.0023	0.0078
0.3667	-0.0272	0	0	0
0.4	-0.0298	0.0055	0.0023	0.0078
0.4333	-0.0269	0	0.001	0.001
0.4667	-0.0249	0	0.001	0.001
0.5	-0.0196	0	0.001	0.001
0.5333	-0.0068	0	0	0
0.5667	0.006	0	0.001	0.001
0.6	0.0153	0.0055	0	0.0055
0.6333	0.0284	0	0	0
0.6667	0.0426	0.0055	0	0.0055
0.7	0.0574	8.6054	0.001	8.6064
0.7333	0.0791	9.3155	0	9.3155
0.7667	0.1005	9.973	0	9.973
0.8	0.1189	10.4069	0.001	10.4079
0.8333	0.141	10.7751	0	10.7751
0.8667	0.1617	11.0644	0	11.0644
0.9	0.1877	11.3142	0.001	11.3152
0.9333	0.2068	11.5904	0	11.5904
0.9667	0.2318	11.6956	0	11.6956
1	0.2499	11.906	0.001	11.907
1.0333	0.2756	11.998	0.001	11.999
1.0667	0.3006	12.1821	0	12.1821
1.1	0.3306	12.3268	0.001	12.3278
1.1333	0.3586	12.4977	0.001	12.4987
1.1667	0.3892	12.7213	0.001	12.7223
1.2	0.4204	12.9711	0	12.9711
1.2333	0.4468	13.1947	0	13.1947
1.2667	0.4774	13.4314	0	13.4314
1.3	0.5014	13.6417	0.001	13.6427
1.3333	0.5274	13.7864	0.0023	13.7887
1.3667	0.5534	14.0099	0.001	14.0109
1.4	0.5764	14.2466	0	14.2466

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
1.4333	0.6005	14.4044	0.001	14.4054
1.4667	0.6242	14.628	0	14.628
1.5	0.6482	14.7858	0	14.7858
1.5333	0.6702	15.0225	0	15.0225
1.5667	0.6893	15.1671	0	15.1671
1.6	0.713	15.3644	0.001	15.3653
1.6333	0.7311	15.5879	0.0023	15.5902
1.6667	0.7509	15.8246	0.001	15.8256
1.7	0.7716	15.9298	0.0023	15.9321
1.7333	0.7891	16.1402	0.001	16.1412
1.7667	0.8081	16.4032	0.001	16.4042
1.8	0.8246	16.561	0	16.561
1.8333	0.8394	16.7582	0	16.7582
1.8667	0.8585	16.9029	0.001	16.9039
1.9	0.8769	17.0738	0	17.0738
1.9333	0.8894	17.2316	0.001	17.2326
1.9667	0.9062	17.4157	0.001	17.4167
2	0.923	17.5341	0.0023	17.5364
2.0333	0.9398	17.7445	0	17.7445
2.0667	0.9543	17.8628	0.0023	17.8651
2.1	0.9691	18.0206	0	18.0206
2.1333	0.9829	18.2047	0	18.2047
2.1667	0.9967	18.3362	0	18.3362
2.2	1.0112	18.4414	0.001	18.4424
2.2333	1.0244	18.6386	0.001	18.6396
2.2667	1.0369	18.8096	0.001	18.8106
2.3	1.0494	18.9279	0	18.9279
2.3333	1.0619	19.0726	0	19.0726
2.3667	1.0741	19.1909	0.001	19.1919
2.4	1.0876	19.3093	0.001	19.3103
2.4333	1.0988	19.4408	0	19.4408
2.4667	1.109	19.5723	0	19.5723
2.5	1.1212	19.638	0	19.638
2.5333	1.132	19.809	0	19.809
2.5667	1.1442	19.8747	0	19.8747
2.6	1.157	20.0457	0.001	20.0467
2.6333	1.1656	20.1377	0.001	20.1387
2.6667	1.1771	20.2429	0.001	20.2439
2.7	1.1876	20.335	0	20.335
2.7333	1.1972	20.4665	0	20.4665
2.7667	1.208	20.5848	0.001	20.5858
2.8	1.2156	20.6374	0	20.6374
2.8333	1.2242	20.7689	0	20.7689



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
2.8667	1.235	20.8609	0.0023	20.8632
2.9	1.2456	20.9793	0	20.9793
2.9333	1.2548	21.0582	0	21.0582
2.9667	1.2643	21.1239	0.0023	21.1262
3	1.2735	21.2291	0.001	21.2301
3.0333	1.2791	21.3738	0.001	21.3748
3.0667	1.288	21.4132	0.001	21.4142
3.1	1.2963	21.4527	0.001	21.4537
3.1333	1.3028	21.5579	0.001	21.5589
3.1667	1.3114	21.6762	0	21.6762
3.2	1.3193	21.7683	0	21.7683
3.2333	1.3282	21.8209	0	21.8209
3.2667	1.3315	21.9261	0.001	21.9271
3.3	1.3423	21.9392	0	21.9392
3.3333	1.3483	22.0576	0	22.0576
3.3667	1.3525	22.1102	0	22.1102
3.4	1.3608	22.1628	0.001	22.1638
3.4333	1.367	22.2943	0.001	22.2953
3.4667	1.3716	22.2811	0	22.2811
3.5	1.3845	22.3469	0	22.3469
3.5333	1.4016	22.4521	0.001	22.4531
3.5667	1.4147	22.4784	0	22.4784
3.6	1.4319	22.6493	0	22.6493
3.6333	1.4473	22.6493	0	22.6493
3.6667	1.4579	22.7282	0.001	22.7292
3.7	1.4733	22.8203	0.001	22.8212
3.7333	1.4878	22.9255	0	22.9255
3.7667	1.4974	22.8729	0.001	22.8738
3.8	1.5105	23.0438	0.001	23.0448
3.8333	1.5263	23.1096	0	23.1096
3.8667	1.5345	23.1358	0	23.1358
3.9	1.5451	23.1884	0.0023	23.1908
3.9333	1.5586	23.2673	0.0023	23.2696
3.9667	1.5694	23.3725	0.001	23.3735
4	1.5763	23.4646	0.001	23.4656
4.0333	1.5921	23.504	0.001	23.505
4.0667	1.6007	23.5698	0	23.5698
4.1	1.5991	23.6355	0.001	23.6365
4.1333	1.5882	23.675	0	23.675
4.1667	1.577	23.7144	0.001	23.7154
4.2	1.5757	23.767	0.001	23.768
4.2333	1.5819	23.7802	0.001	23.7812
4.2667	1.5819	23.8328	0	23.8328

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
4.3	1.5882	23.8985	0	23.8985
4.3333	1.5912	23.9248	0.001	23.9258
4.3667	1.5968	23.9906	0.001	23.9916
4.4	1.601	24.0826	0	24.0826
4.4333	1.606	24.0826	0	24.0826
4.4667	1.6099	24.0826	0.001	24.0836
4.5	1.6155	24.1615	0	24.1615
4.5333	1.6175	24.201	0	24.201
4.5667	1.6201	24.2273	0	24.2273
4.6	1.6247	24.3193	0	24.3193
4.6333	1.626	24.3325	0	24.3325
4.6667	1.6241	24.3588	0	24.3588
4.7	1.6228	24.4114	0	24.4114
4.7333	1.6201	24.3719	0	24.3719
4.7667	1.6165	24.4245	0.001	24.4255
4.8	1.6145	24.4114	0	24.4114
4.8333	1.6116	24.4771	0.001	24.4781
4.8667	1.6076	24.4508	0	24.4508
4.9	1.6076	24.5297	0	24.5297
4.9333	1.6056	24.5034	0	24.5034
4.9667	1.6017	24.5955	0.001	24.5965
5	1.6023	24.5823	0.001	24.5833
5.0333	1.601	24.6349	0	24.6349
5.0667	1.5964	24.6349	0.001	24.6359
5.1	1.601	24.6218	0.001	24.6228
5.1333	1.5997	24.7138	0.001	24.7148
5.1667	1.6033	24.6875	0.001	24.6885
5.2	1.6053	24.7664	0.001	24.7674
5.2333	1.6089	24.727	0.001	24.728
5.2667	1.6083	24.7401	0.001	24.7411
5.3	1.6139	24.7927	0.0023	24.795
5.3333	1.6135	24.8453	0.001	24.8463
5.3667	1.6099	24.819	0.001	24.82
5.4	1.6149	24.8322	0	24.8322
5.4333	1.6204	24.8585	0	24.8585
5.4667	1.6168	24.8453	0.0023	24.8476
5.5	1.6172	24.9374	0	24.9374
5.5333	1.6231	24.99	0	24.99
5.5667	1.6231	24.9505	0	24.9505
5.6	1.6251	24.9505	0.001	24.9515
5.6333	1.6251	24.9374	0	24.9374
5.6667	1.6307	24.9768	0	24.9768
5.7	1.632	25.0426	0	25.0426

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
5.7333	1.6303	24.9768	0	24.9768
5.7667	1.6307	24.99	0.001	24.9909
5.8	1.6359	25.082	0	25.082
5.8333	1.6369	25.0557	0.001	25.0567
5.8667	1.6359	25.0952	0.001	25.0961
5.9	1.6366	25.0557	0	25.0557
5.9333	1.6372	25.1083	0	25.1083
5.9667	1.6382	25.1083	0	25.1083
6	1.6432	25.1872	0.001	25.1882
6.0333	1.6418	25.2004	0.001	25.2013
6.0667	1.6432	25.1346	0	25.1346
6.1	1.6441	25.1872	0.001	25.1882
6.1333	1.6458	25.2924	0.001	25.2934
6.1667	1.6425	25.2793	0	25.2793
6.2	1.6386	25.2398	0.001	25.2408
6.2333	1.6353	25.2004	0.001	25.2013
6.2667	1.6307	25.2793	0	25.2793
6.3	1.6277	25.2924	0.001	25.2934
6.3333	1.6244	25.2924	0	25.2924
6.3667	1.6208	25.3187	0.001	25.3197
6.4	1.6152	25.2793	0	25.2793
6.4333	1.6162	25.2924	0.001	25.2934
6.4667	1.6106	25.253	0.001	25.2539
6.5	1.606	25.2924	0.001	25.2934
6.5333	1.6083	25.3187	0.001	25.3197
6.5667	1.6083	25.2924	0	25.2924
6.6	1.6053	25.3056	0.001	25.3065
6.6333	1.6037	25.3319	0	25.3319
6.6667	1.6079	25.2924	0.001	25.2934
6.7	1.6043	25.3187	0.001	25.3197
6.7333	1.6047	25.345	0	25.345
6.7667	1.6027	25.2924	0	25.2924
6.8	1.6047	25.3319	0	25.3319
6.8333	1.6033	25.3582	0	25.3582
6.8667	1.6043	25.2924	0	25.2924
6.9	1.6014	25.4239	0	25.4239
6.9333	1.602	25.345	0.001	25.346
6.9667	1.6043	25.3582	0.0023	25.3605
7	1.606	25.3976	0.001	25.3986
7.0333	1.606	25.3187	0.001	25.3197
7.0667	1.6089	25.3976	0.001	25.3986
7.1	1.6116	25.3845	0	25.3845
7.1333	1.607	25.3845	0.0023	25.3868

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
7.1667	1.6109	25.3319	0.001	25.3328
7.2	1.6106	25.3976	0	25.3976
7.2333	1.6158	25.3713	0.001	25.3723
7.2667	1.6139	25.4108	0	25.4108
7.3	1.6132	25.4371	0.001	25.438
7.3333	1.6178	25.3582	0.0023	25.3605
7.3667	1.6175	25.4108	0.0023	25.4131
7.4	1.6162	25.4371	0	25.4371
7.4333	1.6191	25.4502	0	25.4502
7.4667	1.6191	25.4239	0.001	25.4249
7.5	1.6158	25.4239	0	25.4239
7.5333	1.6208	25.4765	0	25.4765
7.5667	1.6214	25.5028	0	25.5028
7.6	1.6191	25.4765	0	25.4765
7.6333	1.6218	25.4765	0	25.4765
7.6667	1.6211	25.4371	0.001	25.438
7.7	1.6234	25.4108	0	25.4108
7.7333	1.6241	25.5422	0.001	25.5432
7.7667	1.6234	25.4502	0	25.4502
7.8	1.6237	25.4765	0	25.4765
7.8333	1.6241	25.4502	0	25.4502
7.8667	1.6247	25.4634	0	25.4634
7.9	1.6241	25.5028	0.001	25.5038
7.9333	1.6264	25.4634	0.001	25.4643
7.9667	1.6267	25.4897	0	25.4897
8	1.6228	25.516	0	25.516
8.0333	1.6237	25.4765	0	25.4765
8.0667	1.6247	25.5291	0.001	25.5301
8.1	1.626	25.5554	0.001	25.5564
8.1333	1.6267	25.5817	0	25.5817
8.1667	1.6287	25.5554	0.0023	25.5577
8.2	1.6267	25.5948	0	25.5948
8.2333	1.6267	25.5685	0	25.5685
8.2667	1.627	25.5554	0	25.5554
8.3	1.627	25.5554	0	25.5554
8.3333	1.6287	25.6211	0.001	25.6221
8.3667	1.629	25.5554	0	25.5554
8.4	1.6274	25.5685	0.001	25.5695
8.4333	1.628	25.5422	0.001	25.5432
8.4667	1.6293	25.5422	0.001	25.5432
8.5	1.6307	25.5685	0	25.5685
8.5333	1.6303	25.608	0	25.608
8.5667	1.632	25.608	0.001	25.609

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
8.6	1.6303	25.5948	0.001	25.5958
8.6333	1.631	25.6211	0.001	25.6221
8.6667	1.6264	25.5422	0	25.5422
8.7	1.6267	25.6211	0	25.6211
8.7333	1.6251	25.5948	0.001	25.5958
8.7667	1.6234	25.6606	0.001	25.6616
8.8	1.6152	25.6211	0.001	25.6221
8.8333	1.6168	25.608	0.001	25.609
8.8667	1.6135	25.5817	0.001	25.5827
8.9	1.6142	25.6211	0	25.6211
8.9333	1.6142	25.5685	0	25.5685
8.9667	1.6096	25.5817	0.001	25.5827
9	1.6096	25.5685	0	25.5685
9.0333	1.607	25.6474	0	25.6474
9.0667	1.6047	25.5685	0.001	25.5695
9.1	1.6023	25.5554	0	25.5554
9.1333	1.6023	25.5422	0.001	25.5432
9.1667	1.6014	25.608	0.001	25.609
9.2	1.6004	25.5685	0.001	25.5695
9.2333	1.6023	25.5948	0.001	25.5958
9.2667	1.5984	25.608	0.001	25.609
9.3	1.603	25.6211	0.001	25.6221
9.3333	1.6033	25.5817	0	25.5817
9.3667	1.6066	25.5422	0.0023	25.5446
9.4	1.6073	25.608	0.001	25.609
9.4333	1.6063	25.5554	0.001	25.5564
9.4667	1.6063	25.5028	0	25.5028
9.5	1.6122	25.5422	0	25.5422
9.5333	1.6112	25.5948	0	25.5948
9.5667	1.6116	25.6211	0	25.6211
9.6	1.6142	25.5685	0	25.5685
9.6333	1.6119	25.5685	0.001	25.5695
9.6667	1.6158	25.6211	0	25.6211
9.7	1.6185	25.5554	0.001	25.5564
9.7333	1.6158	25.608	0	25.608
9.7667	1.6175	25.608	0.001	25.609
9.8	1.6122	25.6606	0.001	25.6616
9.8333	1.5596	25.608	0.001	25.609
9.8667	1.4825	25.6211	0	25.6211
9.9	1.4101	25.5685	0	25.5685
9.9333	1.341	25.5291	0	25.5291
9.9667	1.2729	25.4502	0	25.4502
10	1.2084	25.3845	0	25.3845

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
10.0333	1.1455	25.345	0	25.345
10.0667	1.0882	25.2661	0	25.2661
10.1	1.031	25.082	0.001	25.083
10.1333	0.9767	25.0031	0	25.0031
10.1667	0.926	24.8979	0	24.8979
10.2	0.8799	24.7007	0.001	24.7017
10.2333	0.8295	24.5823	0	24.5823
10.2667	0.7818	24.3982	0.001	24.3992
10.3	0.7436	24.2141	0	24.2141
10.3333	0.7012	24.0432	0.001	24.0442
10.3667	0.665	23.8196	0.001	23.8206
10.4	0.6281	23.6092	0.001	23.6102
10.4333	0.5906	23.3199	0.0023	23.3222
10.4667	0.5583	23.0701	0	23.0701
10.5	0.5267	22.7808	0.001	22.7818
10.5333	0.4988	22.5704	0.001	22.5714
10.5667	0.4658	22.3337	0.001	22.3347
10.6	0.4412	22.0181	0.001	22.0191
10.6333	0.4122	21.7551	0.001	21.7561
10.6667	0.3895	21.4395	0.001	21.4405
10.7	0.3678	21.1502	0	21.1502
10.7333	0.3434	20.8215	0	20.8215
10.7667	0.323	20.4796	0.001	20.4806
10.8	0.3019	20.0851	0	20.0851
10.8333	0.2822	19.7958	0	19.7958
10.8667	0.2654	19.4145	0	19.4145
10.9	0.2466	19.02	0.001	19.021
10.9333	0.2292	18.6386	0.001	18.6396
10.9667	0.2144	18.2836	0.001	18.2846
11	0.1999	17.8891	0	17.8891
11.0333	0.1851	17.5341	0	17.5341
11.0667	0.1683	17.1133	0	17.1133
11.1	0.1568	16.7451	0	16.7451
11.1333	0.1466	16.39	0.001	16.391
11.1667	0.1367	15.9429	0.001	15.9439
11.2	0.1222	15.6274	0.001	15.6283
11.2333	0.1147	15.1277	0	15.1277
11.2667	0.1035	14.7069	0	14.7069
11.3	0.0972	14.2861	0.001	14.2871
11.3333	0.0864	13.839	0	13.839
11.3667	0.0834	13.3919	0.001	13.3929
11.4	0.0755	12.958	0.001	12.9589
11.4333	0.0656	12.6292	0	12.6292



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
11.4667	0.062	12.1032	0	12.1032
11.5	0.0561	11.7087	0.001	11.7097
11.5333	0.0502	11.3142	0.0023	11.3165
11.5667	0.0449	10.8409	0.001	10.8418
11.6	0.0399	10.4201	0.001	10.421
11.6333	0.038	10.0387	0.0023	10.041
11.6667	0.0317	9.5916	0	9.5916
11.7	0.0321	9.2234	0	9.2234
11.7333	0.0251	8.8684	0	8.8684
11.7667	0.0255	8.4213	0.0023	8.4236
11.8	0.0195	8.0137	0.0023	8.016
11.8333	0.0156	7.6586	0.001	7.6596
11.8667	0.0166	7.2641	0.001	7.2651
11.9	0.0107	6.9222	0	6.9222
11.9333	0.0143	6.3962	0.001	6.3972
11.9667	0.0136	6.0675	0.001	6.0685
12	0.0116	5.7914	0	5.7914
12.0333	0.0097	5.5021	0.0023	5.5044
12.0667	0.0054	5.2259	0	5.2259
12.1	0.0024	4.9761	0	4.9761
12.1333	0.0051	4.6736	0	4.6736
12.1667	-0.0015	4.4369	0	4.4369
12.2	-0.0048	4.266	0	4.266
12.2333	-0.0058	3.9372	0.001	3.9382
12.2667	-0.0055	3.648	0.001	3.6489
12.3	-0.0042	3.3718	0	3.3718
12.3333	-0.0068	3.2403	0	3.2403
12.3667	-0.0088	3.0299	0.001	3.0309
12.4	-0.0094	0.0055	0	0.0055
12.4333	-0.0101	0	0	0
12.4667	-0.0124	0.0055	0	0.0055
12.5	-0.0124	0	0	0
12.5333	-0.0144	0.0186	0	0.0186
12.5667	-0.0107	0.0055	0.001	0.0065
12.6	-0.0144	0	0.001	0.001
12.6333	-0.015	0	0	0
12.6667	-0.0157	0.0055	0.001	0.0065
12.7	-0.0134	0	0.0023	0.0023
12.7333	-0.014	0	0.001	0.001
12.7667	-0.015	0.0055	0.0023	0.0078
12.8	-0.0163	0	0	0
12.8333	-0.0144	0.0055	0.001	0.0065
12.8667	-0.018	0.0055	0.0023	0.0078

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
12.9	-0.0203	0.0055	0	0.0055
12.9333	-0.02	0	0.001	0.001
12.9667	-0.019	0.0186	0.001	0.0196
13	-0.02	0.0055	0	0.0055
13.0333	-0.019	0.0055	0.001	0.0065
13.0667	-0.019	0	0.001	0.001
13.1	-0.0206	0.0055	0	0.0055
13.1333	-0.0226	0.0055	0.001	0.0065
13.1667	-0.0236	0	0.001	0.001
13.2	-0.0219	0.0186	0.001	0.0196
13.2333	-0.0252	0	0.001	0.001
13.2667	-0.0213	0.0186	0	0.0186
13.3	-0.0216	0	0.0023	0.0023
13.3333	-0.0209	0.0055	0.001	0.0065
13.3667	-0.0226	0	0	0
13.4	-0.0262	0	0.001	0.001
13.4333	-0.0229	0.0055	0.001	0.0065
13.4667	-0.0223	0.0055	0.0023	0.0078
13.5	-0.0226	0.0055	0	0.0055
13.5333	-0.0229	0	0.001	0.001
13.5667	-0.0226	0	0.001	0.001
13.6	-0.0262	0.0055	0	0.0055
13.6333	-0.0236	0.0055	0.001	0.0065
13.6667	-0.0242	0.0055	0.001	0.0065
13.7	-0.0232	0.0055	0	0.0055
13.7333	-0.0236	0.0055	0	0.0055
13.7667	-0.0328	0	0.001	0.001
13.8	-0.0295	0.0055	0.001	0.0065
13.8333	-0.0259	0	0.001	0.001
13.8667	-0.0272	0.0055	0.0023	0.0078
13.9	-0.0242	0.0055	0.001	0.0065
13.9333	-0.0249	0	0.001	0.001
13.9667	-0.0213	0.0186	0	0.0186
14	-0.0232	0	0.001	0.001
14.0333	-0.0249	0	0	0
14.0667	-0.0259	0	0	0
14.1	-0.0249	0	0	0
14.1333	-0.0298	0.0055	0.001	0.0065
14.1667	-0.0255	0	0	0
14.2	-0.0272	0	0.001	0.001
14.2333	-0.0262	0.0186	0.001	0.0196
14.2667	-0.0259	0.0055	0	0.0055
14.3	-0.0348	0.0055	0.0023	0.0078

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
14.3333	-0.0341	0.0055	0	0.0055
14.3667	-0.0305	0.0055	0.001	0.0065
14.4	-0.0311	0	0.001	0.001
14.4333	-0.0325	0.0055	0	0.0055
14.4667	-0.0305	0	0	0
14.5	-0.0351	0.0055	0	0.0055
14.5333	-0.0325	0	0.001	0.001
14.5667	-0.0308	0	0	0
14.6	-0.0288	0.0186	0.001	0.0196
14.6333	-0.0292	0.0055	0	0.0055
14.6667	-0.0318	0.0055	0.001	0.0065
14.7	-0.0321	0	0	0
14.7333	-0.0334	0.0055	0	0.0055
14.7667	-0.0311	0.0055	0.001	0.0065
14.8	-0.0318	0	0	0
14.8333	-0.0321	0.0055	0	0.0055
14.8667	-0.0321	0.0055	0	0.0055
14.9	-0.0302	0.0055	0	0.0055
14.9333	-0.0298	0.0055	0	0.0055
14.9667	-0.0292	0.0055	0	0.0055
15	-0.0285	0	0	0
15.0333	-0.0282	0	0	0
15.0667	-0.0272	0	0	0
15.1	-0.0269	0	0	0
15.1333	-0.0305	0.0055	0.001	0.0065
15.1667	-0.0318	0	0.001	0.001
15.2	-0.0279	0	0.001	0.001
15.2333	-0.0295	0.0055	0.001	0.0065
15.2667	-0.0318	0	0	0
15.3	-0.0275	0.0055	0.001	0.0065
15.3333	-0.0288	0.0055	0	0.0055
15.3667	-0.0292	0.0055	0	0.0055
15.4	-0.0275	0.0055	0.001	0.0065
15.4333	-0.0279	0.0318	0	0.0318
15.4667	-0.0288	0	0	0
15.5	-0.0104	0.0055	0.001	0.0065
15.5333	0.0021	0.0186	0.001	0.0196
15.5667	0.0182	0	0	0
15.6	0.0393	8.7237	0.001	8.7247
15.6333	0.0528	10.2097	0.0023	10.212
15.6667	0.0817	11.0907	0	11.0907
15.7	0.113	11.5772	0.001	11.5782
15.7333	0.1397	12.1032	0.001	12.1042

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
15.7667	0.1476	13.4971	0.0023	13.4994
15.8	0.1818	13.6549	0	13.6549
15.8333	0.2164	13.6943	0.001	13.6953
15.8667	0.2516	13.8258	0	13.8258
15.9	0.2789	14.0231	0.001	14.0241
15.9333	0.3125	14.1677	0.001	14.1687
15.9667	0.3378	14.3913	0	14.3913
16	0.3661	14.6806	0	14.6806
16.0333	0.3892	14.9436	0	14.9436
16.0667	0.4112	15.2855	0.001	15.2864
16.1	0.4356	15.5748	0.001	15.5757
16.1333	0.4553	15.9035	0	15.9035
16.1667	0.4761	16.2717	0	16.2717
16.2	0.4925	16.653	0	16.653
16.2333	0.509	16.9686	0.001	16.9696
16.2667	0.5294	17.2842	0.001	17.2852
16.3	0.5448	17.6393	0	17.6393
16.3333	0.56	17.9549	0.0023	17.9572
16.3667	0.5745	18.2442	0	18.2442
16.4	0.5912	18.7044	0	18.7044
16.4333	0.6031	18.9674	0.0023	18.9697
16.4667	0.6199	19.375	0.001	19.376
16.5	0.6307	19.6906	0.001	19.6916
16.5333	0.6409	19.9931	0	19.9931
16.5667	0.6551	20.3087	0.001	20.3096
16.6	0.6673	20.6243	0.001	20.6252
16.6333	0.6811	20.9135	0	20.9135
16.6667	0.6906	21.2554	0.001	21.2564
16.7	0.7025	21.5053	0.001	21.5063
16.7333	0.7124	21.7946	0	21.7946
16.7667	0.7213	22.0839	0.001	22.0849
16.8	0.7318	22.4126	0.001	22.4136
16.8333	0.742	22.6493	0	22.6493
16.8667	0.7512	22.8992	0.001	22.9001
16.9	0.7611	23.2147	0.001	23.2157
16.9333	0.767	23.504	0	23.504
16.9667	0.7742	23.6618	0	23.6618
17	0.7821	24.03	0	24.03
17.0333	0.7927	24.2536	0	24.2536
17.0667	0.7973	24.4903	0	24.4903
17.1	0.8095	24.7138	0	24.7138
17.1333	0.8131	24.9242	0.001	24.9252
17.1667	0.8213	25.2398	0	25.2398

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
17.2	0.8292	25.3845	0.001	25.3854
17.2333	0.8332	25.608	0	25.608
17.2667	0.8414	25.871	0	25.871
17.3	0.8509	26.0945	0	26.0945
17.3333	0.8569	26.2918	0.001	26.2928
17.3667	0.8605	26.489	0.001	26.49
17.4	0.8664	26.7783	0	26.7783
17.4333	0.875	26.8967	0.0023	26.899
17.4667	0.8789	27.0676	0.001	27.0686
17.5	0.8832	27.2912	0.001	27.2921
17.5333	0.8901	27.4621	0.001	27.4631
17.5667	0.8947	27.6988	0	27.6988
17.6	0.9006	27.8435	0	27.8435
17.6333	0.9052	28.0801	0.001	28.0811
17.6667	0.9095	28.2511	0	28.2511
17.7	0.9125	28.4089	0	28.4089
17.7333	0.9181	28.593	0	28.593
17.7667	0.9197	28.7245	0	28.7245
17.8	0.928	28.8954	0.001	28.8964
17.8333	0.9309	29.1321	0.001	29.1331
17.8667	0.9345	29.2636	0	29.2636
17.9	0.9378	29.4083	0.001	29.4093
17.9333	0.9454	29.5266	0.001	29.5276
17.9667	0.9503	29.7502	0.001	29.7511
18	0.9753	29.9211	0	29.9211
18.0333	1.0043	30.1578	0	30.1578
18.0667	1.0366	30.3025	0	30.3025
18.1	1.0622	30.5654	0	30.5654
18.1333	1.0909	30.8416	0	30.8416
18.1667	1.1198	31.0651	0	31.0651
18.2	1.1429	31.3413	0	31.3413
18.2333	1.1676	31.578	0.0023	31.5803
18.2667	1.1886	31.8147	0.001	31.8157
18.3	1.2094	32.2223	0.001	32.2233
18.3333	1.2268	32.4853	0.001	32.4863
18.3667	1.2521	32.6826	0.001	32.6835
18.4	1.2699	33.0113	0	33.0113
18.4333	1.2897	33.2874	0	33.2874
18.4667	1.3078	33.5636	0.0023	33.5659
18.5	1.3275	33.8134	0	33.8134
18.5333	1.3427	34.129	0.001	34.13
18.5667	1.3601	34.3789	0	34.3789
18.6	1.3726	34.7076	0.001	34.7086

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
18.6333	1.3887	34.9969	0	34.9969
18.6667	1.4042	35.1547	0	35.1547
18.7	1.4167	35.5229	0	35.5229
18.7333	1.4328	35.7727	0	35.7727
18.7667	1.447	36.0094	0	36.0094
18.8	1.4602	36.2987	0.001	36.2997
18.8333	1.4727	36.5486	0	36.5486
18.8667	1.4829	36.7195	0.001	36.7205
18.9	1.4967	37.0351	0.001	37.0361
18.9333	1.5059	37.3639	0.001	37.3648
18.9667	1.5181	37.6531	0.0023	37.6554
19	1.5313	37.7978	0.0023	37.8001
19.0333	1.5408	38.1397	0.001	38.1407
19.0667	1.549	38.3632	0.001	38.3642
19.1	1.5612	38.6657	0.001	38.6667
19.1333	1.5681	38.9287	0	38.9287
19.1667	1.58	39.1654	0	39.1654
19.2	1.5895	39.3758	0.001	39.3767
19.2333	1.5958	39.5599	0.001	39.5608
19.2667	1.6096	39.8097	0.001	39.8107
19.3	1.6188	40.0464	0.001	40.0474
19.3333	1.6214	40.3357	0.001	40.3367
19.3667	1.6178	40.4935	0	40.4935
19.4	1.6083	40.6907	0	40.6907
19.4333	1.5997	40.9274	0	40.9274
19.4667	1.5964	41.1115	0.001	41.1125
19.5	1.5958	41.243	0.0023	41.2453
19.5333	1.5931	41.5192	0	41.5192
19.5667	1.5964	41.6375	0.001	41.6385
19.6	1.5984	41.8348	0	41.8348
19.6333	1.5968	42.0452	0.001	42.0461
19.6667	1.5997	42.0846	0.001	42.0856
19.7	1.5997	42.2819	0.001	42.2828
19.7333	1.603	42.4791	0	42.4791
19.7667	1.603	42.5317	0.0023	42.534
19.8	1.606	42.7552	0	42.7552
19.8333	1.605	42.8473	0	42.8473
19.8667	1.6076	43.0577	0	43.0577
19.9	1.6073	43.1892	0	43.1892
19.9333	1.6099	43.3075	0	43.3075
19.9667	1.6129	43.439	0	43.439
20	1.6126	43.61	0	43.61
20.0333	1.6135	43.7546	0.001	43.7556



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
20.0667	1.6172	43.9124	0.001	43.9134
20.1	1.6162	43.965	0.001	43.966
20.1333	1.6195	44.1097	0.001	44.1107
20.1667	1.6224	44.2017	0	44.2017
20.2	1.6234	44.3201	0.001	44.321
20.2333	1.6228	44.5042	0.0036	44.5078
20.2667	1.6264	44.5962	0	44.5962
20.3	1.6241	44.6751	0.001	44.6761
20.3333	1.6283	44.8066	0.001	44.8076
20.3667	1.626	44.9381	0.001	44.9391
20.4	1.6303	45.0301	0.001	45.0311
20.4333	1.6297	45.1879	0.001	45.1889
20.4667	1.633	45.2668	0	45.2668
20.5	1.6336	45.3194	0.001	45.3204
20.5333	1.6372	45.4641	0.001	45.4651
20.5667	1.6349	45.6219	0.001	45.6229
20.6	1.6372	45.7402	0.001	45.7412
20.6333	1.6402	45.8586	0.001	45.8596
20.6667	1.6445	45.9506	0.001	45.9516
20.7	1.6399	46.0821	0.001	46.0831
20.7333	1.6346	46.0558	0.0023	46.0581
20.7667	1.6287	46.2268	0	46.2268
20.8	1.628	46.2794	0	46.2794
20.8333	1.6218	46.3714	0	46.3714
20.8667	1.6214	46.5292	0	46.5292
20.9	1.6178	46.5818	0	46.5818
20.9333	1.6175	46.5687	0	46.5687
20.9667	1.6155	46.7002	0	46.7002
21	1.6145	46.8185	0	46.8185
21.0333	1.6168	46.8185	0	46.8185
21.0667	1.6126	46.8843	0.0023	46.8866
21.1	1.6096	46.95	0	46.95
21.1333	1.6093	47.0421	0	47.0421
21.1667	1.6089	47.0684	0.0023	47.0707
21.2	1.6073	47.1604	0.001	47.1614
21.2333	1.606	47.3313	0	47.3313
21.2667	1.6037	47.2393	0	47.2393
21.3	1.607	47.3971	0	47.3971
21.3333	1.6066	47.3971	0.0023	47.3994
21.3667	1.6096	47.4891	0	47.4891
21.4	1.6043	47.5154	0	47.5154
21.4333	1.606	47.5286	0	47.5286
21.4667	1.605	47.6469	0	47.6469

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
21.5	1.6063	47.7127	0.0023	47.715
21.5333	1.6083	47.7258	0.001	47.7268
21.5667	1.6116	47.8047	0.001	47.8057
21.6	1.6079	47.8047	0	47.8047
21.6333	1.6079	47.8968	0	47.8968
21.6667	1.6119	48.0546	0.001	48.0556
21.7	1.6126	48.0677	0	48.0677
21.7333	1.6086	48.002	0	48.002
21.7667	1.6086	48.1861	0	48.1861
21.8	1.6126	48.1992	0.0023	48.2015
21.8333	1.6122	48.1992	0	48.1992
21.8667	1.6119	48.3307	0	48.3307
21.9	1.6139	48.3176	0.001	48.3186
21.9333	1.6116	48.357	0.0023	48.3593
21.9667	1.6135	48.4359	0	48.4359
22	1.6126	48.4491	0.001	48.4501
22.0333	1.6122	48.4096	0.001	48.4106
22.0667	1.6135	48.528	0	48.528
22.1	1.6119	48.5411	0.001	48.5421
22.1333	1.6152	48.5937	0.001	48.5947
22.1667	1.6132	48.5937	0	48.5937
22.2	1.6139	48.7252	0.001	48.7262
22.2333	1.6126	48.8304	0.001	48.8314
22.2667	1.6168	48.7647	0	48.7647
22.3	1.6155	48.9225	0	48.9225
22.3333	1.6155	48.9093	0.001	48.9103
22.3667	1.6155	49.0014	0.0023	49.0037
22.4	1.6135	49.0277	0.001	49.0286
22.4333	1.6149	49.0671	0.001	49.0681
22.4667	1.6185	49.0408	0	49.0408
22.5	1.6149	49.1723	0.001	49.1733
22.5333	1.6168	49.1723	0.0023	49.1746
22.5667	1.6175	49.1197	0	49.1197
22.6	1.6142	49.1986	0.001	49.1996
22.6333	1.6188	49.2644	0.001	49.2653
22.6667	1.6191	49.3301	0.0023	49.3324
22.7	1.6191	49.2907	0	49.2907
22.7333	1.6188	49.3301	0.001	49.3311
22.7667	1.6175	49.3696	0	49.3696
22.8	1.6188	49.3959	0.001	49.3968
22.8333	1.6208	49.4748	0	49.4748
22.8667	1.6195	49.58	0	49.58
22.9	1.6208	49.4485	0.001	49.4494

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
22.9333	1.6172	49.4748	0	49.4748
22.9667	1.6158	49.6063	0	49.6063
23	1.6195	49.6063	0	49.6063
23.0333	1.6155	49.6457	0.001	49.6467
23.0667	1.6204	49.6194	0.001	49.6204
23.1	1.6185	49.6063	0.001	49.6072
23.1333	1.6168	49.7377	0	49.7377
23.1667	1.6158	49.7377	0	49.7377
23.2	1.6201	49.8035	0.001	49.8045
23.2333	1.6168	49.764	0.0023	49.7663
23.2667	1.6172	49.8955	0	49.8955
23.3	1.6165	49.9087	0	49.9087
23.3333	1.6211	49.8824	0.001	49.8834
23.3667	1.6162	49.9218	0	49.9218
23.4	1.6175	49.935	0.001	49.936
23.4333	1.6175	50.0928	0.0023	50.0951
23.4667	1.6175	49.9876	0	49.9876
23.5	1.6191	50.0139	0	50.0139
23.5333	1.6188	50.0796	0.001	50.0806
23.5667	1.6172	50.0796	0.001	50.0806
23.6	1.6204	50.0796	0	50.0796
23.6333	1.6208	50.0796	0	50.0796
23.6667	1.6188	50.0665	0	50.0665
23.7	1.6181	50.1848	0	50.1848
23.7333	1.6204	50.0796	0	50.0796
23.7667	1.6185	50.1454	0.001	50.1464
23.8	1.6188	50.1717	0.001	50.1727
23.8333	1.6204	50.2506	0.001	50.2516
23.8667	1.6204	50.2374	0.0023	50.2397
23.9	1.6185	50.3295	0	50.3295
23.9333	1.6185	50.3426	0.0023	50.3449
23.9667	1.6175	50.4215	0	50.4215
24	1.6208	50.2769	0.001	50.2779
24.0333	1.6162	50.3952	0.001	50.3962
24.0667	1.6165	50.3295	0.001	50.3305
24.1	1.6178	50.3821	0.001	50.3831
24.1333	1.6201	50.3952	0.001	50.3962
24.1667	1.6178	50.3821	0.001	50.3831
24.2	1.6198	50.5004	0	50.5004
24.2333	1.6195	50.553	0.001	50.554
24.2667	1.6172	50.5399	0.001	50.5409
24.3	1.6191	50.6188	0.001	50.6198
24.3333	1.6204	50.5399	0.001	50.5409

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
24.3667	1.6214	50.6188	0.001	50.6198
24.4	1.6155	50.6188	0	50.6188
24.4333	1.6198	50.5793	0.001	50.5803
24.4667	1.5875	50.5662	0.0023	50.5685
24.5	1.5306	50.553	0	50.553
24.5333	1.4407	50.5399	0.001	50.5409
24.5667	1.3539	50.4084	0.001	50.4094
24.6	1.2735	50.2374	0.001	50.2384
24.6333	1.1972	49.9218	0	49.9218
24.6667	1.1241	49.764	0	49.764
24.7	1.0603	49.3696	0.0023	49.3719
24.7333	0.999	49.2644	0.001	49.2653
24.7667	0.9401	48.8962	0.001	48.8972
24.8	0.8878	48.6069	0.001	48.6079
24.8333	0.8335	48.1203	0.001	48.1213
24.8667	0.7838	47.7258	0.0023	47.7281
24.9	0.7394	47.3708	0.001	47.3718
24.9333	0.6966	46.8843	0.001	46.8852
24.9667	0.6558	46.4898	0.001	46.4908
25	0.6169	46.0558	0	46.0558
25.0333	0.5843	45.543	0.001	45.544
25.0667	0.5465	45.017	0	45.017
25.1	0.5202	44.4779	0	44.4779
25.1333	0.4938	43.965	0	43.965
25.1667	0.4645	43.4522	0.0036	43.4558
25.2	0.4369	42.8736	0.001	42.8746
25.2333	0.4119	42.4002	0.0023	42.4025
25.2667	0.3875	41.9663	0.001	41.9672
25.3	0.3628	41.2825	0.001	41.2835
25.3333	0.346	40.7039	0.0023	40.7062
25.3667	0.325	40.1779	0.001	40.1789
25.4	0.3075	39.6388	0.001	39.6397
25.4333	0.2871	39.0339	0	39.0339
25.4667	0.273	38.4421	0	38.4421
25.5	0.2555	37.7846	0.001	37.7856
25.5333	0.2417	37.2192	0	37.2192
25.5667	0.2289	36.7195	0.001	36.7205
25.6	0.2144	36.1935	0.001	36.1945
25.6333	0.2006	35.5229	0	35.5229
25.6667	0.1907	34.918	0	34.918
25.7	0.1765	34.2737	0.001	34.2747
25.7333	0.169	33.7345	0.001	33.7355
25.7667	0.1591	32.985	0.001	32.986

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
25.8	0.1492	32.3801	0.001	32.3811
25.8333	0.14	31.8541	0.001	31.8551
25.8667	0.1318	31.2624	0	31.2624
25.9	0.1216	30.6575	0.001	30.6585
25.9333	0.1166	30.0395	0	30.0395
25.9667	0.1074	29.5135	0	29.5135
26	0.1015	28.856	0.0023	28.8583
26.0333	0.0933	28.2905	0	28.2905
26.0667	0.0873	27.7251	0	27.7251
26.1	0.0837	27.0939	0.001	27.0949
26.1333	0.0771	26.5022	0	26.5022
26.1667	0.0699	25.8578	0	25.8578
26.2	0.0686	25.3582	0	25.3582
26.2333	0.0613	24.7138	0.001	24.7148
26.2667	0.0554	24.2404	0.001	24.2414
26.3	0.0538	23.5303	0	23.5303
26.3333	0.0462	23.0044	0.001	23.0053
26.3667	0.0465	22.4652	0	22.4652
26.4	0.039	21.7946	0	21.7946
26.4333	0.036	21.2949	0.001	21.2959
26.4667	0.0297	20.6769	0.001	20.6778
26.5	0.0288	20.0983	0.001	20.0992
26.5333	0.0242	19.5854	0	19.5854
26.5667	0.0242	19.02	0.001	19.021
26.6	0.0202	18.4545	0	18.4545
26.6333	0.0143	17.9154	0.001	17.9164
26.6667	0.0153	17.4026	0.001	17.4036
26.7	0.0097	16.8371	0	16.8371
26.7333	0.011	16.298	0.001	16.299
26.7667	0.0087	15.8378	0	15.8378
26.8	0.0077	15.3118	0	15.3118
26.8333	0.0037	14.8252	0.001	14.8262
26.8667	0.0028	14.2729	0.001	14.2739
26.9	0.0001	13.7469	0	13.7469
26.9333	0.0008	13.2999	0.001	13.3008
26.9667	0.0001	12.8396	0.001	12.8406
27	-0.0032	12.3531	0.001	12.3541
27.0333	-0.0068	11.8928	0.001	11.8938
27.0667	-0.0078	11.4326	0.001	11.4336
27.1	-0.0088	10.9592	0.001	10.9602
27.1333	-0.0121	10.5121	0.001	10.5131
27.1667	-0.0117	10.0913	0	10.0913
27.2	-0.0091	9.6968	0.001	9.6978

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
27.2333	-0.0097	9.3155	0.0023	9.3178
27.2667	-0.0134	8.921	0.001	8.922
27.3	-0.0134	8.5528	0	8.5528
27.3333	-0.0147	8.1583	0.001	8.1593
27.3667	-0.0147	7.8033	0	7.8033
27.4	-0.0183	7.4614	0.001	7.4624
27.4333	-0.018	7.2115	0	7.2115
27.4667	-0.0196	6.8302	0	6.8302
27.5	-0.0173	6.554	0	6.554
27.5333	-0.0176	6.2122	0.001	6.2131
27.5667	-0.02	5.9623	0	5.9623
27.6	-0.0229	5.6862	0.0023	5.6885
27.6333	-0.0216	5.3969	0.001	5.3979
27.6667	-0.0232	5.1602	0	5.1602
27.7	-0.0239	4.9235	0	4.9235
27.7333	-0.0232	4.6736	0.001	4.6746
27.7667	-0.0209	4.4106	0	4.4106
27.8	-0.0226	4.2002	0	4.2002
27.8333	-0.0242	3.9767	0	3.9767
27.8667	-0.0242	3.7795	0	3.7795
27.9	-0.0262	3.6348	0	3.6348
27.9333	-0.0246	3.4376	0	3.4376
27.9667	-0.0249	3.2009	0	3.2009
28	-0.0236	3.0825	0	3.0825
28.0333	-0.0236	0.0055	0.001	0.0065
28.0667	-0.0223	0.0055	0	0.0055
28.1	-0.0239	0.0055	0	0.0055
28.1333	-0.0242	0.0055	0	0.0055
28.1667	-0.0239	0.0055	0.001	0.0065
28.2	-0.0246	0.0055	0.001	0.0065
28.2333	-0.0252	0.0055	0	0.0055
28.2667	-0.017	0.0055	0.001	0.0065
28.3	-0.0163	0.0055	0.001	0.0065
28.3333	-0.0193	0.0186	0	0.0186
28.3667	-0.0163	0	0.001	0.001
28.4	-0.0282	0.0055	0.001	0.0065
28.4333	-0.0269	0	0	0
28.4667	-0.0292	0	0.0023	0.0023
28.5	-0.0292	0.0055	0	0.0055
28.5333	-0.0302	0	0.001	0.001
28.5667	-0.0282	0.0186	0.0023	0.0209
28.6	-0.0453	0.0186	0.001	0.0196
28.6333	-0.0436	0.0055	0.001	0.0065



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
28.6667	-0.0436	0.0055	0.001	0.0065
28.7	-0.0433	0	0.001	0.001
28.7333	-0.0433	0	0.001	0.001
28.7667	-0.0397	0	0.001	0.001
28.8	-0.042	0	0	0
28.8333	-0.0423	0.0055	0.001	0.0065
28.8667	-0.0051	0.0055	0	0.0055
28.9	-0.0305	0.0055	0.001	0.0065
28.9333	-0.0275	0.0055	0.001	0.0065
28.9667	-0.0298	0	0.001	0.001
29	-0.0282	0.0055	0.001	0.0065
29.0333	-0.0279	0.0055	0	0.0055
29.0667	-0.0298	0.0055	0	0.0055
29.1	-0.0311	0.0055	0.001	0.0065
29.1333	-0.0328	0	0	0
29.1667	-0.0285	0.0055	0	0.0055
29.2	-0.0315	0	0.0023	0.0023
29.2333	-0.0311	0.0055	0	0.0055
29.2667	-0.0288	0.0186	0	0.0186
29.3	-0.0219	0.0055	0	0.0055
29.3333	-0.0022	0.0055	0.001	0.0065
29.3667	0.0133	0	0	0
29.4	0.0245	8.3819	0	8.3819
29.4333	0.0465	9.7626	0.001	9.7636
29.4667	0.0696	10.8014	0	10.8014
29.5	0.0913	11.6035	0.001	11.6045
29.5333	0.1209	12.1295	0.001	12.1305
29.5667	0.1525	12.4977	0.0023	12.5
29.6	0.1815	12.9185	0	12.9185
29.6333	0.2144	13.1421	0	13.1421
29.6667	0.2476	13.313	0.001	13.314
29.7	0.2782	13.5365	0	13.5365
29.7333	0.3072	13.668	0	13.668
29.7667	0.3398	13.7732	0	13.7732
29.8	0.3727	13.9047	0	13.9047
29.8333	0.4007	14.0625	0.0023	14.0648
29.8667	0.428	14.1414	0	14.1414
29.9	0.455	14.3387	0.001	14.3397
29.9333	0.4813	14.4307	0.0023	14.433
29.9667	0.5067	14.6411	0	14.6411
30	0.5307	14.8252	0.001	14.8262
30.0333	0.558	14.9567	0.001	14.9577
30.0667	0.5784	15.1014	0.001	15.1024

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
30.1	0.6021	15.2592	0.001	15.2601
30.1333	0.6219	15.4564	0.001	15.4574
30.1667	0.6446	15.5879	0.001	15.5889
30.2	0.662	15.7326	0.001	15.7335
30.2333	0.6818	16.0087	0	16.0087
30.2667	0.7009	16.2059	0	16.2059
30.3	0.7199	16.3243	0.001	16.3253
30.3333	0.7367	16.5084	0.0023	16.5107
30.3667	0.7558	16.7056	0.001	16.7066
30.4	0.7706	16.7977	0.001	16.7987
30.4333	0.7871	16.9423	0	16.9423
30.4667	0.8078	17.1001	0	17.1001
30.5	0.8233	17.2579	0.001	17.2589
30.5333	0.8365	17.442	0.001	17.443
30.5667	0.8555	17.5341	0.001	17.5351
30.6	0.871	17.6656	0	17.6656
30.6333	0.8825	17.7839	0.001	17.7849
30.6667	0.897	17.968	0.001	17.969
30.7	0.9105	18.1127	0.001	18.1136
30.7333	0.9289	18.2442	0	18.2442
30.7667	0.9408	18.3625	0	18.3625
30.8	0.9553	18.5597	0.0023	18.562
30.8333	0.9714	18.6255	0.001	18.6265
30.8667	0.9783	18.757	0	18.757
30.9	0.9928	18.8622	0	18.8622
30.9333	1.004	19.0068	0	19.0068
30.9667	1.0135	19.112	0.001	19.113
31	1.0264	19.2435	0.001	19.2445
31.0333	1.0376	19.3224	0.001	19.3234
31.0667	1.0497	19.4671	0	19.4671
31.1	1.0616	19.5065	0	19.5065
31.1333	1.0738	19.638	0.001	19.639
31.1667	1.0813	19.809	0	19.809
31.2	1.0902	19.8747	0.001	19.8757
31.2333	1.1034	20.0062	0	20.0062
31.2667	1.1123	20.1509	0	20.1509
31.3	1.1185	20.1509	0	20.1509
31.3333	1.1284	20.2955	0	20.2955
31.3667	1.1376	20.427	0.001	20.428
31.4	1.1495	20.4928	0	20.4928
31.4333	1.1616	20.5322	0	20.5322
31.4667	1.1735	20.6506	0	20.6506
31.5	1.1886	20.7032	0.001	20.7041

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
31.5333	1.2028	20.8215	0.001	20.8225
31.5667	1.2176	20.9004	0	20.9004
31.6	1.2337	20.9924	0.001	20.9934
31.6333	1.2433	21.0845	0.0023	21.0868
31.6667	1.2591	21.1897	0.0023	21.192
31.7	1.2735	21.2949	0.001	21.2959
31.7333	1.2857	21.4001	0.001	21.4011
31.7667	1.2963	21.4264	0.0023	21.4287
31.8	1.3134	21.571	0.001	21.572
31.8333	1.3246	21.5973	0.001	21.5983
31.8667	1.3334	21.6762	0	21.6762
31.9	1.3466	21.7551	0	21.7551
31.9333	1.3594	21.834	0.0023	21.8363
31.9667	1.3687	21.8998	0.0023	21.9021
32	1.3766	22.0181	0.001	22.0191
32.0333	1.3907	22.0839	0.001	22.0849
32.0667	1.4022	22.1759	0.001	22.1769
32.1	1.4082	22.2285	0	22.2285
32.1333	1.4197	22.2811	0	22.2811
32.1667	1.4282	22.3995	0.001	22.4005
32.2	1.4394	22.4126	0.001	22.4136
32.2333	1.446	22.5047	0	22.5047
32.2667	1.4556	22.531	0.001	22.5319
32.3	1.4641	22.5704	0.001	22.5714
32.3333	1.4737	22.6888	0.001	22.6897
32.3667	1.4901	22.794	0	22.794
32.4	1.5072	22.8466	0	22.8466
32.4333	1.5227	22.9518	0	22.9518
32.4667	1.5398	22.9781	0	22.9781
32.5	1.5546	23.0833	0.001	23.0842
32.5333	1.5724	23.0833	0.001	23.0842
32.5667	1.5862	23.2147	0	23.2147
32.6	1.5948	23.241	0	23.241
32.6333	1.5954	23.3594	0.001	23.3604
32.6667	1.5954	23.3462	0.001	23.3472
32.7	1.5981	23.4383	0	23.4383
32.7333	1.5987	23.4777	0.001	23.4787
32.7667	1.6004	23.4514	0	23.4514
32.8	1.6	23.5303	0	23.5303
32.8333	1.602	23.5829	0	23.5829
32.8667	1.604	23.675	0	23.675
32.9	1.6122	23.7276	0	23.7276
32.9333	1.6158	23.7933	0.001	23.7943

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
32.9667	1.6221	23.8065	0	23.8065
33	1.6247	23.8459	0.0023	23.8482
33.0333	1.628	23.8985	0.0023	23.9008
33.0667	1.6356	23.9117	0	23.9117
33.1	1.6392	23.8722	0.001	23.8732
33.1333	1.6445	24.0432	0.001	24.0442
33.1667	1.6497	24.0563	0.0023	24.0586
33.2	1.655	24.0958	0.001	24.0968
33.2333	1.6553	24.0826	0	24.0826
33.2667	1.6639	24.1221	0.001	24.1231
33.3	1.6586	24.1878	0	24.1878
33.3333	1.6573	24.1878	0.001	24.1888
33.3667	1.6514	24.293	0.001	24.294
33.4	1.6501	24.3062	0	24.3062
33.4333	1.6458	24.293	0.0023	24.2953
33.4667	1.6445	24.3193	0.001	24.3203
33.5	1.6432	24.3982	0.001	24.3992
33.5333	1.6399	24.4114	0	24.4114
33.5667	1.6356	24.4377	0.001	24.4387
33.6	1.633	24.464	0.001	24.465
33.6333	1.629	24.4771	0.001	24.4781
33.6667	1.6267	24.5429	0	24.5429
33.7	1.6218	24.4903	0.0023	24.4926
33.7333	1.6181	24.4903	0.001	24.4913
33.7667	1.6178	24.5297	0	24.5297
33.8	1.6198	24.5034	0	24.5034
33.8333	1.6208	24.5429	0	24.5429
33.8667	1.6178	24.5297	0	24.5297
33.9	1.6185	24.5823	0.001	24.5833
33.9333	1.6204	24.6086	0	24.6086
33.9667	1.6195	24.5955	0.001	24.5965
34	1.6201	24.6612	0	24.6612
34.0333	1.6228	24.6086	0	24.6086
34.0667	1.6195	24.6481	0.0023	24.6504
34.1	1.6208	24.7401	0.001	24.7411
34.1333	1.6218	24.6744	0.0023	24.6767
34.1667	1.6198	24.6744	0	24.6744
34.2	1.6244	24.7138	0	24.7138
34.2333	1.6231	24.7533	0.0023	24.7556
34.2667	1.6224	24.7007	0.001	24.7017
34.3	1.626	24.7138	0.001	24.7148
34.3333	1.626	24.8059	0	24.8059
34.3667	1.626	24.7796	0	24.7796

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
34.4	1.6267	24.7927	0.001	24.7937
34.4333	1.6267	24.819	0	24.819
34.4667	1.6283	24.819	0	24.819
34.5	1.627	24.8322	0	24.8322
34.5333	1.626	24.7796	0.001	24.7806
34.5667	1.6267	24.8716	0	24.8716
34.6	1.6257	24.8453	0.001	24.8463
34.6333	1.627	24.8585	0	24.8585
34.6667	1.63	24.8979	0.001	24.8989
34.7	1.6293	24.9374	0	24.9374
34.7333	1.6293	24.9242	0.001	24.9252
34.7667	1.6287	24.9242	0.001	24.9252
34.8	1.6293	24.9505	0.001	24.9515
34.8333	1.629	24.9374	0.001	24.9383
34.8667	1.6303	24.9111	0	24.9111
34.9	1.6303	24.9768	0	24.9768
34.9333	1.6353	24.9242	0	24.9242
34.9667	1.6323	24.9637	0.0023	24.966
35	1.6316	24.99	0.001	24.9909
35.0333	1.6349	24.9637	0.001	24.9646
35.0667	1.6297	25.0163	0	25.0163
35.1	1.6307	24.9637	0	24.9637
35.1333	1.6274	25.0031	0	25.0031
35.1667	1.6247	25.0163	0.0023	25.0186
35.2	1.6241	25.0294	0	25.0294
35.2333	1.6224	24.9505	0.001	24.9515
35.2667	1.6218	25.0294	0.001	25.0304
35.3	1.6181	25.0557	0	25.0557
35.3333	1.6178	25.0426	0.001	25.0435
35.3667	1.6149	25.0294	0.001	25.0304
35.4	1.6126	25.0689	0.0023	25.0712
35.4333	1.6122	25.082	0	25.082
35.4667	1.6122	25.0426	0.001	25.0435
35.5	1.6119	25.0426	0.001	25.0435
35.5333	1.6073	25.0557	0.0023	25.058
35.5667	1.6083	25.0163	0.001	25.0172
35.6	1.6023	25.0426	0	25.0426
35.6333	1.6033	25.0031	0	25.0031
35.6667	1.6017	25.0163	0.001	25.0172
35.7	1.6014	25.0952	0.001	25.0961
35.7333	1.5994	25.0557	0.0023	25.058
35.7667	1.5977	25.0426	0.001	25.0435
35.8	1.6	25.082	0.001	25.083

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
35.8333	1.6014	25.082	0	25.082
35.8667	1.6017	25.082	0.001	25.083
35.9	1.601	25.0952	0.001	25.0961
35.9333	1.606	25.0557	0.001	25.0567
35.9667	1.6043	25.0689	0	25.0689
36	1.606	25.1346	0.001	25.1356
36.0333	1.6073	25.0557	0.001	25.0567
36.0667	1.6073	25.082	0	25.082
36.1	1.606	25.1478	0	25.1478
36.1333	1.6126	25.0689	0	25.0689
36.1667	1.606	25.1478	0	25.1478
36.2	1.6109	25.1346	0	25.1346
36.2333	1.6119	25.0952	0.001	25.0961
36.2667	1.6102	25.1215	0.001	25.1224
36.3	1.6122	25.0952	0.001	25.0961
36.3333	1.6089	25.0952	0.001	25.0961
36.3667	1.6155	25.1346	0.001	25.1356
36.4	1.6129	25.1478	0	25.1478
36.4333	1.6152	25.1083	0.0023	25.1106
36.4667	1.6139	25.082	0	25.082
36.5	1.6155	25.1609	0.001	25.1619
36.5333	1.6162	25.1083	0.001	25.1093
36.5667	1.6185	25.1609	0.001	25.1619
36.6	1.6149	25.082	0	25.082
36.6333	1.6188	25.1083	0.001	25.1093
36.6667	1.6155	25.1346	0	25.1346
36.7	1.6195	25.1609	0.001	25.1619
36.7333	1.6191	25.1609	0	25.1609
36.7667	1.6198	25.1478	0	25.1478
36.8	1.6172	25.1872	0.001	25.1882
36.8333	1.6191	25.1478	0.0023	25.1501
36.8667	1.6175	25.1872	0.001	25.1882
36.9	1.6211	25.1215	0	25.1215
36.9333	1.6214	25.1478	0.001	25.1487
36.9667	1.6188	25.1478	0	25.1478
37	1.6208	25.1741	0.001	25.175
37.0333	1.6221	25.1872	0.001	25.1882
37.0667	1.6195	25.1872	0.0023	25.1895
37.1	1.6221	25.1346	0.0023	25.1369
37.1333	1.6208	25.2004	0.001	25.2013
37.1667	1.6247	25.1872	0	25.1872
37.2	1.6204	25.2004	0	25.2004
37.2333	1.6228	25.1872	0.001	25.1882



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
37.2667	1.6237	25.1478	0.001	25.1487
37.3	1.6247	25.2004	0	25.2004
37.3333	1.6231	25.2135	0	25.2135
37.3667	1.6224	25.1872	0	25.1872
37.4	1.6254	25.1609	0.001	25.1619
37.4333	1.6241	25.2004	0.0023	25.2027
37.4667	1.6241	25.2004	0.001	25.2013
37.5	1.6208	25.2004	0.001	25.2013
37.5333	1.6267	25.2135	0.001	25.2145
37.5667	1.6247	25.2004	0.001	25.2013
37.6	1.6211	25.2004	0.001	25.2013
37.6333	1.6251	25.1872	0	25.1872
37.6667	1.626	25.2661	0	25.2661
37.7	1.6241	25.2398	0.001	25.2408
37.7333	1.6221	25.1872	0.001	25.1882
37.7667	1.6267	25.2135	0	25.2135
37.8	1.6254	25.1872	0.0023	25.1895
37.8333	1.6241	25.2267	0.001	25.2276
37.8667	1.6267	25.2004	0.001	25.2013
37.9	1.6241	25.2398	0	25.2398
37.9333	1.627	25.253	0	25.253
37.9667	1.6277	25.1872	0	25.1872
38	1.626	25.2004	0	25.2004
38.0333	1.627	25.2135	0.001	25.2145
38.0667	1.6264	25.253	0	25.253
38.1	1.6251	25.2398	0.001	25.2408
38.1333	1.5826	25.2004	0.0023	25.2027
38.1667	1.5069	25.1609	0	25.1609
38.2	1.4319	25.2135	0	25.2135
38.2333	1.3637	25.1609	0.001	25.1619
38.2667	1.2939	25.0689	0.001	25.0698
38.3	1.2304	25.0426	0	25.0426
38.3333	1.1659	24.9111	0.001	24.912
38.3667	1.1063	24.8322	0.001	24.8332
38.4	1.052	24.7401	0.0023	24.7424
38.4333	0.9971	24.6218	0.001	24.6228
38.4667	0.9447	24.4903	0.001	24.4913
38.5	0.898	24.3719	0.001	24.3729
38.5333	0.8473	24.1878	0	24.1878
38.5667	0.8006	24.0563	0.001	24.0573
38.6	0.7575	23.938	0	23.938
38.6333	0.7163	23.7144	0.001	23.7154
38.6667	0.6775	23.5172	0.0023	23.5195

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
38.7	0.6403	23.3068	0.001	23.3078
38.7333	0.6047	23.0833	0	23.0833
38.7667	0.5712	22.8729	0	22.8729
38.8	0.5383	22.6099	0.0023	22.6122
38.8333	0.5047	22.3863	0.001	22.3873
38.8667	0.4777	22.1233	0.001	22.1243
38.9	0.4497	21.8472	0.001	21.8482
38.9333	0.4237	21.5053	0.0023	21.5076
38.9667	0.3967	21.216	0.001	21.217
39	0.3704	20.9267	0	20.9267
39.0333	0.3474	20.6243	0	20.6243
39.0667	0.327	20.2824	0.001	20.2833
39.1	0.3042	20.0062	0.0023	20.0085
39.1333	0.2829	19.6512	0	19.6512
39.1667	0.2644	19.283	0	19.283
39.2	0.248	18.8885	0.0023	18.8908
39.2333	0.2318	18.5466	0	18.5466
39.2667	0.217	18.1916	0.001	18.1925
39.3	0.1999	17.7839	0	17.7839
39.3333	0.189	17.442	0	17.442
39.3667	0.1732	17.0344	0.0023	17.0367
39.4	0.1591	16.6399	0.0023	16.6422
39.4333	0.1502	16.2848	0	16.2848
39.4667	0.139	15.8772	0.001	15.8782
39.5	0.1268	15.4827	0.0023	15.485
39.5333	0.1137	15.0619	0.0023	15.0642
39.5667	0.1058	14.6674	0.001	14.6684
39.6	0.0992	14.2203	0.001	14.2213
39.6333	0.0923	13.7995	0	13.7995
39.6667	0.0867	13.4314	0.001	13.4323
39.7	0.0765	12.9711	0	12.9711
39.7333	0.0739	12.5109	0.001	12.5119
39.7667	0.0636	12.1032	0.001	12.1042
39.8	0.0584	11.7219	0	11.7219
39.8333	0.0554	11.2616	0.001	11.2626
39.8667	0.0511	10.8146	0	10.8146
39.9	0.0416	10.4332	0.0023	10.4355
39.9333	0.038	9.9861	0	9.9861
39.9667	0.0317	9.6837	0.0023	9.686
40	0.0278	9.2497	0	9.2497
40.0333	0.0274	8.8158	0.0023	8.8181
40.0667	0.0242	8.3819	0	8.3819
40.1	0.0179	8.0268	0	8.0268

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
40.1333	0.0192	7.7112	0.001	7.7122
40.1667	0.0179	7.2773	0	7.2773
40.2	0.0159	7.0537	0.001	7.0547
40.2333	0.008	6.6066	0	6.6066
40.2667	0.009	6.3042	0.001	6.3052
40.3	0.0116	5.9886	0.001	5.9896
40.3333	0.0047	5.6204	0.001	5.6214
40.3667	0.0067	5.2259	0.001	5.2269
40.4	0.0034	4.9235	0.001	4.9245
40.4333	0.0024	4.621	0.001	4.622
40.4667	0.0028	4.3975	0.001	4.3985
40.5	0.0008	4.1476	0.001	4.1486
40.5333	-0.0005	3.9241	0	3.9241
40.5667	-0.0055	3.6874	0	3.6874
40.6	-0.0045	3.5033	0	3.5033
40.6333	-0.0068	3.2272	0.001	3.2281
40.6667	-0.0065	3.0825	0.0023	3.0848
40.7	-0.0078	0.0186	0.0023	0.0209
40.7333	-0.0091	0.0055	0.001	0.0065
40.7667	-0.0097	0.0186	0.001	0.0196
40.8	-0.0078	0.0055	0.001	0.0065
40.8333	-0.0114	0.0186	0.001	0.0196
40.8667	-0.0117	0.0186	0	0.0186
40.9	-0.0121	0	0	0
40.9333	-0.0114	0.0318	0	0.0318
40.9667	-0.0144	0.0055	0	0.0055
41	-0.0134	0.0186	0.001	0.0196
41.0333	-0.015	0	0.001	0.001
41.0667	-0.0173	0.0055	0.0023	0.0078
41.1	-0.017	0.0055	0.0023	0.0078
41.1333	-0.0163	0.0318	0.001	0.0328
41.1667	-0.018	0.0186	0.0023	0.0209
41.2	-0.0137	0	0.001	0.001
41.2333	-0.0311	0.0186	0.001	0.0196
41.2667	-0.0328	0.0055	0.001	0.0065
41.3	-0.0328	0	0.0023	0.0023
41.3333	-0.0275	0.0055	0.0023	0.0078
41.3667	-0.0252	0	0.001	0.001
41.4	-0.0252	0	0.001	0.001
41.4333	-0.0282	0	0.001	0.001
41.4667	-0.0173	0	0.001	0.001
41.5	-0.019	0	0.001	0.001
41.5333	-0.0193	0.0055	0.001	0.0065

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
41.5667	-0.017	0.0055	0.0023	0.0078
41.6	-0.018	0.0186	0	0.0186
41.6333	-0.0213	0.0055	0.001	0.0065
41.6667	-0.0249	0	0	0
41.7	-0.0209	0.0186	0.001	0.0196
41.7333	-0.0479	0.0055	0.001	0.0065
41.7667	-0.045	0.0055	0.001	0.0065
41.8	-0.046	0.0186	0.001	0.0196
41.8333	-0.042	0.0055	0.001	0.0065
41.8667	-0.041	0.0055	0.001	0.0065
41.9	-0.039	0	0	0
41.9333	-0.0354	0.0186	0.0023	0.0209
41.9667	-0.0361	0.0186	0.001	0.0196
42	-0.0374	0.0055	0.0023	0.0078
42.0333	-0.0394	0.0055	0.001	0.0065
42.0667	-0.04	0	0	0
42.1	-0.0361	0.0186	0	0.0186
42.1333	-0.0364	0	0	0
42.1667	-0.0351	0.0055	0	0.0055
42.2	-0.0387	0.0055	0	0.0055
42.2333	-0.0341	0.0055	0	0.0055
42.2667	-0.0341	0.0055	0.001	0.0065
42.3	-0.0361	0.0055	0.001	0.0065
42.3333	-0.0061	0	0.0023	0.0023
42.3667	0.0014	0	0.0023	0.0023
42.4	0.0245	10.0913	0.001	10.0923
42.4333	0.0455	11.9454	0.001	11.9464
42.4667	0.0745	13.4314	0.001	13.4323
42.5	0.116	14.0099	0	14.0099
42.5333	0.1466	15.0225	0.001	15.0235
42.5667	0.1973	14.9962	0.001	14.9972
42.6	0.2483	15.0225	0.001	15.0235
42.6333	0.2944	15.2197	0.001	15.2207
42.6667	0.3391	15.4301	0	15.4301
42.7	0.3822	15.772	0.001	15.773
42.7333	0.425	16.0218	0.0023	16.0241
42.7667	0.4603	16.4163	0.0023	16.4186
42.8	0.4965	16.6793	0.001	16.6803
42.8333	0.5264	17.1396	0	17.1396
42.8667	0.5636	17.5078	0.001	17.5088
42.9	0.5929	17.8497	0.001	17.8506
42.9333	0.6232	18.3362	0.0023	18.3385
42.9667	0.6495	18.7438	0.001	18.7448

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
43	0.6791	19.2041	0	19.2041
43.0333	0.7041	19.638	0	19.638
43.0667	0.7311	19.9799	0.001	19.9809
43.1	0.7548	20.427	0.0023	20.4293
43.1333	0.7802	20.8083	0	20.8083
43.1667	0.8035	21.2817	0.001	21.2827
43.2	0.8246	21.6762	0.001	21.6772
43.2333	0.8473	22.097	0.001	22.098
43.2667	0.8644	22.5178	0	22.5178
43.3	0.8875	22.8597	0	22.8597
43.3333	0.9046	23.241	0.001	23.242
43.3667	0.9256	23.7013	0.0023	23.7036
43.4	0.9454	24.0432	0.001	24.0442
43.4333	0.9632	24.4771	0	24.4771
43.4667	0.9793	24.8322	0	24.8322
43.5	0.9967	25.2135	0	25.2135
43.5333	1.0162	25.5948	0	25.5948
43.5667	1.0316	25.963	0	25.963
43.6	1.0468	26.3444	0.001	26.3454
43.6333	1.0616	26.6468	0.001	26.6478
43.6667	1.0734	26.9624	0	26.9624
43.7	1.0879	27.3043	0.001	27.3053
43.7333	1.104	27.6331	0.001	27.634
43.7667	1.1185	28.0144	0.0023	28.0167
43.8	1.1287	28.3168	0.001	28.3178
43.8333	1.1449	28.6456	0	28.6456
43.8667	1.156	28.9349	0.0023	28.9372
43.9	1.1682	29.2768	0.001	29.2778
43.9333	1.1817	29.6055	0.0023	29.6078
43.9667	1.1919	29.9211	0	29.9211
44	1.2044	30.2367	0.001	30.2377
44.0333	1.2166	30.4997	0.001	30.5007
44.0667	1.2271	30.7758	0.001	30.7768
44.1	1.2347	31.0388	0.001	31.0398
44.1333	1.2485	31.3544	0.001	31.3554
44.1667	1.2558	31.6437	0	31.6437
44.2	1.2699	31.9462	0	31.9462
44.2333	1.2788	32.1434	0.001	32.1444
44.2667	1.2897	32.459	0	32.459
44.3	1.2979	32.7483	0.001	32.7493
44.3333	1.3071	33.0113	0	33.0113
44.3667	1.314	33.2874	0.001	33.2884
44.4	1.3249	33.5899	0	33.5899

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
44.4333	1.3348	33.7871	0.0023	33.7894
44.4667	1.3427	34.1027	0	34.1027
44.5	1.3492	34.3263	0.001	34.3273
44.5333	1.3581	34.5104	0.001	34.5114
44.5667	1.3667	34.826	0.001	34.8269
44.6	1.3743	35.0232	0.001	35.0242
44.6333	1.3795	35.2336	0	35.2336
44.6667	1.3884	35.4966	0.001	35.4976
44.7	1.3957	35.7464	0.001	35.7474
44.7333	1.4006	35.9568	0.001	35.9578
44.7667	1.4072	36.1804	0.001	36.1814
44.8	1.4151	36.3513	0.001	36.3523
44.8333	1.423	36.6143	0.001	36.6153
44.8667	1.4253	36.8905	0	36.8905
44.9	1.4361	37.0877	0.0023	37.09
44.9333	1.4401	37.3244	0	37.3244
44.9667	1.446	37.4954	0.0023	37.4977
45	1.4529	37.7452	0	37.7452
45.0333	1.4539	37.8767	0	37.8767
45.0667	1.4635	38.0213	0.001	38.0223
45.1	1.4651	38.3238	0.0023	38.3261
45.1333	1.4704	38.4553	0.001	38.4563
45.1667	1.4783	38.6788	0.0023	38.6811
45.2	1.4829	38.8761	0	38.8761
45.2333	1.4839	39.0733	0.001	39.0743
45.2667	1.4891	39.1785	0	39.1785
45.3	1.4947	39.4152	0	39.4152
45.3333	1.5006	39.6256	0	39.6256
45.3667	1.5029	39.836	0.001	39.837
45.4	1.5056	39.9412	0	39.9412
45.4333	1.5095	40.1253	0.0023	40.1276
45.4667	1.5161	40.2568	0.001	40.2578
45.5	1.5187	40.5329	0.001	40.5339
45.5333	1.5217	40.6381	0.0023	40.6404
45.5667	1.525	40.8222	0.001	40.8232
45.6	1.5296	40.9932	0.0023	40.9955
45.6333	1.5359	41.1773	0	41.1773
45.6667	1.5372	41.3219	0.001	41.3229
45.7	1.5418	41.4929	0.001	41.4939
45.7333	1.5461	41.6375	0	41.6375
45.7667	1.5457	41.8611	0.001	41.862
45.8	1.551	42.032	0.0023	42.0343
45.8333	1.553	42.1898	0	42.1898



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
45.8667	1.5569	42.2556	0	42.2556
45.9	1.5599	42.4133	0.001	42.4143
45.9333	1.5642	42.5317	0.0023	42.534
45.9667	1.5638	42.7026	0	42.7026
46	1.5678	42.821	0.001	42.822
46.0333	1.5688	42.9788	0	42.9788
46.0667	1.5721	43.1366	0.001	43.1376
46.1	1.576	43.2286	0.001	43.2296
46.1333	1.5754	43.439	0.0023	43.4413
46.1667	1.581	43.5837	0	43.5837
46.2	1.5829	43.6363	0	43.6363
46.2333	1.5829	43.7152	0.001	43.7162
46.2667	1.5892	43.8861	0.001	43.8871
46.3	1.5865	43.9387	0.0036	43.9423
46.3333	1.5889	44.1491	0	44.1491
46.3667	1.5898	44.3332	0	44.3332
46.4	1.5958	44.4121	0	44.4121
46.4333	1.5961	44.491	0	44.491
46.4667	1.6027	44.6883	0.001	44.6892
46.5	1.6047	44.7146	0.001	44.7155
46.5333	1.6093	44.9381	0	44.9381
46.5667	1.6083	44.9644	0	44.9644
46.6	1.6119	45.0827	0.001	45.0837
46.6333	1.6175	45.2011	0.001	45.2021
46.6667	1.6158	45.2668	0.001	45.2678
46.7	1.6218	45.3852	0.001	45.3862
46.7333	1.6208	45.5298	0.001	45.5308
46.7667	1.6231	45.6219	0.0023	45.6242
46.8	1.6247	45.7928	0.001	45.7938
46.8333	1.629	45.7928	0	45.7928
46.8667	1.63	45.9901	0.001	45.9911
46.9	1.6316	46.0295	0	46.0295
46.9333	1.6349	46.1216	0.001	46.1226
46.9667	1.6386	46.2531	0.001	46.2541
47	1.6395	46.332	0.001	46.333
47.0333	1.6441	46.4372	0.001	46.4382
47.0667	1.6369	46.5029	0.001	46.5039
47.1	1.6376	46.687	0.001	46.688
47.1333	1.6392	46.7922	0	46.7922
47.1667	1.6362	46.8843	0.001	46.8852
47.2	1.6323	46.8711	0.001	46.8721
47.2333	1.6333	47.0947	0.001	47.0956
47.2667	1.6339	47.0289	0.001	47.0299

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
47.3	1.6326	47.1473	0.001	47.1482
47.3333	1.6313	47.2393	0.001	47.2403
47.3667	1.628	47.3445	0.001	47.3455
47.4	1.6297	47.3839	0	47.3839
47.4333	1.6297	47.4891	0.001	47.4901
47.4667	1.628	47.5549	0	47.5549
47.5	1.628	47.5549	0.001	47.5559
47.5333	1.6283	47.6864	0	47.6864
47.5667	1.628	47.7653	0.001	47.7663
47.6	1.626	47.8705	0.0023	47.8728
47.6333	1.6254	47.8968	0.0023	47.8991
47.6667	1.626	47.9494	0.001	47.9504
47.7	1.6257	48.0546	0.001	48.0556
47.7333	1.6234	48.1203	0	48.1203
47.7667	1.628	48.0677	0.001	48.0687
47.8	1.6257	48.2255	0.0023	48.2278
47.8333	1.6241	48.2387	0.001	48.2397
47.8667	1.626	48.3439	0.0023	48.3462
47.9	1.6257	48.3439	0	48.3439
47.9333	1.6234	48.4228	0.0023	48.4251
47.9667	1.6218	48.4491	0	48.4491
48	1.6228	48.5543	0.001	48.5553
48.0333	1.6224	48.5148	0	48.5148
48.0667	1.6214	48.6069	0.001	48.6079
48.1	1.6237	48.7515	0	48.7515
48.1333	1.6251	48.7515	0.001	48.7525
48.1667	1.6241	48.8304	0.0023	48.8327
48.2	1.6234	48.7778	0.001	48.7788
48.2333	1.6211	48.8436	0.001	48.8446
48.2667	1.6244	48.8173	0.0023	48.8196
48.3	1.6211	48.9751	0	48.9751
48.3333	1.6211	49.0145	0	49.0145
48.3667	1.6218	49.1066	0.0023	49.1089
48.4	1.6251	49.1329	0	49.1329
48.4333	1.6231	49.1723	0.001	49.1733
48.4667	1.6228	49.1066	0	49.1066
48.5	1.6221	49.2512	0.001	49.2522
48.5333	1.6228	49.2775	0.001	49.2785
48.5667	1.6241	49.3301	0.001	49.3311
48.6	1.6211	49.4222	0	49.4222
48.6333	1.6224	49.409	0	49.409
48.6667	1.6234	49.4222	0	49.4222
48.7	1.6214	49.4353	0	49.4353

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
48.7333	1.6257	49.4879	0	49.4879
48.7667	1.6224	49.5931	0	49.5931
48.8	1.6247	49.6194	0.0023	49.6217
48.8333	1.6247	49.6194	0	49.6194
48.8667	1.6244	49.6326	0	49.6326
48.9	1.6224	49.7246	0.001	49.7256
48.9333	1.6254	49.7509	0.001	49.7519
48.9667	1.6264	49.7903	0.001	49.7913
49	1.6231	49.8166	0.001	49.8176
49.0333	1.6224	49.8429	0.0023	49.8452
49.0667	1.6234	49.8298	0.001	49.8308
49.1	1.6228	49.8692	0.001	49.8702
49.1333	1.6237	49.8692	0.001	49.8702
49.1667	1.6241	49.8824	0.001	49.8834
49.2	1.6224	49.9218	0.0023	49.9241
49.2333	1.6231	50.0665	0	50.0665
49.2667	1.6211	50.0665	0	50.0665
49.3	1.6234	50.0796	0.001	50.0806
49.3333	1.6218	50.1059	0.001	50.1069
49.3667	1.6244	50.198	0.001	50.199
49.4	1.6201	50.1059	0.001	50.1069
49.4333	1.6214	50.2243	0.001	50.2253
49.4667	1.6247	50.2769	0	50.2769
49.5	1.6204	50.1848	0	50.1848
49.5333	1.6228	50.3032	0	50.3032
49.5667	1.6244	50.3163	0.001	50.3173
49.6	1.6241	50.3689	0.0023	50.3712
49.6333	1.6234	50.3295	0	50.3295
49.6667	1.6191	50.29	0	50.29
49.7	1.6234	50.3952	0.001	50.3962
49.7333	1.6228	50.4478	0.0023	50.4501
49.7667	1.626	50.3952	0.001	50.3962
49.8	1.6218	50.4347	0.0023	50.437
49.8333	1.6267	50.5662	0	50.5662
49.8667	1.6257	50.5136	0	50.5136
49.9	1.6241	50.5399	0.001	50.5409
49.9333	1.6247	50.4084	0.001	50.4094
49.9667	1.6264	50.5136	0.001	50.5146
50	1.6244	50.6319	0.001	50.6329
50.0333	1.626	50.6582	0	50.6582
50.0667	1.6224	50.6714	0.001	50.6724
50.1	1.6251	50.6714	0.001	50.6724
50.1333	1.6254	50.6582	0	50.6582

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
50.1667	1.6267	50.6845	0.001	50.6855
50.2	1.6208	50.7371	0.001	50.7381
50.2333	1.6241	50.7766	0.001	50.7776
50.2667	1.6237	50.7503	0.001	50.7513
50.3	1.6264	50.7766	0	50.7766
50.3333	1.6231	50.8029	0.001	50.8039
50.3667	1.6234	50.8555	0.001	50.8565
50.4	1.6247	50.8555	0.001	50.8565
50.4333	1.6241	50.8949	0.0023	50.8972
50.4667	1.6237	50.8818	0.001	50.8828
50.5	1.6218	50.8686	0	50.8686
50.5333	1.6257	51.0001	0.001	51.0011
50.5667	1.6247	50.9607	0.001	50.9617
50.6	1.6231	50.9738	0	50.9738
50.6333	1.6264	50.9738	0.001	50.9748
50.6667	1.6264	51.0396	0	51.0396
50.7	1.6231	51.0133	0.001	51.0143
50.7333	1.6231	51.0133	0.0023	51.0156
50.7667	1.6228	51.0133	0.001	51.0143
50.8	1.6241	51.0396	0.001	51.0406
50.8333	1.6267	51.0396	0.001	51.0406
50.8667	1.6237	51.1316	0	51.1316
50.9	1.6247	51.079	0.001	51.08
50.9333	1.6221	51.079	0	51.079
50.9667	1.6241	51.1316	0.001	51.1326
51	1.6237	51.1185	0	51.1185
51.0333	1.6234	51.2105	0.0023	51.2128
51.0667	1.6218	51.1448	0	51.1448
51.1	1.6257	51.2105	0	51.2105
51.1333	1.6231	51.1974	0	51.1974
51.1667	1.6228	51.25	0.001	51.251
51.2	1.6237	51.2105	0.001	51.2115
51.2333	1.626	51.2237	0.0023	51.226
51.2667	1.6231	51.2631	0.001	51.2641
51.3	1.6254	51.3289	0	51.3289
51.3333	1.6244	51.3026	0.001	51.3036
51.3667	1.6214	51.2763	0.001	51.2773
51.4	1.6218	51.3157	0.0023	51.318
51.4333	1.6241	51.3289	0.0023	51.3312
51.4667	1.6254	51.3683	0	51.3683
51.5	1.6244	51.3157	0.001	51.3167
51.5333	1.6228	51.3552	0.0023	51.3575
51.5667	1.6241	51.342	0	51.342

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
51.6	1.6208	51.3946	0	51.3946
51.6333	1.6237	51.3552	0.001	51.3562
51.6667	1.6241	51.3289	0	51.3289
51.7	1.6224	51.342	0.0023	51.3443
51.7333	1.6234	51.3289	0.001	51.3299
51.7667	1.6247	51.4078	0.001	51.4087
51.8	1.6218	51.4604	0.001	51.4613
51.8333	1.6224	51.342	0.0023	51.3443
51.8667	1.6241	51.4341	0.001	51.435
51.9	1.5708	51.4078	0.001	51.4087
51.9333	1.4773	51.342	0	51.342
51.9667	1.3904	51.2894	0.001	51.2904
52	1.3048	51.0922	0.001	51.0932
52.0333	1.2281	50.9081	0	50.9081
52.0667	1.158	50.6451	0	50.6451
52.1	1.0896	50.3558	0.001	50.3568
52.1333	1.0257	50.0665	0.001	50.0675
52.1667	0.9612	49.8166	0.001	49.8176
52.2	0.9092	49.4485	0.001	49.4494
52.2333	0.8559	49.0408	0	49.0408
52.2667	0.8039	48.6989	0.001	48.6999
52.3	0.7548	48.1992	0.001	48.2002
52.3333	0.7157	47.9099	0.0023	47.9122
52.3667	0.7078	47.4102	0.001	47.4112
52.4	0.712	46.9632	0.001	46.9641
52.4333	0.7143	46.5161	0.0023	46.5184
52.4667	0.7173	46.2531	0.001	46.2541
52.5	0.719	45.8717	0.001	45.8727
52.5333	0.7183	45.5167	0.0023	45.519
52.5667	0.7153	45.2142	0.0023	45.2165
52.6	0.7176	44.846	0.001	44.847
52.6333	0.7147	44.5173	0.001	44.5183
52.6667	0.7134	44.2017	0.001	44.2027
52.7	0.7081	43.9124	0.001	43.9134
52.7333	0.7097	43.5968	0.001	43.5978
52.7667	0.7265	43.2549	0.0036	43.2585
52.8	0.7772	42.9656	0.001	42.9666
52.8333	0.8216	42.7815	0.0023	42.7838
52.8667	0.8621	42.6763	0.001	42.6773
52.9	0.902	42.4528	0.001	42.4538
52.9333	0.9378	42.4922	0.0023	42.4945
52.9667	0.9707	42.2687	0.0023	42.271
53	1.0004	42.2424	0	42.2424



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
53.0333	1.029	42.1767	0	42.1767
53.0667	1.0616	42.0978	0.001	42.0987
53.1	1.1031	42.1504	0.001	42.1513
53.1333	1.1511	42.1898	0.001	42.1908
53.1667	1.1965	42.1372	0.001	42.1382
53.2	1.2439	42.203	0.001	42.2039
53.2333	1.2857	42.4133	0.001	42.4143
53.2667	1.3295	42.4791	0.0023	42.4814
53.3	1.3696	42.6632	0.001	42.6642
53.3333	1.4072	42.7552	0.001	42.7562
53.3667	1.4424	42.9788	0.0023	42.9811
53.4	1.4783	43.1497	0.001	43.1507
53.4333	1.5062	43.2549	0.001	43.2559
53.4667	1.5415	43.5311	0.001	43.5321
53.5	1.5681	43.6889	0.001	43.6899
53.5333	1.5971	43.8072	0.001	43.8082
53.5667	1.6221	44.1623	0	44.1623
53.6	1.6504	44.3332	0.001	44.3342
53.6333	1.6767	44.6225	0.001	44.6235
53.6667	1.7001	44.6883	0.001	44.6892
53.7	1.7205	44.9512	0.001	44.9522
53.7333	1.7393	45.2011	0.001	45.2021
53.7667	1.7623	45.372	0.001	45.373
53.8	1.787	45.6482	0	45.6482
53.8333	1.8064	45.8717	0.0023	45.874
53.8667	1.8232	46.1216	0.001	46.1226
53.9	1.842	46.3057	0	46.3057
53.9333	1.863	46.5555	0	46.5555
53.9667	1.8795	46.7922	0	46.7922
54	1.8986	47.0158	0.001	47.0167
54.0333	1.915	47.1736	0.0023	47.1759
54.0667	1.9305	47.3445	0.0023	47.3468
54.1	1.9476	47.5549	0.001	47.5559
54.1333	1.9598	47.8705	0	47.8705
54.1667	1.9772	48.0283	0.001	48.0293
54.2	1.9937	48.1729	0.001	48.1739
54.2333	2.0059	48.4885	0.001	48.4895
54.2667	2.0148	48.6989	0	48.6989
54.3	2.0273	48.8699	0	48.8699
54.3333	2.0312	49.1329	0	49.1329
54.3667	2.0345	49.2118	0	49.2118
54.4	2.0394	49.3959	0.001	49.3968
54.4333	2.0391	49.6063	0.001	49.6072



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
54.4667	2.0404	49.672	0.001	49.673
54.5	2.0444	50.0139	0.001	50.0149
54.5333	2.0487	50.1717	0.001	50.1727
54.5667	2.0503	50.3426	0	50.3426
54.6	2.0529	50.4741	0.0023	50.4764
54.6333	2.0529	50.5662	0	50.5662
54.6667	2.0519	50.7634	0.001	50.7644
54.7	2.0536	50.9344	0.001	50.9354
54.7333	2.0536	51.0659	0	51.0659
54.7667	2.0539	51.1842	0.001	51.1852
54.8	2.0539	51.3289	0	51.3289
54.8333	2.0477	51.513	0	51.513
54.8667	2.0454	51.5656	0.001	51.5665
54.9	2.0401	51.7628	0.001	51.7638
54.9333	2.0358	51.8549	0.001	51.8558
54.9667	2.0348	51.9469	0.0023	51.9492
55	2.0325	52.1836	0.001	52.1846
55.0333	2.0289	52.2625	0.0023	52.2648
55.0667	2.0292	52.4334	0.001	52.4344
55.1	2.0299	52.4992	0.001	52.5002
55.1333	2.0312	52.6701	0	52.6701
55.1667	2.0322	52.5912	0.0023	52.5935
55.2	2.0296	52.7227	0.001	52.7237
55.2333	2.0276	52.8805	0.001	52.8815
55.2667	2.0246	52.8805	0.0023	52.8828
55.3	2.0266	53.0778	0.001	53.0788
55.3333	2.025	52.9857	0.0023	52.988
55.3667	2.0207	53.1961	0.0023	53.1984
55.4	2.02	53.2882	0.0036	53.2918
55.4333	2.018	53.3802	0	53.3802
55.4667	2.0187	53.4328	0.001	53.4338
55.5	2.0187	53.5906	0.001	53.5916
55.5333	2.0187	53.5643	0	53.5643
55.5667	2.0151	53.7353	0.0023	53.7376
55.6	2.0157	53.7221	0.001	53.7231
55.6333	2.0154	53.9325	0.001	53.9335
55.6667	2.0151	53.9457	0.0023	53.948
55.7	2.0151	54.064	0.0023	54.0663
55.7333	2.0164	54.0903	0.001	54.0913
55.7667	2.0128	54.1429	0.001	54.1439
55.8	2.0161	54.235	0	54.235
55.8333	2.0154	54.2613	0	54.2613
55.8667	2.019	54.3928	0.0023	54.3951

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
55.9	2.018	54.4979	0.0023	54.5003
55.9333	2.0167	54.5505	0	54.5505
55.9667	2.021	54.6294	0.001	54.6304
56	2.0184	54.5374	0.001	54.5384
56.0333	2.019	54.6426	0.001	54.6436
56.0667	2.0217	54.6557	0.0023	54.658
56.1	2.0194	54.8135	0.0023	54.8158
56.1333	2.0213	54.8267	0.001	54.8277
56.1667	2.0217	54.8398	0	54.8398
56.2	2.0184	54.9319	0.001	54.9329
56.2333	2.0243	54.9582	0	54.9582
56.2667	2.022	55.1423	0	55.1423
56.3	2.0223	55.1817	0.001	55.1827
56.3333	2.0223	55.0765	0.0023	55.0788
56.3667	2.0259	55.1817	0.001	55.1827
56.4	2.0243	55.4184	0.001	55.4194
56.4333	2.025	55.3658	0	55.3658
56.4667	2.0263	55.4316	0.001	55.4326
56.5	2.0259	55.5105	0	55.5105
56.5333	2.0223	55.5631	0.001	55.5641
56.5667	2.0256	55.5368	0.0023	55.5391
56.6	2.0253	55.5499	0	55.5499
56.6333	2.0246	55.7472	0.001	55.7482
56.6667	2.0246	55.7998	0.001	55.8008
56.7	2.0246	55.8129	0	55.8129
56.7333	2.0279	55.9707	0	55.9707
56.7667	2.0263	55.9444	0.001	55.9454
56.8	2.0276	55.997	0	55.997
56.8333	2.0282	56.0891	0	56.0891
56.8667	2.0263	56.0891	0.0023	56.0914
56.9	2.0299	56.1022	0	56.1022
56.9333	2.0309	56.168	0	56.168
56.9667	2.0306	56.168	0.001	56.169
57	2.0306	56.2337	0.001	56.2347
57.0333	2.0335	56.3521	0.001	56.353
57.0667	2.0292	56.2995	0.001	56.3004
57.1	2.0273	56.3652	0.001	56.3662
57.1333	2.0322	56.3389	0.001	56.3399
57.1667	2.0315	56.3521	0.001	56.353
57.2	2.0282	56.5099	0	56.5099
57.2333	2.0315	56.6019	0	56.6019
57.2667	2.0299	56.5099	0.001	56.5108
57.3	2.0282	56.6019	0.001	56.6029

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
57.3333	2.0302	56.5888	0	56.5888
57.3667	2.0325	56.8123	0.001	56.8133
57.4	2.0319	56.9043	0.001	56.9053
57.4333	2.0296	56.9043	0.001	56.9053
57.4667	2.0309	56.8386	0.0023	56.8409
57.5	2.0322	56.9043	0	56.9043
57.5333	2.0309	56.9306	0.001	56.9316
57.5667	2.0338	57.0621	0.0023	57.0644
57.6	2.0322	57.0095	0.0023	57.0118
57.6333	2.0329	56.9832	0	56.9832
57.6667	2.0302	56.9701	0.001	56.9711
57.7	2.0319	57.0884	0	57.0884
57.7333	2.0279	57.049	0	57.049
57.7667	2.0302	57.0358	0	57.0358
57.8	2.0269	57.141	0.001	57.142
57.8333	2.0236	57.1805	0.0036	57.1841
57.8667	2.0207	57.1936	0.001	57.1946
57.9	2.0217	57.312	0.001	57.313
57.9333	2.0197	57.3251	0.001	57.3261
57.9667	2.0148	57.2199	0.001	57.2209
58	2.0184	57.2988	0.0023	57.3011
58.0333	2.0138	57.4566	0.0023	57.4589
58.0667	2.0124	57.4303	0.001	57.4313
58.1	2.0128	57.4172	0.001	57.4182
58.1333	2.0121	57.404	0	57.404
58.1667	2.0088	57.5618	0.001	57.5628
58.2	2.0105	57.4566	0.0023	57.4589
58.2333	2.0072	57.3909	0.001	57.3919
58.2667	2.0098	57.4961	0.0023	57.4984
58.3	2.0111	57.5224	0	57.5224
58.3333	2.0092	57.4566	0	57.4566
58.3667	2.0131	57.5618	0.001	57.5628
58.4	2.0088	57.5092	0	57.5092
58.4333	2.0088	57.5618	0.001	57.5628
58.4667	2.0124	57.6144	0.001	57.6154
58.5	2.0128	57.7328	0.001	57.7338
58.5333	2.0118	57.575	0.0023	57.5773
58.5667	2.0085	57.5881	0	57.5881
58.6	2.0164	57.7196	0.001	57.7206
58.6333	2.0144	57.7065	0.001	57.7075
58.6667	2.0128	57.7591	0.0023	57.7614
58.7	2.0151	57.7196	0.001	57.7206
58.7333	2.0108	57.7459	0.001	57.7469

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
58.7667	2.0138	57.7459	0	57.7459
58.8	2.0148	57.7854	0.001	57.7864
58.8333	2.0124	57.8117	0.001	57.8127
58.8667	2.0134	57.8643	0.001	57.8653
58.9	2.0098	57.8511	0	57.8511
58.9333	2.0157	57.7854	0.001	57.7864
58.9667	2.0141	57.9826	0.001	57.9836
59	2.0118	57.93	0.0023	57.9323
59.0333	2.0144	57.8511	0.001	57.8521
59.0667	2.0154	57.9958	0.0036	57.9994
59.1	2.0144	57.8906	0.0023	57.8929
59.1333	2.0138	58.1141	0.0036	58.1177
59.1667	2.0148	57.9958	0.001	57.9968
59.2	2.0138	57.8511	0.0023	57.8534
59.2333	2.0171	58.0747	0.001	58.0757
59.2667	2.0164	57.9695	0.0023	57.9718
59.3	2.0157	57.9958	0	57.9958
59.3333	2.0164	58.0221	0.0036	58.0257
59.3667	2.0138	58.0352	0.001	58.0362
59.4	2.0161	58.1273	0.0023	58.1296
59.4333	2.0141	58.1273	0.001	58.1283
59.4667	2.0013	58.0221	0.001	58.0231
59.5	1.9088	58.0878	0	58.0878
59.5333	1.8054	57.9826	0	57.9826
59.5667	1.7077	57.8248	0.001	57.8258
59.6	1.6162	57.7722	0	57.7722
59.6333	1.5283	57.5224	0.001	57.5234
59.6667	1.45	57.2462	0.001	57.2472
59.7	1.3706	56.8518	0.001	56.8527
59.7333	1.2956	56.7071	0.001	56.7081
59.7667	1.2317	56.3784	0.001	56.3793
59.8	1.1682	55.9839	0	55.9839
59.8333	1.1083	55.5762	0	55.5762
59.8667	1.0501	55.2212	0	55.2212
59.9	0.9977	54.853	0	54.853
59.9333	0.9454	54.4848	0.001	54.4858
59.9667	0.8964	54.0772	0.0023	54.0795
60	0.8526	53.5906	0	53.5906
60.0333	0.8052	53.1172	0.001	53.1182
60.0667	0.7687	52.5649	0.001	52.5659
60.1	0.7272	52.1047	0.001	52.1057
60.1333	0.692	51.6445	0.001	51.6454
60.1667	0.6577	51.079	0	51.079

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
60.2	0.6265	50.6056	0.001	50.6066
60.2333	0.5922	50.1191	0.001	50.1201
60.2667	0.5652	49.5142	0.0023	49.5165
60.3	0.5353	48.9356	0.001	48.9366
60.3333	0.5073	48.4096	0.001	48.4106
60.3667	0.4846	47.9231	0	47.9231
60.4	0.4556	47.3182	0.0023	47.3205
60.4333	0.4346	46.7528	0	46.7528
60.4667	0.4112	46.1742	0	46.1742
60.5	0.3934	45.6087	0.001	45.6097
60.5333	0.3717	44.9644	0.001	44.9654
60.5667	0.3523	44.491	0.001	44.492
60.6	0.3332	43.8993	0.001	43.9003
60.6333	0.3177	43.2681	0	43.2681
60.6667	0.2973	42.6895	0.001	42.6905
60.7	0.2829	42.0583	0.0036	42.0619
60.7333	0.2684	41.3745	0.001	41.3755
60.7667	0.2562	40.8748	0	40.8748
60.8	0.2387	40.2831	0.001	40.2841
60.8333	0.2262	39.6519	0	39.6519
60.8667	0.2157	39.0602	0.001	39.0612
60.9	0.2042	38.4816	0.001	38.4826
60.9333	0.1943	37.8898	0	37.8898
60.9667	0.1815	37.2061	0.001	37.207
61	0.1739	36.6143	0	36.6143
61.0333	0.1611	35.97	0	35.97
61.0667	0.1565	35.4045	0	35.4045
61.1	0.144	34.7734	0	34.7734
61.1333	0.1328	34.1553	0	34.1553
61.1667	0.1268	33.5636	0	33.5636
61.2	0.1173	32.9587	0.001	32.9597
61.2333	0.1117	32.3012	0.001	32.3022
61.2667	0.1035	31.67	0.001	31.671
61.3	0.0999	31.1046	0.0023	31.1069
61.3333	0.0943	30.526	0.001	30.527
61.3667	0.0873	29.8291	0.001	29.83
61.4	0.0817	29.2373	0.0023	29.2396
61.4333	0.0745	28.6324	0.001	28.6334
61.4667	0.0692	28.0275	0.001	28.0285
61.5	0.0666	27.4621	0.0023	27.4644
61.5333	0.0613	26.8046	0.0023	26.8069
61.5667	0.0541	26.2523	0.001	26.2533
61.6	0.0511	25.6606	0	25.6606



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
61.6333	0.0465	25.0952	0	25.0952
61.6667	0.0416	24.4508	0	24.4508
61.7	0.0406	23.8591	0.001	23.8601
61.7333	0.0353	23.3594	0	23.3594
61.7667	0.034	22.8334	0.001	22.8344
61.8	0.0284	22.2022	0.0023	22.2045
61.8333	0.0258	21.6236	0.001	21.6246
61.8667	0.0215	21.0713	0.001	21.0723
61.9	0.0245	20.4928	0.001	20.4937
61.9333	0.0153	19.9405	0.001	19.9415
61.9667	0.0182	19.3619	0	19.3619
62	0.0156	18.7701	0.001	18.7711
62.0333	0.0107	18.2968	0	18.2968
62.0667	0.0093	17.6787	0.0023	17.681
62.1	0.01	17.1264	0.001	17.1274
62.1333	0.0031	16.6662	0	16.6662
62.1667	0.0037	16.1139	0.0023	16.1162
62.2	-0.0002	15.6405	0.001	15.6415
62.2333	-0.0005	15.1277	0.001	15.1287
62.2667	0.0011	14.5885	0	14.5885
62.3	-0.0018	14.1151	0.001	14.1161
62.3333	-0.0045	13.6023	0.0023	13.6046
62.3667	-0.0078	13.1421	0.001	13.143
62.4	-0.0084	12.7081	0	12.7081
62.4333	-0.0071	12.2479	0	12.2479
62.4667	-0.0081	11.7219	0.0023	11.7242
62.5	-0.0111	11.3011	0.001	11.3021
62.5333	-0.0117	10.854	0.001	10.855
62.5667	-0.0137	10.4595	0	10.4595
62.6	-0.016	10.0519	0.0023	10.0542
62.6333	-0.0127	9.6179	0.001	9.6189
62.6667	-0.0137	9.1971	0	9.1971
62.7	-0.0147	8.8684	0.001	8.8694
62.7333	-0.0186	8.4476	0.001	8.4486
62.7667	-0.019	8.1057	0	8.1057
62.8	-0.018	7.777	0.001	7.778
62.8333	-0.0219	7.4745	0.0023	7.4768
62.8667	-0.0213	7.0932	0.0023	7.0955
62.9	-0.0216	6.817	0	6.817
62.9333	-0.0196	6.5146	0.001	6.5156
62.9667	-0.0209	6.2122	0.0036	6.2158
63	-0.0269	5.9229	0.0023	5.9252
63.0333	-0.0246	5.673	0	5.673



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
63.0667	-0.0232	5.3706	0.001	5.3716
63.1	-0.0242	5.1076	0.001	5.1086
63.1333	-0.0259	4.9103	0.001	4.9113
63.1667	-0.0229	4.6999	0	4.6999
63.2	-0.0252	4.4238	0	4.4238
63.2333	-0.0265	4.2528	0.001	4.2538
63.2667	-0.0255	4.0556	0.0023	4.0579
63.3	-0.0269	3.8189	0.001	3.8199
63.3333	-0.0262	3.648	0	3.648
63.3667	-0.0229	3.477	0	3.477
63.4	-0.0239	3.3061	0.001	3.307
63.4333	-0.0259	3.1877	0.0023	3.19
63.4667	-0.0252	3.0036	0	3.0036
63.5	-0.0252	0	0.001	0.001
63.5333	-0.0262	0	0.001	0.001
63.5667	-0.0292	0.0186	0	0.0186
63.6	-0.0279	0.0055	0	0.0055
63.6333	-0.0275	0.0186	0.001	0.0196
63.6667	-0.0285	0	0.0036	0.0036
63.7	-0.0183	0.0186	0.001	0.0196
63.7333	-0.0157	0.0055	0.0023	0.0078
63.7667	-0.0176	0.0055	0.0023	0.0078
63.8	-0.016	0.0055	0.001	0.0065
63.8333	-0.0282	0.0186	0.001	0.0196
63.8667	-0.0242	0.0055	0.001	0.0065
63.9	-0.0259	0.0055	0.001	0.0065
63.9333	-0.0265	0	0.001	0.001
63.9667	-0.0282	0	0	0
64	-0.0269	0.0055	0.001	0.0065
64.0333	-0.0269	0.0055	0.001	0.0065
64.0667	-0.0295	0.0186	0.001	0.0196
64.1	-0.0117	0.0055	0.001	0.0065
64.1333	-0.0272	0.0055	0.001	0.0065
64.1667	-0.0302	0.0055	0.001	0.0065
64.2	-0.0315	0.0055	0.001	0.0065
64.2333	-0.0285	0.0055	0.001	0.0065
64.2667	-0.0305	0.0055	0.001	0.0065
64.3	-0.0348	0.0055	0.001	0.0065
64.3333	-0.0334	0.0055	0.001	0.0065
64.3667	-0.0321	0.0186	0.001	0.0196
64.4	-0.0331	0.0055	0.0023	0.0078
64.4333	-0.0341	0.0055	0.001	0.0065
64.4667	-0.0315	0.0055	0	0.0055

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
64.5	-0.0292	0.0186	0	0.0186
64.5333	-0.0328	0.0055	0.001	0.0065
64.5667	-0.0302	0.0055	0.001	0.0065
64.6	-0.0318	0.0055	0.001	0.0065
64.6333	-0.0315	0.0186	0.0023	0.0209
64.6667	-0.0272	0.0055	0.001	0.0065
64.7	-0.0308	0.0055	0.001	0.0065
64.7333	-0.0298	0.0055	0.001	0.0065
64.7667	-0.0272	0	0.001	0.001
64.8	-0.0318	0.0055	0.001	0.0065
64.8333	-0.0176	0.0055	0.0023	0.0078
64.8667	0.008	0.0055	0	0.0055
64.9	0.0265	0	0.001	0.001
64.9333	0.0508	10.2097	0.001	10.2107
64.9667	0.0841	11.7087	0	11.7087
65	0.1183	12.7607	0.001	12.7617
65.0333	0.165	13.3919	0.0023	13.3942
65.0667	0.2095	13.9047	0.001	13.9057
65.1	0.2568	14.1151	0.001	14.1161
65.1333	0.3072	14.3518	0.0023	14.3541
65.1667	0.3549	14.5228	0.0023	14.5251
65.2	0.405	14.6674	0.001	14.6684
65.2333	0.455	14.9041	0.001	14.9051
65.2667	0.4981	15.0619	0.001	15.0629
65.3	0.5422	15.2723	0	15.2723
65.3333	0.5857	15.4696	0.0036	15.4732
65.3667	0.6278	15.6274	0.001	15.6283
65.4	0.6745	15.8378	0	15.8378
65.4333	0.7127	16.0087	0	16.0087
65.4667	0.7492	16.1928	0.001	16.1938
65.5	0.7891	16.4821	0.001	16.4831
65.5333	0.8302	16.6136	0.0023	16.6159
65.5667	0.8648	16.824	0	16.824
65.6	0.8977	17.0344	0.001	17.0354
65.6333	0.9326	17.2053	0.0023	17.2076
65.6667	0.9698	17.4289	0	17.4289
65.7	1.0033	17.5998	0.001	17.6008
65.7333	1.0359	17.8234	0	17.8234
65.7667	1.0682	17.9549	0.0023	17.9572
65.8	1.0998	18.1916	0	18.1916
65.8333	1.133	18.3625	0.001	18.3635
65.8667	1.1646	18.494	0.001	18.495
65.9	1.1942	18.6518	0.001	18.6528

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
65.9333	1.2275	18.8753	0.0023	18.8776
65.9667	1.2535	19.02	0.001	19.021
66	1.2854	19.2304	0	19.2304
66.0333	1.313	19.3882	0.001	19.3892
66.0667	1.339	19.5065	0	19.5065
66.1	1.368	19.6512	0.001	19.6522
66.1333	1.3963	19.8484	0.001	19.8494
66.1667	1.4226	19.9931	0.001	19.9941
66.2	1.449	20.1377	0.001	20.1387
66.2333	1.473	20.2955	0.001	20.2965
66.2667	1.5016	20.4665	0.001	20.4674
66.3	1.5253	20.6374	0.0023	20.6397
66.3333	1.552	20.7163	0.001	20.7173
66.3667	1.575	20.8609	0.0023	20.8632
66.4	1.5964	21.0056	0.0023	21.0079
66.4333	1.6218	21.1765	0.001	21.1775
66.4667	1.6438	21.3212	0.001	21.3222
66.5	1.6685	21.5053	0.0023	21.5076
66.5333	1.6915	21.6368	0.0023	21.6391
66.5667	1.71	21.7157	0	21.7157
66.6	1.7347	21.8472	0.0023	21.8495
66.6333	1.7574	21.9261	0.001	21.9271
66.6667	1.7778	22.0444	0.001	22.0454
66.7	1.7985	22.2022	0	22.2022
66.7333	1.8176	22.3469	0	22.3469
66.7667	1.8413	22.3995	0	22.3995
66.8	1.8624	22.5047	0	22.5047
66.8333	1.8778	22.6888	0.001	22.6897
66.8667	1.9015	22.7545	0.001	22.7555
66.9	1.9193	22.8729	0	22.8729
66.9333	1.9407	22.9912	0.001	22.9922
66.9667	1.9591	23.0833	0.0023	23.0856
67	1.9782	23.1621	0.001	23.1631
67.0333	1.9963	23.2542	0.001	23.2552
67.0667	2.0161	23.3594	0.001	23.3604
67.1	2.0243	23.4514	0.001	23.4524
67.1333	2.0329	23.6224	0	23.6224
67.1667	2.0348	23.675	0	23.675
67.2	2.0381	23.767	0	23.767
67.2333	2.0401	23.8065	0.001	23.8075
67.2667	2.0437	23.8591	0.0023	23.8614
67.3	2.0477	23.9643	0	23.9643
67.3333	2.051	24.0169	0	24.0169

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
67.3667	2.0493	24.0958	0	24.0958
67.4	2.0552	24.1484	0.0023	24.1507
67.4333	2.0529	24.1352	0.001	24.1362
67.4667	2.0513	24.2799	0.001	24.2809
67.5	2.051	24.3062	0.001	24.3072
67.5333	2.046	24.3456	0.0023	24.3479
67.5667	2.0487	24.4245	0.001	24.4255
67.6	2.0454	24.5034	0.0023	24.5057
67.6333	2.0427	24.5166	0.001	24.5176
67.6667	2.0411	24.5429	0.001	24.5439
67.7	2.0361	24.5692	0.001	24.5702
67.7333	2.0332	24.6218	0.0023	24.6241
67.7667	2.0302	24.6744	0	24.6744
67.8	2.0296	24.7401	0.001	24.7411
67.8333	2.0259	24.7138	0	24.7138
67.8667	2.0259	24.7796	0.0036	24.7832
67.9	2.024	24.8585	0.001	24.8595
67.9333	2.0236	24.8716	0.0023	24.8739
67.9667	2.0243	24.8979	0	24.8979
68	2.0194	24.8848	0.001	24.8857
68.0333	2.021	24.9505	0.0023	24.9528
68.0667	2.019	24.9768	0.001	24.9778
68.1	2.019	25.0426	0.001	25.0435
68.1333	2.0141	25.0031	0.001	25.0041
68.1667	2.0124	25.0557	0.001	25.0567
68.2	2.0177	25.1215	0.001	25.1224
68.2333	2.0148	25.1609	0.001	25.1619
68.2667	2.018	25.1478	0.001	25.1487
68.3	2.0171	25.2267	0.0023	25.229
68.3333	2.018	25.2004	0.001	25.2013
68.3667	2.02	25.2004	0.001	25.2013
68.4	2.021	25.2793	0.001	25.2802
68.4333	2.0223	25.3319	0.001	25.3328
68.4667	2.0217	25.3319	0.001	25.3328
68.5	2.025	25.3056	0	25.3056
68.5333	2.0236	25.3845	0.001	25.3854
68.5667	2.0253	25.3976	0	25.3976
68.6	2.0286	25.3976	0.001	25.3986
68.6333	2.0286	25.3976	0.001	25.3986
68.6667	2.0279	25.4371	0.0023	25.4394
68.7	2.0302	25.4897	0.0023	25.492
68.7333	2.0315	25.5028	0.001	25.5038
68.7667	2.0335	25.4502	0	25.4502

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
68.8	2.0352	25.4897	0.001	25.4906
68.8333	2.0342	25.516	0.001	25.5169
68.8667	2.0299	25.5685	0.001	25.5695
68.9	2.0296	25.5422	0.0023	25.5446
68.9333	2.0263	25.6343	0.001	25.6353
68.9667	2.0259	25.608	0.001	25.609
69	2.0269	25.5685	0.001	25.5695
69.0333	2.022	25.6343	0	25.6343
69.0667	2.019	25.6343	0.0023	25.6366
69.1	2.0213	25.6606	0.0023	25.6629
69.1333	2.021	25.6211	0.0023	25.6234
69.1667	2.0194	25.6737	0	25.6737
69.2	2.0151	25.6869	0.0023	25.6892
69.2333	2.0157	25.7263	0	25.7263
69.2667	2.0174	25.7132	0	25.7132
69.3	2.0138	25.6606	0	25.6606
69.3333	2.0134	25.6606	0	25.6606
69.3667	2.0108	25.7132	0	25.7132
69.4	2.0098	25.7132	0	25.7132
69.4333	2.0095	25.7132	0.001	25.7142
69.4667	2.0138	25.7658	0.001	25.7668
69.5	2.0111	25.7526	0.001	25.7536
69.5333	2.0148	25.7263	0	25.7263
69.5667	2.0098	25.8184	0.001	25.8194
69.6	2.0115	25.7789	0.001	25.7799
69.6333	2.0101	25.7921	0.001	25.7931
69.6667	2.0144	25.7789	0	25.7789
69.7	2.0124	25.8447	0	25.8447
69.7333	2.0154	25.8315	0.001	25.8325
69.7667	2.0108	25.8841	0.001	25.8851
69.8	2.0138	25.8052	0	25.8052
69.8333	2.0154	25.871	0.001	25.872
69.8667	2.0171	25.871	0.0023	25.8733
69.9	2.0174	25.871	0.001	25.872
69.9333	2.0174	25.871	0.001	25.872
69.9667	2.0167	25.8841	0.001	25.8851
70	2.0164	25.9236	0.001	25.9246
70.0333	2.0197	25.871	0.0023	25.8733
70.0667	2.0157	25.871	0.001	25.872
70.1	2.0138	25.9104	0	25.9104
70.1333	2.0164	25.8841	0.001	25.8851
70.1667	2.019	25.9104	0.001	25.9114
70.2	2.0167	25.9367	0.001	25.9377



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
70.2333	2.0203	25.8841	0.0023	25.8864
70.2667	2.0194	25.9367	0.001	25.9377
70.3	2.0194	25.9762	0	25.9762
70.3333	2.0194	25.9893	0.0023	25.9916
70.3667	2.02	25.9893	0.001	25.9903
70.4	2.0207	25.9367	0.001	25.9377
70.4333	2.0217	25.9762	0	25.9762
70.4667	2.019	25.963	0.001	25.964
70.5	2.021	25.9762	0.0023	25.9785
70.5333	2.0203	25.9893	0	25.9893
70.5667	2.0203	25.9762	0	25.9762
70.6	2.02	25.9762	0	25.9762
70.6333	2.0227	26.0288	0	26.0288
70.6667	2.0217	25.9762	0	25.9762
70.7	2.021	25.9893	0.0036	25.993
70.7333	2.0217	25.963	0.0023	25.9653
70.7667	2.0227	25.9499	0.001	25.9509
70.8	2.0236	26.0288	0.001	26.0298
70.8333	2.02	26.0025	0.001	26.0035
70.8667	2.0223	26.0551	0.0023	26.0574
70.9	2.0243	26.0288	0	26.0288
70.9333	2.0246	26.0025	0.001	26.0035
70.9667	2.024	26.0419	0	26.0419
71	2.0233	26.0025	0.001	26.0035
71.0333	2.0259	26.0814	0.001	26.0824
71.0667	2.0269	26.0814	0	26.0814
71.1	2.0243	26.0288	0.0023	26.0311
71.1333	2.0243	26.0288	0.0023	26.0311
71.1667	2.0256	26.0682	0	26.0682
71.2	2.0236	26.0551	0.001	26.0561
71.2333	2.0246	26.0419	0	26.0419
71.2667	2.0289	26.0945	0	26.0945
71.3	2.0273	26.0814	0.001	26.0824
71.3333	2.0289	26.0551	0.001	26.0561
71.3667	2.0246	26.0682	0	26.0682
71.4	2.0279	26.0551	0.0023	26.0574
71.4333	2.0256	26.0814	0.001	26.0824
71.4667	2.0246	26.0682	0.001	26.0692
71.5	2.0276	26.0814	0.001	26.0824
71.5333	2.0223	26.0814	0	26.0814
71.5667	2.024	26.1077	0.001	26.1087
71.6	2.0266	26.0814	0.001	26.0824
71.6333	2.0256	26.1077	0	26.1077



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
71.6667	2.0243	26.0814	0.001	26.0824
71.7	2.0302	26.0814	0.001	26.0824
71.7333	2.0266	26.0419	0	26.0419
71.7667	2.0263	26.0682	0.0023	26.0705
71.8	2.0243	26.0682	0	26.0682
71.8333	2.0259	26.1077	0.001	26.1087
71.8667	2.0282	26.1208	0.0023	26.1231
71.9	2.0256	26.0814	0	26.0814
71.9333	2.0256	26.0945	0	26.0945
71.9667	2.0269	26.0682	0.001	26.0692
72	2.0282	26.0945	0.001	26.0955
72.0333	2.0296	26.1471	0	26.1471
72.0667	2.0306	26.0814	0.001	26.0824
72.1	2.0302	26.134	0	26.134
72.1333	2.0296	26.1471	0.001	26.1481
72.1667	2.0273	26.0945	0.0023	26.0968
72.2	2.0282	26.134	0.001	26.135
72.2333	2.0299	26.1077	0	26.1077
72.2667	2.0213	26.1603	0	26.1603
72.3	1.9476	26.0551	0	26.0551
72.3333	1.8716	26.1208	0.0023	26.1231
72.3667	1.7893	26.0551	0	26.0551
72.4	1.7096	26.0156	0.001	26.0166
72.4333	1.6369	26.0025	0	26.0025
72.4667	1.5629	25.963	0	25.963
72.5	1.495	25.9236	0.001	25.9246
72.5333	1.4253	25.8052	0	25.8052
72.5667	1.3647	25.7132	0	25.7132
72.6	1.3028	25.7658	0.001	25.7668
72.6333	1.2416	25.6343	0.001	25.6353
72.6667	1.1873	25.5028	0.001	25.5038
72.7	1.132	25.4371	0.001	25.438
72.7333	1.0774	25.345	0.001	25.346
72.7667	1.0264	25.2004	0.001	25.2013
72.8	0.9747	25.0689	0	25.0689
72.8333	0.9306	24.99	0	24.99
72.8667	0.8848	24.7796	0.001	24.7806
72.9	0.8424	24.6349	0.001	24.6359
72.9333	0.7999	24.464	0.001	24.465
72.9667	0.7601	24.2799	0.001	24.2809
73	0.7206	24.0958	0	24.0958
73.0333	0.6857	23.9774	0.001	23.9784
73.0667	0.6479	23.8196	0.001	23.8206

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
73.1	0.6153	23.4646	0.001	23.4656
73.1333	0.5797	23.3725	0.001	23.3735
73.1667	0.5491	23.057	0	23.057
73.2	0.5195	22.794	0.001	22.7949
73.2333	0.4938	22.531	0.001	22.5319
73.2667	0.4655	22.2548	0.001	22.2558
73.3	0.4379	21.9918	0.0023	21.9941
73.3333	0.4135	21.6762	0.001	21.6772
73.3667	0.3882	21.3738	0.001	21.3748
73.4	0.3661	21.0976	0	21.0976
73.4333	0.3444	20.782	0.001	20.783
73.4667	0.321	20.4402	0	20.4402
73.5	0.3026	20.1114	0.001	20.1124
73.5333	0.2822	19.809	0.001	19.81
73.5667	0.2661	19.4539	0.001	19.4549
73.6	0.2503	19.0989	0.001	19.0999
73.6333	0.2302	18.7438	0	18.7438
73.6667	0.2193	18.3625	0.001	18.3635
73.7	0.2048	17.9417	0.001	17.9427
73.7333	0.1874	17.6261	0.001	17.6271
73.7667	0.1749	17.1922	0.001	17.1932
73.8	0.164	16.7977	0.001	16.7987
73.8333	0.1505	16.4032	0.0023	16.4055
73.8667	0.141	16.0218	0.001	16.0228
73.9	0.1305	15.6668	0.0023	15.6691
73.9333	0.1219	15.1803	0	15.1803
73.9667	0.1127	14.8252	0	14.8252
74	0.1018	14.3518	0.001	14.3528
74.0333	0.0936	13.9705	0.001	13.9715
74.0667	0.0864	13.5234	0.001	13.5244
74.1	0.0827	13.1421	0.001	13.143
74.1333	0.0758	12.6292	0.001	12.6302
74.1667	0.0669	12.261	0.001	12.262
74.2	0.0604	11.8534	0.0023	11.8557
74.2333	0.0521	11.472	0.001	11.473
74.2667	0.0518	10.9855	0.0023	10.9878
74.3	0.0446	10.6042	0.0023	10.6065
74.3333	0.0442	10.1834	0.001	10.1844
74.3667	0.039	9.8152	0.001	9.8162
74.4	0.037	9.3944	0.0023	9.3967
74.4333	0.0301	8.9736	0.001	8.9746
74.4667	0.0265	8.6186	0.0023	8.6209
74.5	0.0245	8.2241	0	8.2241

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
74.5333	0.0199	7.9216	0.001	7.9226
74.5667	0.0176	7.514	0.001	7.515
74.6	0.0133	7.1852	0.0023	7.1875
74.6333	0.0133	6.8302	0	6.8302
74.6667	0.012	6.5146	0.001	6.5156
74.7	0.0074	6.1727	0.001	6.1737
74.7333	0.006	5.9229	0	5.9229
74.7667	0.0067	5.5941	0.001	5.5951
74.8	0.0021	5.3443	0.0023	5.3466
74.8333	0.0021	5.0024	0.001	5.0034
74.8667	0.0011	4.7394	0.001	4.7404
74.9	-0.0005	4.4501	0	4.4501
74.9333	-0.0035	4.2265	0.001	4.2275
74.9667	-0.0038	3.9635	0.001	3.9645
75	-0.0068	3.5954	0	3.5954
75.0333	-0.0035	3.4244	0.0023	3.4267
75.0667	-0.0032	3.1483	0.001	3.1493
75.1	-0.0065	0.0055	0.001	0.0065
75.1333	-0.0058	0	0.001	0.001
75.1667	-0.0084	0.0055	0.001	0.0065
75.2	-0.0101	0.0055	0.001	0.0065
75.2333	-0.0127	0.0055	0.001	0.0065
75.2667	-0.0111	0.0055	0.001	0.0065
75.3	-0.0114	0.0186	0	0.0186
75.3333	-0.015	0	0	0
75.3667	-0.0163	0.0055	0.001	0.0065
75.4	-0.014	0	0.001	0.001
75.4333	-0.0157	0.0186	0.001	0.0196
75.4667	-0.017	0	0.0023	0.0023
75.5	-0.016	0.0055	0.0023	0.0078
75.5333	-0.0157	0.0186	0.0023	0.0209
75.5667	-0.0153	0.0186	0.0036	0.0222
75.6	-0.0163	0.0055	0.0023	0.0078
75.6333	-0.0173	0.0186	0	0.0186
75.6667	-0.018	0.0186	0.001	0.0196
75.7	-0.0176	0.0318	0.0023	0.0341
75.7333	-0.0173	0.0186	0	0.0186
75.7667	-0.0176	0.0186	0.001	0.0196
75.8	-0.0203	0.0055	0.001	0.0065
75.8333	-0.0203	0	0.0023	0.0023
75.8667	-0.0232	0.0055	0	0.0055
75.9	-0.0216	0.0186	0	0.0186
75.9333	-0.019	0.0055	0	0.0055

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
75.9667	-0.0203	0.0055	0.001	0.0065
76	-0.019	0.0055	0.001	0.0065
76.0333	-0.0209	0.0186	0.0023	0.0209
76.0667	-0.0226	0	0.001	0.001
76.1	-0.0226	0.0055	0.001	0.0065
76.1333	-0.0203	0.0055	0.001	0.0065
76.1667	-0.0203	0	0.0023	0.0023
76.2	-0.0246	0.0055	0.0023	0.0078
76.2333	-0.0226	0.0055	0.001	0.0065
76.2667	-0.0242	0	0.001	0.001
76.3	-0.0213	0.0318	0	0.0318
76.3333	-0.0232	0.0055	0.001	0.0065
76.3667	-0.0259	0.0055	0.001	0.0065
76.4	-0.0229	0.0186	0.001	0.0196
76.4333	-0.0236	0	0.001	0.001
76.4667	-0.0229	0.0186	0.001	0.0196
76.5	-0.0249	0	0.001	0.001
76.5333	-0.0265	0.0055	0.001	0.0065
76.5667	-0.0275	0.0055	0	0.0055
76.6	-0.0311	0.0186	0.0036	0.0222
76.6333	-0.0288	0.0186	0.001	0.0196
76.6667	-0.0275	0.0186	0.001	0.0196
76.7	-0.0292	0.0055	0.001	0.0065
76.7333	-0.0295	0.0186	0.001	0.0196
76.7667	-0.0272	0.0186	0	0.0186
76.8	-0.0272	0.0055	0	0.0055
76.8333	-0.0288	0.0055	0.001	0.0065
76.8667	-0.0275	0.0055	0.001	0.0065
76.9	-0.0176	0.0449	0	0.0449
76.9333	-0.0298	0.0186	0.0023	0.0209
76.9667	-0.0262	0.0186	0.001	0.0196
77	-0.0275	0.0055	0	0.0055
77.0333	-0.0242	0.0055	0	0.0055
77.0667	-0.0252	0	0.0023	0.0023
77.1	-0.0262	0.0186	0.001	0.0196
77.1333	-0.0259	0.0055	0.001	0.0065
77.1667	-0.0252	0.0055	0.001	0.0065
77.2	-0.0259	0.0055	0.001	0.0065
77.2333	-0.0272	0.0055	0.0023	0.0078
77.2667	-0.0252	0.0186	0.0023	0.0209
77.3	-0.0239	0.0055	0	0.0055
77.3333	-0.0246	0	0	0
77.3667	-0.0259	0.0186	0.001	0.0196

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
77.4	-0.0338	0.0186	0.001	0.0196
77.4333	-0.0318	0.0055	0.0023	0.0078
77.4667	-0.0315	0.0055	0.0023	0.0078
77.5	-0.0302	0.0055	0.001	0.0065
77.5333	-0.0315	0.0186	0.0023	0.0209
77.5667	-0.0265	0.0186	0.001	0.0196
77.6	-0.0288	0.0055	0.001	0.0065
77.6333	-0.0305	0	0.001	0.001
77.6667	-0.0308	0.0055	0.001	0.0065
77.7	-0.0325	0.0055	0.001	0.0065
77.7333	-0.0282	0.0055	0.001	0.0065
77.7667	-0.0288	0.0186	0.0023	0.0209
77.8	-0.0292	0.0186	0	0.0186
77.8333	-0.0305	0.0055	0.001	0.0065
77.8667	-0.0305	0.0055	0	0.0055
77.9	-0.0084	0.0055	0.001	0.0065
77.9333	0.0024	0.0055	0.001	0.0065
77.9667	0.0215	0.0055	0.001	0.0065
78	0.0409	9.6705	0.001	9.6715
78.0333	0.061	11.0513	0.0023	11.0536
78.0667	0.0801	12.1295	0.001	12.1305
78.1	0.1104	12.9843	0.0023	12.9866
78.1333	0.1482	13.9573	0.001	13.9583
78.1667	0.2035	13.9705	0.001	13.9715
78.2	0.2601	14.1546	0.001	14.1556
78.2333	0.3204	14.4176	0	14.4176
78.2667	0.3799	14.7726	0.001	14.7736
78.3	0.4339	15.2066	0	15.2066
78.3333	0.4813	15.6274	0.0036	15.631
78.3667	0.533	16.0876	0	16.0876
78.4	0.5768	16.6004	0	16.6004
78.4333	0.6235	17.1527	0.0023	17.155
78.4667	0.665	17.613	0	17.613
78.5	0.7071	18.1258	0	18.1258
78.5333	0.745	18.7044	0.0023	18.7067
78.5667	0.7815	19.2172	0.001	19.2182
78.6	0.817	19.6775	0	19.6775
78.6333	0.8549	20.2824	0	20.2824
78.6667	0.8891	20.8215	0.001	20.8225
78.7	0.9227	21.3343	0.001	21.3353
78.7333	0.9553	21.834	0.001	21.835
78.7667	0.9832	22.2943	0.001	22.2953
78.8	1.0155	22.886	0.001	22.887

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
78.8333	1.0461	23.3725	0	23.3725
78.8667	1.0777	23.8591	0	23.8591
78.9	1.1037	24.3325	0	24.3325
78.9333	1.13	24.819	0.001	24.82
78.9667	1.1557	25.345	0.0023	25.3473
79	1.1843	25.8315	0	25.8315
79.0333	1.2077	26.2392	0.0023	26.2415
79.0667	1.235	26.6468	0.001	26.6478
79.1	1.2574	27.1334	0	27.1334
79.1333	1.2821	27.5673	0.0023	27.5696
79.1667	1.3084	28.0144	0	28.0144
79.2	1.3298	28.4089	0	28.4089
79.2333	1.3519	28.8165	0.001	28.8175
79.2667	1.3713	29.3294	0	29.3294
79.3	1.395	29.6713	0.001	29.6723
79.3333	1.4134	30.1184	0.001	30.1193
79.3667	1.4368	30.4997	0.0023	30.502
79.4	1.4546	30.9336	0	30.9336
79.4333	1.4786	31.3807	0	31.3807
79.4667	1.495	31.7358	0.0023	31.7381
79.5	1.5174	32.1303	0.001	32.1312
79.5333	1.5359	32.4722	0.001	32.4731
79.5667	1.5503	32.8403	0.001	32.8413
79.6	1.5665	33.248	0.001	33.249
79.6333	1.5872	33.6162	0.001	33.6172
79.6667	1.6056	33.9055	0	33.9055
79.7	1.6181	34.3	0.001	34.301
79.7333	1.6359	34.6419	0.001	34.6428
79.7667	1.653	35.0495	0.001	35.0505
79.8	1.6639	35.3651	0.0023	35.3674
79.8333	1.6846	35.7333	0.0023	35.7356
79.8667	1.6952	36.0752	0.001	36.0762
79.9	1.7123	36.4302	0.001	36.4312
79.9333	1.7271	36.7853	0.001	36.7863
79.9667	1.7393	37.1535	0.0023	37.1558
80	1.7551	37.3507	0.001	37.3517
80.0333	1.7672	37.7452	0	37.7452
80.0667	1.7834	38.0871	0.001	38.0881
80.1	1.7926	38.429	0.001	38.43
80.1333	1.8081	38.692	0	38.692
80.1667	1.8202	39.0865	0.001	39.0875
80.2	1.8331	39.2706	0.0023	39.2729
80.2333	1.8443	39.6388	0.001	39.6397



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
80.2667	1.8578	39.9807	0.0023	39.983
80.3	1.8666	40.2962	0.0023	40.2985
80.3333	1.8768	40.5592	0	40.5592
80.3667	1.8884	40.8617	0.001	40.8627
80.4	1.8979	41.2036	0	41.2036
80.4333	1.9104	41.4534	0.001	41.4544
80.4667	1.9177	41.7953	0.001	41.7963
80.5	1.9295	42.0452	0	42.0452
80.5333	1.9377	42.2819	0.001	42.2828
80.5667	1.9483	42.6369	0.001	42.6379
80.6	1.9604	42.8604	0	42.8604
80.6333	1.9683	43.1366	0	43.1366
80.6667	1.9753	43.4653	0	43.4653
80.7	1.9881	43.6626	0.001	43.6636
80.7333	1.998	43.965	0.001	43.966
80.7667	2.0032	44.2017	0.0023	44.204
80.8	2.0144	44.399	0	44.399
80.8333	2.0184	44.6357	0.0023	44.638
80.8667	2.0309	44.9512	0	44.9512
80.9	2.0361	45.1879	0.0023	45.1902
80.9333	2.0322	45.3983	0.001	45.3993
80.9667	2.0325	45.5693	0.001	45.5703
81	2.0322	45.8849	0.001	45.8859
81.0333	2.0279	46.0427	0	46.0427
81.0667	2.0299	46.3451	0.0023	46.3474
81.1	2.0273	46.5029	0.001	46.5039
81.1333	2.0269	46.6476	0	46.6476
81.1667	2.0306	46.8974	0.001	46.8984
81.2	2.0329	47.1078	0.001	47.1088
81.2333	2.0289	47.3182	0.001	47.3192
81.2667	2.0315	47.4497	0.001	47.4507
81.3	2.0329	47.6338	0	47.6338
81.3333	2.0309	47.7916	0.0036	47.7952
81.3667	2.0345	48.002	0	48.002
81.4	2.0348	48.1992	0.0023	48.2015
81.4333	2.0381	48.3965	0.001	48.3975
81.4667	2.0394	48.5148	0.0023	48.5171
81.5	2.0371	48.5806	0.001	48.5816
81.5333	2.0394	48.7252	0.001	48.7262
81.5667	2.0404	48.9751	0	48.9751
81.6	2.0408	49.1066	0	49.1066
81.6333	2.0427	49.3301	0.001	49.3311
81.6667	2.0384	49.3696	0.001	49.3705

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
81.7	2.0414	49.5668	0.001	49.5678
81.7333	2.0404	49.6588	0.0023	49.6612
81.7667	2.0381	49.8429	0.001	49.8439
81.8	2.0361	50.027	0.001	50.028
81.8333	2.0329	50.1322	0	50.1322
81.8667	2.0315	50.2243	0.0036	50.2279
81.9	2.0286	50.2111	0.001	50.2121
81.9333	2.0233	50.4873	0.001	50.4883
81.9667	2.0184	50.6188	0.0023	50.6211
82	2.0203	50.7108	0.001	50.7118
82.0333	2.0167	50.9212	0.0023	50.9235
82.0667	2.0148	50.9607	0.001	50.9617
82.1	2.0141	51.0396	0	51.0396
82.1333	2.0124	51.1711	0.001	51.1721
82.1667	2.0108	51.3289	0.0023	51.3312
82.2	2.0059	51.4209	0.0023	51.4232
82.2333	2.0059	51.4867	0.0023	51.489
82.2667	2.0036	51.6445	0	51.6445
82.3	2.0052	51.7497	0	51.7497
82.3333	2.0049	51.6971	0.0023	51.6994
82.3667	2.0062	51.9206	0.001	51.9216
82.4	2.0059	51.9206	0.0023	51.9229
82.4333	2.0045	51.9864	0.001	51.9873
82.4667	2.0065	52.1047	0.0023	52.107
82.5	2.0032	52.2362	0	52.2362
82.5333	2.0045	52.2888	0.001	52.2898
82.5667	2.0055	52.486	0	52.486
82.6	2.0055	52.3545	0.0023	52.3568
82.6333	2.0105	52.4334	0.001	52.4344
82.6667	2.0118	52.6044	0.001	52.6054
82.7	2.0121	52.6701	0.0023	52.6724
82.7333	2.0151	52.8937	0	52.8937
82.7667	2.0157	52.8937	0.0023	52.896
82.8	2.0207	53.012	0.0023	53.0143
82.8333	2.0177	53.0909	0	53.0909
82.8667	2.0207	53.1567	0.0036	53.1603
82.9	2.0203	53.275	0.001	53.276
82.9333	2.0207	53.3539	0.001	53.3549
82.9667	2.0243	53.3802	0.001	53.3812
83	2.0243	53.4328	0.001	53.4338
83.0333	2.0269	53.5775	0.001	53.5785
83.0667	2.0292	53.6695	0.001	53.6705
83.1	2.0286	53.6958	0.001	53.6968

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
83.1333	2.0302	53.7353	0.0023	53.7376
83.1667	2.0269	53.7879	0.001	53.7889
83.2	2.0322	53.9457	0	53.9457
83.2333	2.0325	54.0377	0.001	54.0387
83.2667	2.0322	54.1824	0.0023	54.1847
83.3	2.0361	54.2087	0.001	54.2096
83.3333	2.0338	54.1955	0	54.1955
83.3667	2.0322	54.3402	0.001	54.3411
83.4	2.0335	54.3139	0.001	54.3148
83.4333	2.0269	54.4059	0.001	54.4069
83.4667	2.0263	54.4585	0.001	54.4595
83.5	2.0263	54.5505	0.0023	54.5528
83.5333	2.0233	54.5374	0.001	54.5384
83.5667	2.024	54.6426	0.0023	54.6449
83.6	2.0194	54.7083	0.0023	54.7106
83.6333	2.0194	54.7215	0.001	54.7225
83.6667	2.018	54.8793	0	54.8793
83.7	2.0148	54.9056	0.001	54.9066
83.7333	2.0177	54.9582	0.001	54.9592
83.7667	2.0157	54.9319	0.001	54.9329
83.8	2.0111	55.0239	0	55.0239
83.8333	2.0141	55.0634	0.001	55.0644
83.8667	2.0118	55.2212	0	55.2212
83.9	2.0138	55.1817	0.001	55.1827
83.9333	2.0115	55.1554	0.0023	55.1577
83.9667	2.0101	55.3001	0.0023	55.3024
84	2.0111	55.3264	0.001	55.3274
84.0333	2.0062	55.3527	0.001	55.3537
84.0667	2.0095	55.4053	0.001	55.4063
84.1	2.0078	55.4973	0.001	55.4983
84.1333	2.0059	55.471	0.0023	55.4733
84.1667	2.0049	55.6025	0.001	55.6035
84.2	2.0075	55.5499	0	55.5499
84.2333	2.0062	55.642	0.001	55.643
84.2667	2.0065	55.5762	0.001	55.5772
84.3	2.0059	55.6946	0.001	55.6956
84.3333	2.0049	55.5894	0	55.5894
84.3667	2.0032	55.7603	0.0023	55.7626
84.4	2.0045	55.7472	0	55.7472
84.4333	2.0016	55.7866	0.001	55.7876
84.4667	2.0022	55.7735	0.001	55.7745
84.5	2.0016	55.734	0.001	55.735
84.5333	2.0022	55.9181	0.0023	55.9204

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
84.5667	2.0022	55.9576	0.001	55.9586
84.6	2.0006	55.9707	0.001	55.9717
84.6333	2.0032	56.0365	0.001	56.0375
84.6667	2.0013	56.0496	0.001	56.0506
84.7	1.9999	56.0365	0.001	56.0375
84.7333	2.0016	56.1154	0.001	56.1164
84.7667	2.0009	56.1285	0.0023	56.1308
84.8	2.0013	56.1417	0.0023	56.144
84.8333	2.0022	56.1943	0	56.1943
84.8667	2.0049	56.1943	0	56.1943
84.9	2.0045	56.2469	0.001	56.2478
84.9333	2.0069	56.26	0.001	56.261
84.9667	2.0059	56.26	0	56.26
85	2.0029	56.4178	0.001	56.4188
85.0333	2.0042	56.3784	0.001	56.3793
85.0667	2.0052	56.3258	0	56.3258
85.1	2.0062	56.3915	0.001	56.3925
85.1333	2.0055	56.3258	0.001	56.3267
85.1667	2.0078	56.5362	0.001	56.5371
85.2	2.0085	56.4704	0.0023	56.4727
85.2333	2.0082	56.4836	0.001	56.4845
85.2667	2.0049	56.523	0.0023	56.5253
85.3	2.0045	56.5493	0.001	56.5503
85.3333	2.0085	56.6282	0.0023	56.6305
85.3667	2.0065	56.5756	0.001	56.5766
85.4	2.0118	56.6545	0.0023	56.6568
85.4333	2.0151	56.6414	0	56.6414
85.4667	2.0167	56.6677	0.0023	56.67
85.5	2.0171	56.7334	0.001	56.7344
85.5333	2.0154	56.7992	0.0023	56.8015
85.5667	2.0154	56.7597	0.001	56.7607
85.6	2.0203	56.7729	0.0023	56.7752
85.6333	2.018	56.8518	0.001	56.8527
85.6667	2.0177	56.9175	0.001	56.9185
85.7	2.022	56.9569	0.001	56.9579
85.7333	2.02	56.9832	0.001	56.9842
85.7667	2.0253	56.8781	0.001	56.879
85.8	2.0243	56.9306	0	56.9306
85.8333	2.0243	56.9964	0.001	56.9974
85.8667	2.0279	57.0227	0.001	57.0237
85.9	2.0273	57.049	0	57.049
85.9333	2.0266	57.1542	0.0023	57.1565
85.9667	2.0276	57.2068	0.001	57.2078

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
86	2.021	57.2199	0.001	57.2209
86.0333	1.9242	57.1279	0	57.1279
86.0667	1.8216	57.0095	0.001	57.0105
86.1	1.7261	56.9043	0.001	56.9053
86.1333	1.6353	56.8386	0.001	56.8396
86.1667	1.5477	56.5362	0.001	56.5371
86.2	1.4661	56.3389	0.001	56.3399
86.2333	1.3884	56.1417	0.001	56.1427
86.2667	1.3163	55.905	0.001	55.906
86.3	1.2475	55.5236	0	55.5236
86.3333	1.1811	55.1686	0.0023	55.1709
86.3667	1.1208	54.8135	0.001	54.8145
86.4	1.0652	54.4979	0.001	54.4989
86.4333	1.0092	54.0246	0	54.0246
86.4667	0.9566	53.6958	0.001	53.6968
86.5	0.9112	53.275	0.001	53.276
86.5333	0.8628	52.8016	0	52.8016
86.5667	0.8223	52.3414	0	52.3414
86.6	0.7795	51.8812	0.001	51.8821
86.6333	0.7407	51.3946	0.001	51.3956
86.6667	0.7045	50.987	0.001	50.988
86.7	0.6673	50.4215	0.001	50.4225
86.7333	0.6347	49.8955	0.0036	49.8992
86.7667	0.6018	49.3959	0	49.3959
86.8	0.5725	48.8567	0.001	48.8577
86.8333	0.5462	48.3833	0.001	48.3843
86.8667	0.5172	47.8705	0.001	47.8715
86.9	0.4889	47.305	0.0023	47.3073
86.9333	0.4668	46.7528	0.0023	46.7551
86.9667	0.4451	46.1347	0.001	46.1357
87	0.4208	45.5956	0.001	45.5966
87.0333	0.3987	45.0564	0.0023	45.0587
87.0667	0.379	44.5305	0.001	44.5314
87.1	0.3592	43.8861	0	43.8861
87.1333	0.3408	43.2944	0.0023	43.2967
87.1667	0.3217	42.7026	0.0023	42.7049
87.2	0.3046	42.1504	0.001	42.1513
87.2333	0.2894	41.5323	0.001	41.5333
87.2667	0.2723	40.9406	0	40.9406
87.3	0.2592	40.3225	0.001	40.3235
87.3333	0.247	39.7308	0.001	39.7318
87.3667	0.2345	39.1128	0	39.1128
87.4	0.2206	38.5342	0.001	38.5352



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
87.4333	0.2081	37.995	0.001	37.996
87.4667	0.194	37.3113	0.0023	37.3136
87.5	0.1877	36.7327	0	36.7327
87.5333	0.1759	36.1278	0.0023	36.1301
87.5667	0.166	35.5492	0	35.5492
87.6	0.1571	34.8786	0.001	34.8795
87.6333	0.1479	34.2868	0	34.2868
87.6667	0.1377	33.7214	0.0023	33.7237
87.7	0.1308	33.1165	0.0023	33.1188
87.7333	0.1206	32.4196	0.001	32.4205
87.7667	0.1153	31.8541	0.001	31.8551
87.8	0.1094	31.2624	0	31.2624
87.8333	0.1012	30.6575	0.001	30.6585
87.8667	0.0946	30.0921	0.001	30.093
87.9	0.0883	29.474	0.001	29.475
87.9333	0.0834	28.856	0.001	28.857
87.9667	0.0771	28.2905	0.001	28.2915
88	0.0729	27.712	0.001	27.7129
88.0333	0.0676	27.1465	0.0036	27.1501
88.0667	0.0613	26.4627	0	26.4627
88.1	0.0564	25.9104	0.001	25.9114
88.1333	0.0541	25.3187	0.0023	25.321
88.1667	0.0482	24.7138	0	24.7138
88.2	0.0459	24.1747	0.001	24.1757
88.2333	0.0426	23.6487	0.001	23.6497
88.2667	0.0403	22.9912	0.001	22.9922
88.3	0.036	22.4652	0.001	22.4662
88.3333	0.0311	21.8209	0.001	21.8219
88.3667	0.0311	21.3738	0.0023	21.3761
88.4	0.0238	20.7952	0.001	20.7962
88.4333	0.0222	20.2166	0.001	20.2176
88.4667	0.0189	19.6643	0.001	19.6653
88.5	0.0195	19.1252	0.001	19.1262
88.5333	0.0156	18.5334	0.0023	18.5357
88.5667	0.0123	17.968	0.001	17.969
88.6	0.0126	17.4157	0	17.4157
88.6333	0.0074	16.9423	0.001	16.9433
88.6667	0.0074	16.4163	0.001	16.4173
88.7	0.006	15.9035	0.0023	15.9058
88.7333	0.0034	15.417	0	15.417
88.7667	0.0011	14.891	0.001	14.892
88.8	0.0001	14.3913	0.001	14.3923
88.8333	-0.0012	13.8784	0.001	13.8794



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
88.8667	-0.0051	13.3788	0.0023	13.3811
88.9	-0.0055	12.958	0	12.958
88.9333	-0.0084	12.5109	0.0023	12.5132
88.9667	-0.0084	12.0243	0.0023	12.0266
89	-0.0091	11.6167	0.001	11.6177
89.0333	-0.0127	11.1827	0.0023	11.185
89.0667	-0.0137	10.7751	0.001	10.7761
89.1	-0.0147	10.3149	0	10.3149
89.1333	-0.0144	9.8546	0.001	9.8556
89.1667	-0.0163	9.4733	0	9.4733
89.2	-0.0176	9.1314	0.001	9.1324
89.2333	-0.0157	8.6974	0.0023	8.6998
89.2667	-0.0193	8.3161	0.0023	8.3184
89.3	-0.0213	8.0005	0.001	8.0015
89.3333	-0.018	7.6455	0.0023	7.6478
89.3667	-0.0216	7.3167	0.001	7.3177
89.4	-0.0213	7.0406	0.0023	7.0429
89.4333	-0.0219	6.6987	0.001	6.6997
89.4667	-0.0193	6.3831	0.0023	6.3854
89.5	-0.0209	6.107	0.001	6.1079
89.5333	-0.0219	5.7782	0.001	5.7792
89.5667	-0.0239	5.5678	0.001	5.5688
89.6	-0.0242	5.3048	0.0023	5.3071
89.6333	-0.0232	5.0418	0.001	5.0428
89.6667	-0.0242	4.8183	0.0023	4.8206
89.7	-0.0269	4.621	0.001	4.622
89.7333	-0.0259	4.3712	0.001	4.3722
89.7667	-0.0249	4.2002	0.001	4.2012
89.8	-0.0262	3.9767	0.001	3.9777
89.8333	-0.0242	3.7795	0.001	3.7804
89.8667	-0.0285	3.6085	0	3.6085
89.9	-0.0265	3.4507	0	3.4507
89.9333	-0.0272	3.2666	0	3.2666
89.9667	-0.0249	3.1088	0.0023	3.1111
90	-0.0275	3.0036	0.001	3.0046
90.0333	-0.0279	0.0055	0.001	0.0065
90.0667	-0.0288	0.0055	0.0023	0.0078
90.1	-0.0282	0	0.0023	0.0023
90.1333	-0.0288	0.0186	0.001	0.0196
90.1667	-0.0282	0.0055	0.0023	0.0078
90.2	-0.0288	0.0055	0.0023	0.0078
90.2333	-0.0275	0.0186	0.001	0.0196
90.2667	-0.0292	0.0186	0	0.0186

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
90.3	-0.0302	0.0186	0.001	0.0196
90.3333	-0.0295	0	0	0
90.3667	-0.0285	0.0186	0.001	0.0196
90.4	-0.0262	0.0186	0.001	0.0196
90.4333	-0.0308	0.0055	0.0023	0.0078
90.4667	-0.0292	0.0186	0	0.0186
90.5	-0.0295	0.0055	0.001	0.0065
90.5333	-0.0295	0.0055	0.001	0.0065
90.5667	-0.0292	0.0186	0.001	0.0196
90.6	-0.0269	0.0055	0.001	0.0065
90.6333	-0.0305	0	0.001	0.001
90.6667	-0.0272	0.0055	0.001	0.0065
90.7	-0.0259	0.0055	0.001	0.0065
90.7333	-0.0302	0.0186	0.0023	0.0209
90.7667	-0.0262	0.0186	0.001	0.0196
90.8	-0.0279	0.0055	0.001	0.0065
90.8333	-0.0232	0.0055	0.0023	0.0078
90.8667	-0.0252	0	0.001	0.001
90.9	-0.0236	0.0055	0	0.0055
90.9333	-0.0275	0.0318	0	0.0318
90.9667	-0.0252	0.0055	0.001	0.0065
91	-0.0279	0.0055	0.001	0.0065
91.0333	-0.0262	0.0055	0.0023	0.0078
91.0667	-0.0364	0.0186	0.001	0.0196
91.1	-0.0358	0.0055	0.0023	0.0078
91.1333	-0.0394	0.0186	0.001	0.0196
91.1667	-0.0381	0.0055	0	0.0055
91.2	-0.0384	0.0055	0.001	0.0065
91.2333	-0.0127	0.0055	0.001	0.0065
91.2667	-0.0206	0.0055	0	0.0055
91.3	-0.0193	0.0186	0.001	0.0196
91.3333	-0.0305	0.0186	0.0023	0.0209
91.3667	-0.0302	0.0186	0.001	0.0196
91.4	-0.0288	0.0055	0	0.0055
91.4333	-0.0295	0.0055	0.0023	0.0078
91.4667	-0.0305	0.0186	0.001	0.0196
91.5	-0.0295	0.0186	0.001	0.0196
91.5333	-0.0292	0	0.001	0.001
91.5667	-0.0295	0.0186	0.001	0.0196
91.6	-0.0321	0.0055	0.001	0.0065
91.6333	-0.0272	0	0.001	0.001
91.6667	0.0008	0.0055	0.0023	0.0078
91.7	0.0156	0.0055	0.001	0.0065

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
91.7333	0.0376	9.2497	0.0023	9.252
91.7667	0.0617	10.8935	0.001	10.8944
91.8	0.0926	12.1295	0.0023	12.1318
91.8333	0.1259	12.9448	0.001	12.9458
91.8667	0.17	13.4051	0.001	13.406
91.9	0.2164	13.7864	0.001	13.7874
91.9333	0.2621	13.9705	0.001	13.9715
91.9667	0.3108	14.102	0.0023	14.1043
92	0.3546	14.3124	0.001	14.3134
92.0333	0.4013	14.4702	0.001	14.4712
92.0667	0.4445	14.5885	0.001	14.5895
92.1	0.4892	14.72	0.001	14.721
92.1333	0.5307	14.9436	0	14.9436
92.1667	0.5702	15.1671	0.0036	15.1707
92.2	0.612	15.2855	0.001	15.2864
92.2333	0.6475	15.417	0	15.417
92.2667	0.6874	15.6405	0.001	15.6415
92.3	0.7219	15.8378	0.001	15.8387
92.3333	0.7588	16.0481	0	16.0481
92.3667	0.794	16.298	0.001	16.299
92.4	0.8266	16.4689	0.0023	16.4712
92.4333	0.8611	16.6136	0.001	16.6146
92.4667	0.897	16.7714	0.0023	16.7737
92.5	0.9266	16.9818	0.001	16.9828
92.5333	0.9586	17.1396	0	17.1396
92.5667	0.9921	17.3237	0.001	17.3247
92.6	1.0185	17.5078	0.001	17.5088
92.6333	1.0543	17.6656	0.001	17.6665
92.6667	1.0843	17.876	0.001	17.8769
92.7	1.1119	18.0601	0	18.0601
92.7333	1.1383	18.1784	0.001	18.1794
92.7667	1.1695	18.3493	0.0036	18.353
92.8	1.1969	18.494	0	18.494
92.8333	1.2275	18.6912	0.0023	18.6935
92.8667	1.2498	18.8096	0.001	18.8106
92.9	1.2778	19.02	0	19.02
92.9333	1.3025	19.0857	0.001	19.0867
92.9667	1.3305	19.3224	0.001	19.3234
93	1.3568	19.4671	0.0023	19.4694
93.0333	1.3818	19.6249	0	19.6249
93.0667	1.4045	19.809	0.001	19.81
93.1	1.4305	19.9405	0.001	19.9415
93.1333	1.4526	20.0851	0.001	20.0861

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
93.1667	1.4799	20.2166	0.001	20.2176
93.2	1.502	20.3613	0.001	20.3622
93.2333	1.5234	20.4796	0.001	20.4806
93.2667	1.5447	20.5848	0	20.5848
93.3	1.5721	20.7557	0.0023	20.7581
93.3333	1.5889	20.8478	0.0023	20.8501
93.3667	1.6132	21.0319	0.001	21.0329
93.4	1.6346	21.1634	0	21.1634
93.4333	1.6583	21.2291	0.001	21.2301
93.4667	1.6774	21.3738	0.001	21.3748
93.5	1.6962	21.5053	0.001	21.5063
93.5333	1.7166	21.6499	0.0023	21.6522
93.5667	1.737	21.6762	0.001	21.6772
93.6	1.7567	21.8209	0.001	21.8219
93.6333	1.7758	21.8866	0.001	21.8876
93.6667	1.7969	21.9787	0.001	21.9797
93.7	1.814	22.0444	0.0023	22.0467
93.7333	1.8344	22.2417	0.001	22.2427
93.7667	1.8502	22.3732	0.0023	22.3755
93.8	1.8703	22.4258	0	22.4258
93.8333	1.8877	22.531	0	22.531
93.8667	1.9058	22.6362	0.001	22.6371
93.9	1.9242	22.6756	0.001	22.6766
93.9333	1.942	22.7677	0.0023	22.77
93.9667	1.9578	22.8466	0.001	22.8475
94	1.9736	22.9386	0.0023	22.9409
94.0333	1.9901	22.9518	0	22.9518
94.0667	2.0052	23.0833	0.001	23.0842
94.1	2.0256	23.1884	0	23.1884
94.1333	2.0361	23.2673	0.001	23.2683
94.1667	2.0378	23.3462	0.001	23.3472
94.2	2.0424	23.3857	0	23.3857
94.2333	2.0467	23.4909	0.0023	23.4932
94.2667	2.0467	23.5172	0.001	23.5182
94.3	2.047	23.5829	0	23.5829
94.3333	2.0526	23.7013	0.0023	23.7036
94.3667	2.0559	23.7276	0.001	23.7286
94.4	2.0598	23.8459	0.001	23.8469
94.4333	2.0575	23.8854	0.0036	23.889
94.4667	2.0529	23.9117	0.001	23.9127
94.5	2.0463	23.9906	0.0023	23.9929
94.5333	2.0431	24.0826	0.001	24.0836
94.5667	2.0431	24.1221	0	24.1221

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
94.6	2.0384	24.1221	0.0023	24.1244
94.6333	2.0338	24.1878	0.001	24.1888
94.6667	2.0302	24.2799	0.0036	24.2835
94.7	2.0309	24.2667	0.0036	24.2703
94.7333	2.0276	24.3719	0.001	24.3729
94.7667	2.0266	24.3719	0.001	24.3729
94.8	2.0263	24.4245	0.001	24.4255
94.8333	2.022	24.4114	0	24.4114
94.8667	2.022	24.4508	0.001	24.4518
94.9	2.0194	24.4903	0.0023	24.4926
94.9333	2.019	24.5692	0	24.5692
94.9667	2.0207	24.5823	0.0023	24.5846
95	2.023	24.5955	0.0023	24.5978
95.0333	2.0306	24.6349	0.0023	24.6372
95.0667	2.0312	24.727	0.0023	24.7293
95.1	2.0325	24.7401	0.001	24.7411
95.1333	2.0348	24.7664	0.0023	24.7687
95.1667	2.0329	24.7664	0	24.7664
95.2	2.0312	24.8585	0	24.8585
95.2333	2.0342	24.8716	0	24.8716
95.2667	2.0312	24.8848	0.001	24.8857
95.3	2.0302	24.9242	0.001	24.9252
95.3333	2.0276	24.9111	0	24.9111
95.3667	2.0266	25.0031	0.0023	25.0054
95.4	2.0259	25.0426	0.001	25.0435
95.4333	2.024	25.0163	0.001	25.0172
95.4667	2.024	25.1083	0.001	25.1093
95.5	2.0213	25.1478	0.001	25.1487
95.5333	2.0236	25.1741	0.0023	25.1764
95.5667	2.0233	25.2398	0.001	25.2408
95.6	2.0223	25.2661	0.001	25.2671
95.6333	2.0184	25.3187	0.001	25.3197
95.6667	2.0207	25.3187	0.001	25.3197
95.7	2.0187	25.3319	0.001	25.3328
95.7333	2.0194	25.3582	0.0023	25.3605
95.7667	2.0203	25.3976	0	25.3976
95.8	2.0197	25.4239	0	25.4239
95.8333	2.019	25.4239	0.0023	25.4262
95.8667	2.0187	25.4502	0.001	25.4512
95.9	2.0194	25.4634	0.001	25.4643
95.9333	2.0177	25.516	0.001	25.5169
95.9667	2.0174	25.516	0.0023	25.5183
96	2.0203	25.6343	0.001	25.6353



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
96.0333	2.0164	25.5685	0.001	25.5695
96.0667	2.0184	25.5817	0.001	25.5827
96.1	2.0128	25.5817	0.001	25.5827
96.1333	2.0197	25.6606	0.001	25.6616
96.1667	2.0184	25.608	0	25.608
96.2	2.0174	25.6211	0.001	25.6221
96.2333	2.0194	25.6211	0.001	25.6221
96.2667	2.0213	25.6606	0.0023	25.6629
96.3	2.023	25.6869	0.001	25.6879
96.3333	2.0217	25.7526	0	25.7526
96.3667	2.0233	25.7789	0.001	25.7799
96.4	2.0243	25.7921	0.0023	25.7944
96.4333	2.0227	25.7789	0.001	25.7799
96.4667	2.025	25.7789	0.001	25.7799
96.5	2.0259	25.7526	0.001	25.7536
96.5333	2.0243	25.8184	0.001	25.8194
96.5667	2.0243	25.8184	0.0023	25.8207
96.6	2.0256	25.7921	0.001	25.7931
96.6333	2.0286	25.8184	0.001	25.8194
96.6667	2.0282	25.8184	0.0023	25.8207
96.7	2.0289	25.8578	0.001	25.8588
96.7333	2.0286	25.8841	0	25.8841
96.7667	2.0289	25.871	0.001	25.872
96.8	2.0306	25.8973	0.0023	25.8996
96.8333	2.0312	25.963	0.001	25.964
96.8667	2.0329	25.8841	0.0023	25.8864
96.9	2.0279	25.8841	0.001	25.8851
96.9333	2.0266	25.9893	0.0023	25.9916
96.9667	2.0259	25.9236	0.001	25.9246
97	2.024	25.9367	0.001	25.9377
97.0333	2.019	25.9893	0.001	25.9903
97.0667	2.0197	25.9236	0.001	25.9246
97.1	2.0154	25.9499	0.001	25.9509
97.1333	2.0138	26.0025	0.001	26.0035
97.1667	2.0141	25.9367	0	25.9367
97.2	2.0111	25.9499	0.001	25.9509
97.2333	2.0131	26.0025	0.001	26.0035
97.2667	2.0151	26.0156	0.001	26.0166
97.3	2.0138	26.0288	0.001	26.0298
97.3333	2.0148	26.0156	0.0023	26.0179
97.3667	2.0161	26.0682	0	26.0682
97.4	2.0171	26.0288	0.001	26.0298
97.4333	2.0177	26.0551	0.0023	26.0574



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
97.4667	2.019	26.0551	0.001	26.0561
97.5	2.0203	26.0419	0	26.0419
97.5333	2.0203	26.0419	0.001	26.0429
97.5667	2.0203	26.0551	0.0023	26.0574
97.6	2.023	26.1077	0.0023	26.11
97.6333	2.0217	26.0945	0	26.0945
97.6667	2.0197	26.0945	0.001	26.0955
97.7	2.0194	26.134	0.001	26.135
97.7333	2.0243	26.0419	0	26.0419
97.7667	2.0223	26.1077	0.001	26.1087
97.8	2.0243	26.1471	0.0023	26.1494
97.8333	2.0256	26.134	0.0023	26.1363
97.8667	2.0256	26.1208	0	26.1208
97.9	2.0296	26.0814	0.001	26.0824
97.9333	2.0256	26.1603	0.0023	26.1626
97.9667	2.0292	26.134	0.001	26.135
98	2.0276	26.1603	0.001	26.1613
98.0333	2.0299	26.1471	0.001	26.1481
98.0667	2.0276	26.1208	0.001	26.1218
98.1	2.0325	26.134	0.001	26.135
98.1333	2.0335	26.1997	0.001	26.2007
98.1667	2.0348	26.1997	0.001	26.2007
98.2	2.0325	26.1866	0.001	26.1876
98.2333	2.0345	26.134	0	26.134
98.2667	2.0338	26.0814	0.001	26.0824
98.3	2.0319	26.1471	0.001	26.1481
98.3333	2.0286	26.1208	0.001	26.1218
98.3667	2.0286	26.1471	0.001	26.1481
98.4	2.0266	26.1866	0.0023	26.1889
98.4333	2.0253	26.1997	0.001	26.2007
98.4667	2.0227	26.1471	0.0023	26.1494
98.5	2.0217	26.2129	0.0023	26.2152
98.5333	2.0174	26.1603	0.0023	26.1626
98.5667	2.0151	26.1734	0.001	26.1744
98.6	2.0124	26.1997	0.001	26.2007
98.6333	2.0121	26.2129	0.001	26.2139
98.6667	2.0098	26.2129	0	26.2129
98.7	2.0069	26.1603	0.0023	26.1626
98.7333	2.0111	26.1077	0.001	26.1087
98.7667	2.0101	26.1471	0	26.1471
98.8	2.0161	26.1866	0.001	26.1876
98.8333	2.0161	26.1866	0.0023	26.1889
98.8667	2.0187	26.1734	0.001	26.1744

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
98.9	2.0167	26.1734	0.0023	26.1757
98.9333	2.021	26.1997	0	26.1997
98.9667	2.0174	26.1997	0.001	26.2007
99	2.0207	26.1866	0	26.1866
99.0333	2.0213	26.1077	0	26.1077
99.0667	2.0243	26.2129	0.0023	26.2152
99.1	2.0246	26.2129	0	26.2129
99.1333	2.0236	26.2392	0.0023	26.2415
99.1667	2.0259	26.1471	0	26.1471
99.2	2.0276	26.1734	0	26.1734
99.2333	2.0124	26.1997	0	26.1997
99.2667	1.9427	26.2129	0.001	26.2139
99.3	1.8604	26.1734	0.001	26.1744
99.3333	1.7755	26.1997	0.001	26.2007
99.3667	1.6971	26.0945	0.001	26.0955
99.4	1.6218	26.0551	0.001	26.0561
99.4333	1.5464	26.0288	0.001	26.0298
99.4667	1.4773	26.0288	0	26.0288
99.5	1.4075	25.8973	0.001	25.8983
99.5333	1.3443	25.8973	0.001	25.8983
99.5667	1.2831	25.7526	0.001	25.7536
99.6	1.2219	25.6737	0.001	25.6747
99.6333	1.1633	25.608	0	25.608
99.6667	1.1086	25.5028	0.001	25.5038
99.7	1.0553	25.3582	0.0023	25.3605
99.7333	0.9994	25.1872	0.001	25.1882
99.7667	0.951	25.0426	0.001	25.0435
99.8	0.9013	24.9242	0.001	24.9252
99.8333	0.8611	24.7664	0.001	24.7674
99.8667	0.8154	24.5955	0	24.5955
99.9	0.7739	24.3719	0.0023	24.3742
99.9333	0.7357	24.1747	0	24.1747
99.9667	0.6956	23.9774	0.0023	23.9797
100	0.6597	23.7802	0	23.7802
100.0333	0.6248	23.5566	0.0023	23.5589
100.0667	0.5889	23.3331	0.001	23.3341
100.1	0.5541	23.0833	0.0023	23.0856
100.1333	0.5271	22.8334	0.001	22.8344
100.1667	0.4942	22.6099	0	22.6099
100.2	0.4688	22.2811	0.001	22.2821
100.2333	0.4405	21.9787	0.0036	21.9823
100.2667	0.4132	21.6631	0.001	21.6641
100.3	0.3905	21.4395	0	21.4395

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
100.3333	0.3678	21.0713	0.001	21.0723
100.3667	0.3437	20.7294	0.001	20.7304
100.4	0.3227	20.4796	0.0023	20.4819
100.4333	0.325	20.1377	0.001	20.1387
100.4667	0.3707	19.8484	0.001	19.8494
100.5	0.4303	19.6775	0.001	19.6785
100.5333	0.482	19.546	0	19.546
100.5667	0.5366	19.4145	0	19.4145
100.6	0.5919	19.4408	0.001	19.4418
100.6333	0.6452	19.4276	0	19.4276
100.6667	0.7018	19.4539	0.001	19.4549
100.7	0.7512	19.5197	0.001	19.5207
100.7333	0.8009	19.5197	0.001	19.5207
100.7667	0.846	19.6117	0	19.6117
100.8	0.897	19.7301	0.001	19.7311
100.8333	0.95	19.7958	0.001	19.7968
100.8667	1.0116	19.9273	0	19.9273
100.9	1.0652	20.0983	0	20.0983
100.9333	1.1215	20.2298	0.001	20.2307
100.9667	1.1712	20.3481	0.001	20.3491
101	1.2192	20.4928	0.0023	20.4951
101.0333	1.2696	20.6111	0.001	20.6121
101.0667	1.315	20.8215	0.001	20.8225
101.1	1.3621	20.9661	0.001	20.9671
101.1333	1.4068	21.1897	0.0023	21.192
101.1667	1.4509	21.3738	0.001	21.3748
101.2	1.4967	21.4658	0.0036	21.4695
101.2333	1.5378	21.6368	0.001	21.6378
101.2667	1.574	21.7946	0.001	21.7956
101.3	1.6165	21.8998	0.001	21.9008
101.3333	1.658	22.0444	0.001	22.0454
101.3667	1.6968	22.2154	0.001	22.2164
101.4	1.7347	22.3863	0.001	22.3873
101.4333	1.7715	22.4784	0.001	22.4793
101.4667	1.8038	22.6099	0.001	22.6108
101.5	1.842	22.7414	0	22.7414
101.5333	1.8785	22.8466	0.001	22.8475
101.5667	1.9127	22.9912	0.0023	22.9935
101.6	1.9489	23.1227	0.0023	23.125
101.6333	1.9825	23.2542	0.0023	23.2565
101.6667	2.0167	23.412	0.0023	23.4143
101.7	2.0473	23.4646	0.001	23.4656
101.7333	2.0826	23.5961	0.0023	23.5984

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
101.7667	2.1095	23.6618	0.001	23.6628
101.8	2.1418	23.8328	0.001	23.8338
101.8333	2.177	23.9774	0.001	23.9784
101.8667	2.2024	24.0432	0.0023	24.0455
101.9	2.2313	24.1615	0.001	24.1625
101.9333	2.2623	24.2667	0	24.2667
101.9667	2.2922	24.3982	0	24.3982
102	2.3218	24.5034	0.001	24.5044
102.0333	2.3515	24.6086	0.001	24.6096
102.0667	2.3781	24.7138	0	24.7138
102.1	2.4041	24.7796	0.001	24.7806
102.1333	2.4308	24.8848	0.0023	24.8871
102.1667	2.4525	25.0294	0.0036	25.033
102.2	2.4637	25.0557	0.0023	25.058
102.2333	2.4742	25.2267	0.001	25.2276
102.2667	2.4815	25.2793	0.001	25.2802
102.3	2.4844	25.3187	0.001	25.3197
102.3333	2.4894	25.4634	0	25.4634
102.3667	2.4956	25.5291	0.0023	25.5314
102.4	2.495	25.5554	0.001	25.5564
102.4333	2.4966	25.6606	0.001	25.6616
102.4667	2.4963	25.7658	0.001	25.7668
102.5	2.4953	25.7658	0.001	25.7668
102.5333	2.49	25.8578	0.001	25.8588
102.5667	2.4894	25.9104	0.001	25.9114
102.6	2.4887	25.9236	0	25.9236
102.6333	2.4867	25.9367	0.001	25.9377
102.6667	2.4838	26.0288	0.0036	26.0324
102.7	2.4808	26.0945	0.001	26.0955
102.7333	2.4818	26.1208	0.0023	26.1231
102.7667	2.4798	26.134	0.0023	26.1363
102.8	2.4762	26.1997	0	26.1997
102.8333	2.4778	26.2655	0.001	26.2665
102.8667	2.4752	26.3181	0.001	26.3191
102.9	2.4765	26.2918	0.0023	26.2941
102.9333	2.4752	26.3707	0.0023	26.373
102.9667	2.4663	26.3707	0.001	26.3717
103	2.4561	26.4233	0	26.4233
103.0333	2.4522	26.5022	0.001	26.5032
103.0667	2.4469	26.5416	0.0023	26.5439
103.1	2.4387	26.5679	0.0023	26.5702
103.1333	2.4354	26.5679	0.001	26.5689
103.1667	2.4324	26.5548	0.001	26.5558

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
103.2	2.4337	26.6074	0.001	26.6084
103.2333	2.4344	26.6337	0.001	26.6347
103.2667	2.4308	26.6731	0.0023	26.6754
103.3	2.4324	26.6863	0.001	26.6873
103.3333	2.4354	26.752	0.001	26.753
103.3667	2.4354	26.6994	0	26.6994
103.4	2.4337	26.7915	0.0023	26.7938
103.4333	2.4364	26.7783	0.001	26.7793
103.4667	2.4377	26.8178	0.0023	26.8201
103.5	2.4374	26.8178	0.001	26.8188
103.5333	2.44	26.8835	0.001	26.8845
103.5667	2.436	26.8441	0.0023	26.8464
103.6	2.4334	26.8835	0.0023	26.8858
103.6333	2.4321	26.8967	0.001	26.8977
103.6667	2.4328	26.9098	0.001	26.9108
103.7	2.4291	26.9493	0.001	26.9503
103.7333	2.4272	26.9361	0.001	26.9371
103.7667	2.4272	27.0282	0.001	27.0292
103.8	2.4268	26.9624	0.0023	26.9647
103.8333	2.4255	27.0019	0.001	27.0029
103.8667	2.4219	26.9624	0.001	26.9634
103.9	2.4229	27.0545	0	27.0545
103.9333	2.4206	27.0676	0.001	27.0686
103.9667	2.4199	27.0676	0.0023	27.0699
104	2.4176	27.0545	0	27.0545
104.0333	2.4183	27.0282	0.001	27.0292
104.0667	2.417	27.0939	0.001	27.0949
104.1	2.4179	27.1071	0.0023	27.1094
104.1333	2.4212	27.1334	0.0023	27.1357
104.1667	2.4235	27.1728	0	27.1728
104.2	2.4202	27.1597	0.0023	27.162
104.2333	2.4239	27.186	0	27.186
104.2667	2.4245	27.2517	0.0023	27.254
104.3	2.4262	27.2123	0.001	27.2133
104.3333	2.4288	27.2254	0	27.2254
104.3667	2.4272	27.186	0.001	27.187
104.4	2.4304	27.1597	0.0023	27.162
104.4333	2.4298	27.1991	0.0023	27.2014
104.4667	2.4298	27.2649	0.001	27.2659
104.5	2.4311	27.2254	0.001	27.2264
104.5333	2.4331	27.2517	0.001	27.2527
104.5667	2.4347	27.2649	0.001	27.2659
104.6	2.4344	27.278	0.0023	27.2803



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
104.6333	2.4351	27.2912	0.001	27.2921
104.6667	2.4344	27.3175	0.001	27.3184
104.7	2.4357	27.3175	0.001	27.3184
104.7333	2.4403	27.2517	0.001	27.2527
104.7667	2.4403	27.3175	0	27.3175
104.8	2.4397	27.3438	0	27.3438
104.8333	2.4367	27.3438	0.0023	27.3461
104.8667	2.4364	27.3438	0	27.3438
104.9	2.4334	27.3438	0.0023	27.3461
104.9333	2.4311	27.3175	0.001	27.3184
104.9667	2.4304	27.3964	0.0036	27.4
105	2.4278	27.4095	0	27.4095
105.0333	2.4281	27.3964	0.001	27.3973
105.0667	2.4239	27.449	0	27.449
105.1	2.4252	27.4621	0.001	27.4631
105.1333	2.4255	27.4227	0.001	27.4236
105.1667	2.4225	27.4227	0	27.4227
105.2	2.4229	27.4753	0.0023	27.4776
105.2333	2.4196	27.4095	0.0023	27.4118
105.2667	2.4193	27.4358	0.001	27.4368
105.3	2.4206	27.4358	0.0023	27.4381
105.3333	2.4186	27.4884	0.0023	27.4907
105.3667	2.416	27.4227	0	27.4227
105.4	2.4176	27.4753	0.001	27.4762
105.4333	2.4146	27.5279	0.001	27.5288
105.4667	2.4166	27.5016	0.0023	27.5039
105.5	2.414	27.5016	0.001	27.5025
105.5333	2.4156	27.5016	0.0023	27.5039
105.5667	2.4143	27.5279	0.001	27.5288
105.6	2.4123	27.5147	0.001	27.5157
105.6333	2.4137	27.4621	0.0023	27.4644
105.6667	2.4166	27.541	0.0023	27.5433
105.7	2.4146	27.5279	0.0023	27.5302
105.7333	2.4166	27.541	0.0023	27.5433
105.7667	2.413	27.5147	0.0023	27.517
105.8	2.4146	27.5542	0.001	27.5551
105.8333	2.416	27.5936	0.001	27.5946
105.8667	2.4166	27.5673	0.001	27.5683
105.9	2.417	27.5279	0.001	27.5288
105.9333	2.416	27.5805	0.001	27.5814
105.9667	2.415	27.5542	0.0023	27.5565
106	2.414	27.6068	0.001	27.6077
106.0333	2.4156	27.5673	0.001	27.5683



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
106.0667	2.417	27.5936	0.001	27.5946
106.1	2.4166	27.6068	0.001	27.6077
106.1333	2.4183	27.5542	0.0023	27.5565
106.1667	2.417	27.6068	0	27.6068
106.2	2.4183	27.5936	0.0023	27.5959
106.2333	2.4173	27.5805	0.001	27.5814
106.2667	2.4153	27.6068	0.001	27.6077
106.3	2.4166	27.5805	0	27.5805
106.3333	2.4193	27.6331	0	27.6331
106.3667	2.4166	27.6462	0.0036	27.6498
106.4	2.4176	27.6199	0.0023	27.6222
106.4333	2.417	27.6462	0.0036	27.6498
106.4667	2.4176	27.5805	0	27.5805
106.5	2.4173	27.6594	0.001	27.6603
106.5333	2.416	27.6462	0.0023	27.6485
106.5667	2.415	27.6725	0.0023	27.6748
106.6	2.4137	27.6199	0.0023	27.6222
106.6333	2.4153	27.6462	0.001	27.6472
106.6667	2.417	27.6594	0.001	27.6603
106.7	2.4163	27.6725	0.0036	27.6761
106.7333	2.4176	27.6594	0.0023	27.6617
106.7667	2.4166	27.712	0.0023	27.7143
106.8	2.4156	27.6594	0.001	27.6603
106.8333	2.4143	27.6725	0.0023	27.6748
106.8667	2.4146	27.6988	0	27.6988
106.9	2.4153	27.7251	0.001	27.7261
106.9333	2.4156	27.712	0.0023	27.7143
106.9667	2.414	27.7383	0.0023	27.7406
107	2.4127	27.6988	0.001	27.6998
107.0333	2.4179	27.6725	0.001	27.6735
107.0667	2.4179	27.6857	0.0036	27.6893
107.1	2.4153	27.6988	0.001	27.6998
107.1333	2.4163	27.6725	0.0023	27.6748
107.1667	2.4153	27.7251	0	27.7251
107.2	2.4196	27.6988	0.001	27.6998
107.2333	2.4176	27.7251	0.0023	27.7274
107.2667	2.4166	27.6331	0.0023	27.6354
107.3	2.4193	27.7514	0.001	27.7524
107.3333	2.4114	27.7383	0.001	27.7392
107.3667	2.3363	27.6725	0.001	27.6735
107.4	2.2445	27.7251	0.001	27.7261
107.4333	2.156	27.7251	0.001	27.7261
107.4667	2.0677	27.6462	0	27.6462

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
107.5	1.9835	27.6725	0.001	27.6735
107.5333	1.9009	27.6594	0.0023	27.6617
107.5667	1.8199	27.5936	0.001	27.5946
107.6	1.7485	27.5542	0.0023	27.5565
107.6333	1.6728	27.5279	0.0023	27.5302
107.6667	1.603	27.4884	0.001	27.4894
107.7	1.5322	27.4227	0.0023	27.425
107.7333	1.4677	27.3438	0.001	27.3447
107.7667	1.3996	27.2912	0.001	27.2921
107.8	1.3423	27.2123	0.0023	27.2146
107.8333	1.2795	27.1202	0.0023	27.1225
107.8667	1.2242	27.0282	0.001	27.0292
107.9	1.1685	26.8967	0.001	26.8977
107.9333	1.1175	26.7915	0.0023	26.7938
107.9667	1.0665	26.6994	0.001	26.7004
108	1.0152	26.6337	0.001	26.6347
108.0333	0.9655	26.4233	0	26.4233
108.0667	0.921	26.1866	0.001	26.1876
108.1	0.8809	26.134	0.0023	26.1363
108.1333	0.8358	25.9236	0.001	25.9246
108.1667	0.7963	25.6606	0.0023	25.6629
108.2	0.7538	25.516	0.001	25.5169
108.2333	0.7183	25.3845	0.001	25.3854
108.2667	0.6791	25.1478	0.0023	25.1501
108.3	0.6465	24.9374	0	24.9374
108.3333	0.6103	24.6612	0.0023	24.6635
108.3667	0.5791	24.5034	0	24.5034
108.4	0.5481	24.201	0.0023	24.2033
108.4333	0.5185	23.9248	0.0023	23.9271
108.4667	0.4892	23.675	0.001	23.676
108.5	0.4642	23.3199	0.001	23.3209
108.5333	0.4385	23.0701	0.0023	23.0724
108.5667	0.4132	22.7808	0.001	22.7818
108.6	0.3895	22.4258	0	22.4258
108.6333	0.3628	22.1496	0.001	22.1506
108.6667	0.3411	21.7814	0.001	21.7824
108.7	0.323	21.4264	0	21.4264
108.7333	0.3026	21.0976	0.001	21.0986
108.7667	0.2852	20.7952	0.001	20.7962
108.8	0.2631	20.427	0	20.427
108.8333	0.2476	20.0588	0.001	20.0598
108.8667	0.2282	19.638	0.0036	19.6416
108.9	0.2177	19.2304	0	19.2304

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
108.9333	0.2019	18.7833	0.001	18.7843
108.9667	0.1848	18.5071	0.001	18.5081
109	0.1736	18.0601	0.001	18.061
109.0333	0.1578	17.6393	0.001	17.6403
109.0667	0.1499	17.2842	0.001	17.2852
109.1	0.1367	16.9292	0.001	16.9302
109.1333	0.1249	16.4426	0.001	16.4436
109.1667	0.1157	16.035	0	16.035
109.2	0.1064	15.6274	0.001	15.6283
109.2333	0.0985	15.2066	0.001	15.2076
109.2667	0.092	14.6937	0.001	14.6947
109.3	0.0854	14.2861	0.001	14.2871
109.3333	0.0745	13.8653	0.0023	13.8676
109.3667	0.0732	13.4708	0.0023	13.4731
109.4	0.0656	13.0237	0.001	13.0247
109.4333	0.0567	12.5898	0.001	12.5908
109.4667	0.0528	12.1295	0.001	12.1305
109.5	0.0472	11.6693	0.0023	11.6716
109.5333	0.0429	11.2879	0.001	11.2889
109.5667	0.0403	10.8409	0.001	10.8418
109.6	0.0324	10.4069	0.0023	10.4092
109.6333	0.0317	9.9861	0	9.9861
109.6667	0.0265	9.5785	0.001	9.5795
109.7	0.0238	9.2234	0.0023	9.2257
109.7333	0.0215	8.8289	0	8.8289
109.7667	0.0159	8.4608	0.001	8.4617
109.8	0.013	8.0663	0.001	8.0672
109.8333	0.0107	7.6718	0.0036	7.6754
109.8667	0.01	7.3167	0	7.3167
109.9	0.01	6.9748	0.001	6.9758
109.9333	0.006	6.7381	0.0023	6.7404
109.9667	0.0041	6.4225	0.001	6.4235
110	0.0001	6.0938	0.0023	6.0961
110.0333	-0.0012	5.8308	0.0023	5.8331
110.0667	-0.0025	5.5678	0.001	5.5688
110.1	-0.0055	5.2522	0.0023	5.2545
110.1333	-0.0038	4.9366	0.001	4.9376
110.1667	-0.0071	4.7262	0.001	4.7272
110.2	-0.0032	4.3975	0.0023	4.3998
110.2333	-0.0061	4.2265	0	4.2265
110.2667	-0.0121	3.9372	0.0023	3.9395
110.3	-0.0114	3.7006	0.001	3.7015
110.3333	-0.0091	3.4507	0.0023	3.453

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
110.3667	-0.0137	3.2535	0.001	3.2544
110.4	-0.0117	3.1483	0.0023	3.1506
110.4333	-0.0147	0.0186	0.0023	0.0209
110.4667	-0.013	0	0.0023	0.0023
110.5	-0.0127	0.0055	0.0023	0.0078
110.5333	-0.014	0.0055	0.001	0.0065
110.5667	-0.014	0.0186	0.001	0.0196
110.6	-0.0134	0.0055	0	0.0055
110.6333	-0.0216	0.0186	0.001	0.0196
110.6667	-0.0203	0.0055	0.001	0.0065
110.7	-0.019	0.0055	0.0023	0.0078
110.7333	-0.0173	0.0055	0.0023	0.0078
110.7667	-0.0219	0.0318	0	0.0318
110.8	-0.0209	0.0055	0.0023	0.0078
110.8333	-0.0223	0.0186	0.001	0.0196
110.8667	-0.02	0.0055	0.0023	0.0078
110.9	-0.0213	0.0055	0.001	0.0065
110.9333	-0.0219	0	0.001	0.001
110.9667	-0.0232	0.0186	0	0.0186
111	-0.0232	0.0186	0	0.0186
111.0333	-0.0219	0.0055	0.0036	0.0091
111.0667	-0.0252	0.0186	0.001	0.0196
111.1	-0.0358	0.0055	0.0023	0.0078
111.1333	-0.0338	0.0055	0.001	0.0065
111.1667	-0.0252	0.0186	0.001	0.0196
111.2	-0.0292	0.0055	0.001	0.0065
111.2333	-0.0269	0.0055	0.001	0.0065
111.2667	-0.0255	0.0186	0.0036	0.0222
111.3	-0.0295	0.0186	0.001	0.0196
111.3333	-0.0473	0.0318	0.001	0.0328
111.3667	-0.0381	0.0186	0.0023	0.0209
111.4	-0.0348	0.0055	0	0.0055
111.4333	-0.0348	0	0.001	0.001
111.4667	-0.0305	0	0.001	0.001
111.5	-0.0348	0.0186	0	0.0186
111.5333	-0.0315	0.0055	0.001	0.0065
111.5667	-0.0354	0.0186	0.001	0.0196
111.6	-0.0358	0.0186	0	0.0186
111.6333	-0.0344	0.0186	0.001	0.0196
111.6667	-0.0364	0.0055	0.0023	0.0078
111.7	-0.0367	0	0.001	0.001
111.7333	-0.0318	0.0055	0.0023	0.0078
111.7667	-0.0348	0.0055	0.0023	0.0078

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
111.8	-0.0344	0.0186	0.001	0.0196
111.8333	-0.0328	0.0186	0.001	0.0196
111.8667	-0.0308	0.0186	0.0023	0.0209
111.9	-0.0325	0.0186	0.001	0.0196
111.9333	-0.0302	0.0186	0.0023	0.0209
111.9667	-0.0305	0	0.0023	0.0023
112	-0.0311	0.0186	0	0.0186
112.0333	-0.0311	0.0186	0.0023	0.0209
112.0667	-0.0348	0.0186	0.0023	0.0209
112.1	-0.0183	0.0055	0	0.0055
112.1333	0.0067	0.0186	0.0023	0.0209
112.1667	0.0258	10.1571	0.0023	10.1594
112.2	0.0613	12.4714	0.0036	12.475
112.2333	0.0834	14.6674	0.0023	14.6697
112.2667	0.1265	15.8378	0.001	15.8387
112.3	0.1716	16.8503	0.001	16.8513
112.3333	0.2384	16.8634	0.0023	16.8657
112.3667	0.3026	16.9029	0.001	16.9039
112.4	0.3671	17.1001	0.001	17.1011
112.4333	0.4217	17.35	0.0023	17.3523
112.4667	0.4774	17.6393	0.001	17.6403
112.5	0.5277	18.0206	0.0023	18.0229
112.5333	0.5768	18.4545	0	18.4545
112.5667	0.6235	18.849	0.001	18.85
112.6	0.6699	19.3356	0.001	19.3366
112.6333	0.713	19.7827	0.0023	19.785
112.6667	0.7538	20.2561	0.001	20.257
112.7	0.7943	20.7952	0.0023	20.7975
112.7333	0.8345	21.2949	0.0023	21.2972
112.7667	0.87	21.7683	0.001	21.7693
112.8	0.9036	22.2811	0	22.2811
112.8333	0.9359	22.8071	0.0023	22.8094
112.8667	0.9737	23.3068	0.0023	23.3091
112.9	1.0037	23.767	0.001	23.768
112.9333	1.0356	24.2273	0.001	24.2283
112.9667	1.0642	24.7927	0.001	24.7937
113	1.0922	25.2398	0.001	25.2408
113.0333	1.1244	25.7263	0.0023	25.7286
113.0667	1.1501	26.1866	0.0036	26.1902
113.1	1.1794	26.6468	0	26.6468
113.1333	1.2057	27.1071	0.0023	27.1094
113.1667	1.2311	27.5673	0.0023	27.5696
113.2	1.2581	28.0275	0.0023	28.0298



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
113.2333	1.2824	28.4483	0.0023	28.4506
113.2667	1.3055	28.856	0	28.856
113.3	1.3295	29.3031	0.0023	29.3054
113.3333	1.3548	29.7765	0.0023	29.7788
113.3667	1.3733	30.171	0.001	30.1719
113.4	1.3963	30.6312	0.0036	30.6348
113.4333	1.4213	30.9994	0.0023	31.0017
113.4667	1.443	31.4465	0.001	31.4475
113.5	1.4625	31.9199	0.001	31.9209
113.5333	1.4822	32.2223	0.001	32.2233
113.5667	1.5039	32.5642	0	32.5642
113.6	1.5197	33.0376	0.001	33.0386
113.6333	1.5398	33.4452	0.0036	33.4489
113.6667	1.5596	33.7608	0.001	33.7618
113.7	1.578	34.3	0.0023	34.3023
113.7333	1.5971	34.5498	0	34.5498
113.7667	1.6155	34.826	0.001	34.8269
113.8	1.6293	35.3388	0.001	35.3398
113.8333	1.6471	35.7464	0.0023	35.7487
113.8667	1.6669	35.97	0.0036	35.9736
113.9	1.6817	36.325	0	36.325
113.9333	1.6965	36.7327	0.001	36.7337
113.9667	1.7136	37.1009	0.0023	37.1032
114	1.7258	37.4691	0.001	37.47
114.0333	1.7393	37.8504	0.0023	37.8527
114.0667	1.7557	38.166	0.001	38.167
114.1	1.7702	38.4421	0	38.4421
114.1333	1.7847	38.8235	0.0023	38.8258
114.1667	1.7962	39.1128	0.0036	39.1164
114.2	1.81	39.481	0.001	39.4819
114.2333	1.8235	39.8623	0.001	39.8633
114.2667	1.838	40.0727	0.001	40.0737
114.3	1.8472	40.3751	0.0036	40.3788
114.3333	1.862	40.7565	0	40.7565
114.3667	1.8726	41.0852	0.0023	41.0875
114.4	1.8857	41.4008	0.001	41.4018
114.4333	1.8999	41.7033	0.001	41.7043
114.4667	1.9088	42.032	0.001	42.033
114.5	1.9203	42.2424	0.001	42.2434
114.5333	1.9295	42.5054	0	42.5054
114.5667	1.9414	42.821	0.001	42.822
114.6	1.9525	43.0445	0.001	43.0455
114.6333	1.9618	43.3864	0.0023	43.3887



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
114.6667	1.9713	43.6494	0.001	43.6504
114.7	1.9822	43.965	0.001	43.966
114.7333	1.9953	44.1754	0.001	44.1764
114.7667	2.0029	44.399	0.001	44.3999
114.8	2.0131	44.6751	0.001	44.6761
114.8333	2.0256	45.0038	0.001	45.0048
114.8667	2.0348	45.2405	0.001	45.2415
114.9	2.0414	45.4509	0	45.4509
114.9333	2.0533	45.7008	0.001	45.7018
114.9667	2.0575	46.0164	0.001	46.0174
115	2.0697	46.1873	0.0023	46.1896
115.0333	2.0763	46.424	0.001	46.425
115.0667	2.0875	46.7002	0.001	46.7011
115.1	2.096	46.8843	0.001	46.8852
115.1333	2.1016	47.1473	0.001	47.1482
115.1667	2.1086	47.3839	0.001	47.3849
115.2	2.1184	47.6469	0.0023	47.6492
115.2333	2.1273	47.9231	0.001	47.9241
115.2667	2.1369	48.0677	0.0023	48.07
115.3	2.1464	48.2781	0	48.2781
115.3333	2.1533	48.528	0.001	48.529
115.3667	2.1635	48.7778	0.0023	48.7801
115.4	2.1741	48.9225	0.0023	48.9248
115.4333	2.1823	49.2512	0.001	49.2522
115.4667	2.1892	49.3433	0.001	49.3442
115.5	2.1954	49.6588	0.001	49.6598
115.5333	2.2043	49.7377	0.001	49.7387
115.5667	2.2122	50.1059	0.0023	50.1082
115.6	2.2191	50.2243	0.001	50.2253
115.6333	2.2307	50.461	0.001	50.462
115.6667	2.231	50.6451	0.001	50.6461
115.7	2.2399	50.9344	0.001	50.9354
115.7333	2.2455	51.079	0	51.079
115.7667	2.2498	51.3289	0.001	51.3299
115.8	2.2586	51.4867	0.0023	51.489
115.8333	2.2679	51.7497	0.0023	51.752
115.8667	2.2711	51.9601	0	51.9601
115.9	2.2764	52.039	0	52.039
115.9333	2.2823	52.2625	0.0023	52.2648
115.9667	2.2879	52.4334	0.001	52.4344
116	2.2952	52.6964	0.0023	52.6987
116.0333	2.2998	52.8148	0.001	52.8158
116.0667	2.3034	53.0515	0.001	53.0525

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
116.1	2.3074	53.2224	0.001	53.2234
116.1333	2.3169	53.4197	0.001	53.4207
116.1667	2.3215	53.6564	0.0023	53.6587
116.2	2.3235	53.7353	0.0023	53.7376
116.2333	2.3307	53.9851	0.0023	53.9874
116.2667	2.3334	54.0903	0	54.0903
116.3	2.3376	54.2876	0.001	54.2885
116.3333	2.3432	54.5242	0.001	54.5252
116.3667	2.3511	54.5637	0.001	54.5647
116.4	2.3534	54.7478	0	54.7478
116.4333	2.3561	54.9845	0	54.9845
116.4667	2.362	55.1554	0.001	55.1564
116.5	2.3643	55.2212	0.0023	55.2235
116.5333	2.3696	55.4184	0.0023	55.4207
116.5667	2.3719	55.6025	0.001	55.6035
116.6	2.3775	55.7472	0.0023	55.7495
116.6333	2.3831	55.8918	0.001	55.8928
116.6667	2.3854	56.0233	0.001	56.0243
116.7	2.3896	56.1811	0.001	56.1821
116.7333	2.3903	56.2995	0.001	56.3004
116.7667	2.3975	56.4573	0.001	56.4582
116.8	2.3975	56.6414	0.0023	56.6437
116.8333	2.3982	56.786	0.0023	56.7883
116.8667	2.4035	56.8649	0.001	56.8659
116.9	2.4081	57.0621	0.001	57.0631
116.9333	2.4123	57.1279	0.001	57.1289
116.9667	2.4153	57.3777	0.0023	57.38
117	2.4179	57.5092	0.001	57.5102
117.0333	2.4176	57.5224	0.0023	57.5247
117.0667	2.4202	57.6802	0.001	57.6812
117.1	2.4216	57.838	0.001	57.839
117.1333	2.4258	57.93	0.0023	57.9323
117.1667	2.4272	58.1536	0.001	58.1546
117.2	2.4337	58.1799	0.0023	58.1822
117.2333	2.4337	58.3377	0.0036	58.3413
117.2667	2.4331	58.4429	0.001	58.4439
117.3	2.438	58.627	0.001	58.628
117.3333	2.4407	58.7453	0.0023	58.7476
117.3667	2.442	58.9689	0.001	58.9698
117.4	2.441	58.89	0.0023	58.8923
117.4333	2.4403	59.0609	0.0023	59.0632
117.4667	2.4436	59.2187	0.001	59.2197
117.5	2.4416	59.2845	0.0023	59.2868

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
117.5333	2.441	59.4028	0.0023	59.4051
117.5667	2.4387	59.5474	0.001	59.5484
117.6	2.4403	59.7578	0.0036	59.7615
117.6333	2.4393	59.7973	0.001	59.7983
117.6667	2.4393	59.8367	0	59.8367
117.7	2.4377	59.9156	0	59.9156
117.7333	2.4344	60.0077	0.0023	60.01
117.7667	2.4367	60.0866	0.0023	60.0889
117.8	2.4324	60.2181	0.001	60.2191
117.8333	2.4337	60.4811	0.0023	60.4834
117.8667	2.4367	60.4285	0.0023	60.4308
117.9	2.4331	60.4548	0.001	60.4558
117.9333	2.4337	60.56	0.001	60.561
117.9667	2.4354	60.652	0.0023	60.6543
118	2.4351	60.7441	0.001	60.7451
118.0333	2.4334	60.8624	0.0023	60.8647
118.0667	2.437	60.9676	0.001	60.9686
118.1	2.4357	60.9282	0.0023	60.9305
118.1333	2.4334	61.1123	0.0023	61.1146
118.1667	2.4328	61.1517	0.0023	61.154
118.2	2.4331	61.2043	0.001	61.2053
118.2333	2.4318	61.2175	0.001	61.2184
118.2667	2.4321	61.4673	0	61.4673
118.3	2.4334	61.5068	0.001	61.5077
118.3333	2.4337	61.6646	0.001	61.6655
118.3667	2.4328	61.6777	0	61.6777
118.4	2.4341	61.7172	0.001	61.7181
118.4333	2.4351	61.7697	0.001	61.7707
118.4667	2.4328	61.8092	0.001	61.8102
118.5	2.4337	61.8618	0.0023	61.8641
118.5333	2.4331	62.0459	0.0023	62.0482
118.5667	2.4314	62.0853	0.001	62.0863
118.6	2.4334	62.0459	0.001	62.0469
118.6333	2.4298	62.2168	0.0036	62.2205
118.6667	2.4275	62.2957	0	62.2957
118.7	2.4304	62.3615	0.001	62.3625
118.7333	2.4318	62.3483	0	62.3483
118.7667	2.4341	62.4667	0.0023	62.469
118.8	2.4337	62.4667	0	62.4667
118.8333	2.4334	62.5456	0.001	62.5466
118.8667	2.4328	62.6113	0.001	62.6123
118.9	2.4331	62.5587	0.001	62.5597
118.9333	2.4351	62.7954	0.001	62.7964

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
118.9667	2.4331	62.848	0.0023	62.8503
119	2.4357	62.848	0.001	62.849
119.0333	2.4331	62.9138	0	62.9138
119.0667	2.4334	62.9927	0.0023	62.995
119.1	2.4324	63.019	0.0023	63.0213
119.1333	2.4324	63.0716	0.001	63.0726
119.1667	2.4324	63.0453	0	63.0453
119.2	2.4318	63.1899	0.001	63.1909
119.2333	2.4301	63.2162	0.0023	63.2185
119.2667	2.4278	63.2951	0.0023	63.2974
119.3	2.4308	63.3214	0.001	63.3224
119.3333	2.4272	63.374	0.001	63.375
119.3667	2.4275	63.4266	0.0023	63.4289
119.4	2.4275	63.3872	0.0023	63.3895
119.4333	2.4249	63.5713	0.0023	63.5736
119.4667	2.4235	63.5581	0.001	63.5591
119.5	2.4229	63.4924	0.001	63.4934
119.5333	2.4232	63.6765	0.001	63.6774
119.5667	2.4232	63.7291	0.001	63.73
119.6	2.4232	63.6502	0.001	63.6511
119.6333	2.4225	63.7291	0.001	63.73
119.6667	2.4212	63.7554	0.0023	63.7577
119.7	2.4232	63.8474	0	63.8474
119.7333	2.4189	63.9	0.001	63.901
119.7667	2.4232	63.8474	0.001	63.8484
119.8	2.4222	63.8737	0.001	63.8747
119.8333	2.4202	63.9789	0.0023	63.9812
119.8667	2.4225	63.9	0	63.9
119.9	2.4179	64.071	0.0023	64.0733
119.9333	2.4183	64.1104	0.001	64.1114
119.9667	2.4179	64.1499	0.001	64.1508
120	2.4193	64.0973	0.001	64.0982
120.0333	2.4193	64.1499	0.0036	64.1535
120.0667	2.4193	64.1236	0.001	64.1245
120.1	2.4183	64.163	0.001	64.164
120.1333	2.4173	64.2287	0	64.2287
120.1667	2.4163	64.3076	0.001	64.3086
120.2	2.4183	64.4917	0.0023	64.494
120.2333	2.417	64.3471	0.001	64.3481
120.2667	2.417	64.4391	0.0023	64.4414
120.3	2.416	64.3865	0	64.3865
120.3333	2.4153	64.4391	0.0023	64.4414
120.3667	2.4143	64.5838	0.001	64.5848

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
120.4	2.4173	64.4391	0.0036	64.4428
120.4333	2.4156	64.5443	0.001	64.5453
120.4667	2.4156	64.6758	0.001	64.6768
120.5	2.4173	64.5838	0.001	64.5848
120.5333	2.4153	64.6101	0.0023	64.6124
120.5667	2.4127	64.6232	0.001	64.6242
120.6	2.417	64.7021	0.0023	64.7044
120.6333	2.4179	64.6101	0.0023	64.6124
120.6667	2.4146	64.8599	0.0023	64.8622
120.7	2.4137	64.6495	0.001	64.6505
120.7333	2.417	64.781	0.0023	64.7833
120.7667	2.417	64.7942	0.0023	64.7965
120.8	2.4173	64.781	0.001	64.782
120.8333	2.4173	64.8205	0.0023	64.8228
120.8667	2.4153	64.7942	0.001	64.7952
120.9	2.4143	65.0177	0.0023	65.02
120.9333	2.4143	64.9651	0.0023	64.9674
120.9667	2.414	64.8994	0.0023	64.9017
121	2.4123	64.9388	0.0023	64.9411
121.0333	2.414	64.9783	0.001	64.9793
121.0667	2.4127	64.9783	0.0023	64.9806
121.1	2.4156	65.1361	0.001	65.1371
121.1333	2.4156	64.8073	0.001	64.8083
121.1667	2.415	65.1755	0.001	65.1765
121.2	2.4146	65.0835	0	65.0835
121.2333	2.4137	65.1492	0.0023	65.1515
121.2667	2.4183	65.0703	0.0023	65.0726
121.3	2.415	65.1098	0.0023	65.1121
121.3333	2.4166	65.2281	0.001	65.2291
121.3667	2.4179	65.1755	0.001	65.1765
121.4	2.4163	65.2413	0.001	65.2423
121.4333	2.4166	65.3596	0.0023	65.3619
121.4667	2.4183	65.2018	0.001	65.2028
121.5	2.4193	65.2807	0.001	65.2817
121.5333	2.417	65.3333	0	65.3333
121.5667	2.4206	65.2807	0.001	65.2817
121.6	2.4183	65.4385	0.001	65.4395
121.6333	2.4225	65.3728	0.0023	65.3751
121.6667	2.4212	65.3728	0	65.3728
121.7	2.4186	65.4254	0.0023	65.4277
121.7333	2.4193	65.3728	0.001	65.3738
121.7667	2.4209	65.3465	0.001	65.3475
121.8	2.4212	65.4517	0.001	65.4527



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
121.8333	2.4189	65.3596	0.0023	65.3619
121.8667	2.4189	65.478	0.001	65.479
121.9	2.4209	65.4911	0.001	65.4921
121.9333	2.4193	65.5306	0.001	65.5316
121.9667	2.4229	65.5569	0	65.5569
122	2.4209	65.5306	0.001	65.5316
122.0333	2.4196	65.478	0.001	65.479
122.0667	2.4232	65.5963	0.001	65.5973
122.1	2.4219	65.5569	0	65.5569
122.1333	2.4229	65.741	0.0023	65.7433
122.1667	2.4216	65.6489	0.001	65.6499
122.2	2.4212	65.5832	0.001	65.5842
122.2333	2.4225	65.7015	0.001	65.7025
122.2667	2.3982	65.5963	0.001	65.5973
122.3	2.2995	65.6095	0.001	65.6105
122.3333	2.1813	65.5832	0.001	65.5842
122.3667	2.0763	65.4648	0.0023	65.4671
122.4	1.97	65.2544	0.0023	65.2567
122.4333	1.8716	65.0177	0.0023	65.02
122.4667	1.7788	64.8599	0	64.8599
122.5	1.6906	64.5838	0.001	64.5848
122.5333	1.6099	64.2813	0	64.2813
122.5667	1.5299	64.0315	0.0023	64.0338
122.6	1.4572	63.7028	0.0023	63.7051
122.6333	1.3838	63.1636	0.001	63.1646
122.6667	1.3216	62.9269	0.001	62.9279
122.7	1.2587	62.5324	0.001	62.5334
122.7333	1.2001	62.1511	0.001	62.1521
122.7667	1.1422	61.704	0.001	61.705
122.8	1.0876	61.178	0.001	61.179
122.8333	1.0362	60.8098	0.001	60.8108
122.8667	0.9905	60.3627	0.001	60.3637
122.9	0.9414	59.7973	0	59.7973
122.9333	0.9023	59.4554	0.0023	59.4577
122.9667	0.8582	58.89	0.001	58.8909
123	0.82	58.364	0	58.364
123.0333	0.7818	57.8511	0.001	57.8521
123.0667	0.7456	57.2857	0.0023	57.288
123.1	0.7137	56.8123	0.001	56.8133
123.1333	0.6765	56.2469	0.0023	56.2492
123.1667	0.6452	55.7472	0	55.7472
123.2	0.6186	55.2212	0.001	55.2222
123.2333	0.5903	54.6689	0.0036	54.6725



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
123.2667	0.5583	54.1035	0	54.1035
123.3	0.532	53.4854	0	53.4854
123.3333	0.5067	52.8805	0.001	52.8815
123.3667	0.482	52.3282	0.0023	52.3305
123.4	0.4593	51.776	0	51.776
123.4333	0.4398	51.1316	0.0023	51.1339
123.4667	0.4155	50.553	0.001	50.554
123.5	0.3961	49.9876	0.001	49.9886
123.5333	0.378	49.3301	0.0023	49.3324
123.5667	0.3615	48.7384	0.0023	48.7407
123.6	0.3447	48.1335	0.001	48.1345
123.6333	0.327	47.5943	0.0036	47.598
123.6667	0.3079	46.9763	0.001	46.9773
123.7	0.2917	46.3057	0.001	46.3067
123.7333	0.2759	45.6482	0.0036	45.6518
123.7667	0.2628	45.0959	0.001	45.0969
123.8	0.2499	44.4779	0.001	44.4788
123.8333	0.2378	43.8335	0.0023	43.8358
123.8667	0.2239	43.1629	0.001	43.1639
123.9	0.2124	42.558	0.0023	42.5603
123.9333	0.2025	41.9663	0.001	41.9672
123.9667	0.1923	41.3219	0.001	41.3229
124	0.1811	40.6513	0	40.6513
124.0333	0.1729	40.0332	0	40.0332
124.0667	0.164	39.4152	0.0023	39.4175
124.1	0.1532	38.7183	0.001	38.7193
124.1333	0.1482	38.0345	0.0023	38.0368
124.1667	0.1344	37.4428	0.0023	37.4451
124.2	0.1308	36.8642	0.0023	36.8665
124.2333	0.1235	36.1409	0.001	36.1419
124.2667	0.114	35.6149	0.001	35.6159
124.3	0.1094	34.9575	0.001	34.9584
124.3333	0.1008	34.3131	0.0023	34.3154
124.3667	0.0952	33.6556	0.001	33.6566
124.4	0.0896	33.0639	0.001	33.0649
124.4333	0.0834	32.459	0.001	32.46
124.4667	0.0781	31.7884	0.0023	31.7907
124.5	0.0758	31.1572	0.001	31.1582
124.5333	0.0692	30.526	0.0023	30.5283
124.5667	0.0636	29.9343	0.001	29.9352
124.6	0.0594	29.2899	0.001	29.2909
124.6333	0.0564	28.7113	0.0036	28.715
124.6667	0.0508	28.0801	0.0023	28.0824

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
124.7	0.0429	27.5805	0.0023	27.5828
124.7333	0.0419	26.9493	0.0023	26.9516
124.7667	0.0413	26.3312	0.0023	26.3335
124.8	0.0376	25.6869	0.0023	25.6892
124.8333	0.0334	25.1083	0.0036	25.1119
124.8667	0.0307	24.5429	0.001	24.5439
124.9	0.0268	23.8591	0.0023	23.8614
124.9333	0.0235	23.3462	0	23.3462
124.9667	0.0179	22.7151	0.001	22.716
125	0.0159	22.1759	0	22.1759
125.0333	0.0153	21.5973	0.001	21.5983
125.0667	0.012	21.045	0.0023	21.0473
125.1	0.0126	20.4796	0.0023	20.4819
125.1333	0.0067	19.9273	0.0023	19.9296
125.1667	0.0064	19.3487	0.0036	19.3523
125.2	0.0067	18.757	0.0023	18.7593
125.2333	0.0047	18.2442	0.001	18.2451
125.2667	0.0028	17.6524	0.0023	17.6547
125.3	0.0001	17.179	0.001	17.18
125.3333	-0.0042	16.6925	0.0036	16.6961
125.3667	-0.0025	16.1139	0.001	16.1149
125.4	-0.0055	15.5879	0.001	15.5889
125.4333	-0.0091	15.1014	0.001	15.1024
125.4667	-0.0074	14.6017	0.0036	14.6053
125.5	-0.0094	14.1414	0.001	14.1424
125.5333	-0.0101	13.6154	0.001	13.6164
125.5667	-0.0084	13.1421	0.0023	13.1444
125.6	-0.0094	12.7081	0.001	12.7091
125.6333	-0.0163	12.261	0.0023	12.2633
125.6667	-0.0144	11.735	0.001	11.736
125.7	-0.0173	11.3537	0.001	11.3547
125.7333	-0.0176	10.8803	0.0023	10.8826
125.7667	-0.0163	10.4332	0.0023	10.4355
125.8	-0.0203	10.1045	0.001	10.1055
125.8333	-0.0183	9.6442	0	9.6442
125.8667	-0.0183	9.2892	0.001	9.2902
125.9	-0.0219	8.8684	0.001	8.8694
125.9333	-0.0203	8.5134	0.001	8.5143
125.9667	-0.0186	8.1189	0.0023	8.1212
126	-0.0229	7.8164	0	7.8164
126.0333	-0.0242	7.4351	0.0023	7.4374
126.0667	-0.0216	7.0669	0.0023	7.0692
126.1	-0.0242	6.8302	0.0036	6.8338

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
126.1333	-0.0203	6.5672	0	6.5672
126.1667	-0.0232	6.2516	0.0023	6.2539
126.2	-0.0229	6.0018	0.001	6.0027
126.2333	-0.0246	5.673	0	5.673
126.2667	-0.0255	5.4626	0.001	5.4636
126.3	-0.0229	5.1733	0.001	5.1743
126.3333	-0.0249	4.9761	0.001	4.9771
126.3667	-0.0246	4.7131	0.001	4.7141
126.4	-0.0272	4.5158	0.0023	4.5181
126.4333	-0.0292	4.3054	0	4.3054
126.4667	-0.0249	4.1476	0.001	4.1486
126.5	-0.0269	3.9504	0.0023	3.9527
126.5333	-0.0252	3.74	0.0023	3.7423
126.5667	-0.0255	3.6085	0.001	3.6095
126.6	-0.0252	3.385	0.0036	3.3886
126.6333	-0.0275	3.2403	0.0023	3.2426
126.6667	-0.0252	3.1088	0.0023	3.1111
126.7	-0.0282	0.0055	0.0023	0.0078
126.7333	-0.0272	0.0186	0.001	0.0196
126.7667	-0.0269	0.0055	0.001	0.0065
126.8	-0.0265	0.0186	0.001	0.0196
126.8333	-0.0262	0	0.001	0.001
126.8667	-0.0285	0.0055	0.0023	0.0078
126.9	-0.0255	0.0055	0.0023	0.0078
126.9333	-0.0311	0.0186	0.0023	0.0209
126.9667	-0.0275	0	0.001	0.001
127	-0.0298	0.0186	0.0023	0.0209
127.0333	-0.0275	0.0186	0.0023	0.0209
127.0667	-0.0298	0.0055	0.001	0.0065
127.1	-0.0292	0.0055	0.001	0.0065
127.1333	-0.0288	0.0186	0.0023	0.0209
127.1667	-0.0295	0.0186	0	0.0186
127.2	-0.0308	0	0.0023	0.0023
127.2333	-0.0282	0.0055	0.001	0.0065
127.2667	-0.0285	0.0186	0.0023	0.0209
127.3	-0.0288	0.0186	0.0023	0.0209
127.3333	-0.0223	0.0186	0	0.0186
127.3667	-0.0239	0.0186	0.001	0.0196
127.4	-0.0272	0.0055	0.001	0.0065
127.4333	-0.0236	0.0186	0.0023	0.0209
127.4667	-0.0269	0.0055	0.0023	0.0078
127.5	-0.0272	0.0055	0.0023	0.0078
127.5333	0.0314	0.0055	0.0023	0.0078

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
127.5667	0.0245	0.0055	0.0023	0.0078
127.6	0.01	0.0318	0.001	0.0328
127.6333	0.0093	0	0.0023	0.0023
127.6667	-0.0331	0	0.0023	0.0023
127.7	-0.0305	0.0055	0	0.0055
127.7333	-0.0341	0.0055	0.001	0.0065
127.7667	-0.0361	0.0318	0.0023	0.0341
127.8	-0.0364	0	0.0023	0.0023
127.8333	-0.0341	0.0055	0.001	0.0065
127.8667	-0.0318	0.0055	0.0023	0.0078
127.9	-0.0338	0.0055	0.001	0.0065
127.9333	-0.0331	0	0.001	0.001
127.9667	-0.0308	0.0186	0.0023	0.0209
128	-0.0334	0.0186	0.0023	0.0209
128.0333	-0.0275	0.0055	0.001	0.0065
128.0667	-0.0285	0.0186	0.0023	0.0209
128.1	-0.0295	0.0186	0.0023	0.0209
128.1333	-0.0318	0.0055	0.001	0.0065
128.1667	-0.0344	0.0318	0.0023	0.0341
128.2	-0.0334	0.0055	0.001	0.0065
128.2333	-0.0285	0.0186	0.001	0.0196
128.2667	0.0074	0.0055	0.0023	0.0078
128.3	0.0297	8.8552	0.0023	8.8575
128.3333	0.0627	11.38	0.001	11.381
128.3667	0.1064	12.9711	0.001	12.9721
128.4	0.1637	13.8258	0	13.8258
128.4333	0.2259	14.2992	0.001	14.3002
128.4667	0.2917	14.6543	0.001	14.6553
128.5	0.3579	14.8384	0.001	14.8394
128.5333	0.424	15.0225	0.001	15.0235
128.5667	0.4872	15.2066	0.0023	15.2089
128.6	0.5478	15.3644	0.001	15.3653
128.6333	0.6084	15.6274	0.001	15.6283
128.6667	0.6689	15.8904	0	15.8904
128.7	0.7249	16.127	0.001	16.128
128.7333	0.7835	16.3111	0.001	16.3121
128.7667	0.8341	16.561	0.001	16.562
128.8	0.8914	16.8503	0.0023	16.8526
128.8333	0.9428	17.0212	0.001	17.0222
128.8667	0.9967	17.2053	0.0023	17.2076
128.9	1.0484	17.4157	0.001	17.4167
128.9333	1.1017	17.6393	0.001	17.6403
128.9667	1.1511	17.8497	0.001	17.8506

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
129	1.1959	18.1258	0	18.1258
129.0333	1.2436	18.4019	0.0023	18.4042
129.0667	1.29	18.586	0.0023	18.5883
129.1	1.3381	18.7701	0.001	18.7711
129.1333	1.3835	18.9937	0.001	18.9947
129.1667	1.4289	19.1909	0.001	19.1919
129.2	1.4756	19.3487	0.0023	19.351
129.2333	1.5184	19.5591	0.001	19.5601
129.2667	1.5642	19.7301	0.0023	19.7324
129.3	1.6076	19.8747	0.0023	19.877
129.3333	1.6527	20.072	0.001	20.0729
129.3667	1.6932	20.2429	0.001	20.2439
129.4	1.7327	20.4402	0.0023	20.4425
129.4333	1.7788	20.6374	0.001	20.6384
129.4667	1.8183	20.782	0.0023	20.7843
129.5	1.8584	20.9135	0.0023	20.9158
129.5333	1.8982	21.0976	0.0023	21.0999
129.5667	1.9414	21.216	0.0023	21.2183
129.6	1.9795	21.3212	0.001	21.3222
129.6333	2.0184	21.5316	0.001	21.5326
129.6667	2.0589	21.6236	0.001	21.6246
129.7	2.0967	21.7551	0	21.7551
129.7333	2.1346	21.9392	0.001	21.9402
129.7667	2.1714	22.0313	0	22.0313
129.8	2.2099	22.2285	0.001	22.2295
129.8333	2.2428	22.3074	0.001	22.3084
129.8667	2.2827	22.4126	0.001	22.4136
129.9	2.3143	22.5573	0.001	22.5582
129.9333	2.3452	22.7151	0.001	22.716
129.9667	2.3676	22.9912	0.001	22.9922
130	2.3949	23.149	0.0023	23.1513
130.0333	2.4189	23.3331	0.001	23.3341
130.0667	2.4436	23.4646	0.001	23.4656
130.1	2.4617	23.5698	0.0023	23.5721
130.1333	2.4788	23.7276	0.001	23.7286
130.1667	2.4959	23.8328	0.001	23.8338
130.2	2.5114	23.8854	0	23.8854
130.2333	2.5269	23.8985	0.001	23.8995
130.2667	2.5404	24.0169	0	24.0169
130.3	2.5509	24.0695	0.001	24.0705
130.3333	2.5605	24.1352	0.001	24.1362
130.3667	2.5707	24.2273	0.001	24.2283
130.4	2.5818	24.2536	0.001	24.2546



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
130.4333	2.5897	24.3062	0.001	24.3072
130.4667	2.5914	24.3325	0.001	24.3335
130.5	2.5907	24.3982	0.001	24.3992
130.5333	2.5891	24.3982	0.001	24.3992
130.5667	2.5832	24.4508	0	24.4508
130.6	2.5815	24.5297	0.001	24.5307
130.6333	2.5799	24.5297	0.0023	24.532
130.6667	2.5763	24.556	0.001	24.557
130.7	2.5687	24.6612	0.001	24.6622
130.7333	2.5562	24.727	0.0023	24.7293
130.7667	2.5443	24.7007	0.001	24.7017
130.8	2.5338	24.727	0	24.727
130.8333	2.521	24.7796	0.0023	24.7819
130.8667	2.5124	24.7796	0.0023	24.7819
130.9	2.5032	24.819	0.001	24.82
130.9333	2.4963	24.819	0.0023	24.8213
130.9667	2.4848	24.8585	0	24.8585
131	2.4795	24.8848	0.001	24.8857
131.0333	2.4726	24.9111	0.0023	24.9134
131.0667	2.4667	24.9242	0.0023	24.9265
131.1	2.4568	25.0031	0.001	25.0041
131.1333	2.4538	24.9637	0.001	24.9646
131.1667	2.4489	25.0163	0.001	25.0172
131.2	2.4456	25.0294	0.001	25.0304
131.2333	2.4407	25.0031	0.001	25.0041
131.2667	2.44	25.0426	0.001	25.0435
131.3	2.4403	25.0294	0.001	25.0304
131.3333	2.442	25.0952	0.0023	25.0975
131.3667	2.4459	25.1346	0.0023	25.1369
131.4	2.4449	25.1346	0.0036	25.1382
131.4333	2.4499	25.0952	0.0023	25.0975
131.4667	2.4492	25.1478	0.0023	25.1501
131.5	2.4466	25.1478	0.0023	25.1501
131.5333	2.4416	25.1346	0.001	25.1356
131.5667	2.4344	25.2398	0.001	25.2408
131.6	2.4328	25.1872	0.001	25.1882
131.6333	2.4272	25.2398	0.0023	25.2421
131.6667	2.4265	25.2924	0	25.2924
131.7	2.4219	25.2924	0	25.2924
131.7333	2.4176	25.2661	0.001	25.2671
131.7667	2.4163	25.3056	0.001	25.3065
131.8	2.4176	25.3319	0.001	25.3328
131.8333	2.4206	25.345	0.0023	25.3473



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
131.8667	2.4219	25.345	0.001	25.346
131.9	2.4255	25.3713	0.0036	25.3749
131.9333	2.4222	25.3713	0	25.3713
131.9667	2.4219	25.3976	0.0036	25.4012
132	2.4199	25.4108	0.001	25.4117
132.0333	2.4202	25.4371	0.0023	25.4394
132.0667	2.4193	25.4239	0.0023	25.4262
132.1	2.416	25.3976	0.0023	25.3999
132.1333	2.4137	25.4897	0.0023	25.492
132.1667	2.4173	25.4108	0.0023	25.4131
132.2	2.4146	25.5028	0.001	25.5038
132.2333	2.413	25.5554	0	25.5554
132.2667	2.4107	25.4634	0.0023	25.4657
132.3	2.412	25.516	0.001	25.5169
132.3333	2.4117	25.4634	0.0023	25.4657
132.3667	2.4107	25.516	0.0036	25.5196
132.4	2.41	25.5554	0.001	25.5564
132.4333	2.4081	25.608	0.001	25.609
132.4667	2.4084	25.516	0.0023	25.5183
132.5	2.4107	25.5291	0.0023	25.5314
132.5333	2.4123	25.608	0.0023	25.6103
132.5667	2.415	25.608	0.001	25.609
132.6	2.4146	25.608	0.001	25.609
132.6333	2.4179	25.6211	0.001	25.6221
132.6667	2.4232	25.608	0.0023	25.6103
132.7	2.4255	25.6606	0.0023	25.6629
132.7333	2.4262	25.608	0.0036	25.6116
132.7667	2.4295	25.5685	0.001	25.5695
132.8	2.4318	25.6737	0.0036	25.6774
132.8333	2.4301	25.6474	0.001	25.6484
132.8667	2.4304	25.6343	0.001	25.6353
132.9	2.4278	25.7	0.0023	25.7023
132.9333	2.4235	25.6606	0.001	25.6616
132.9667	2.4255	25.6343	0.0023	25.6366
133	2.4222	25.6737	0.0023	25.676
133.0333	2.4206	25.7	0.001	25.701
133.0667	2.4196	25.7132	0.0023	25.7155
133.1	2.4173	25.7132	0.001	25.7142
133.1333	2.4153	25.7526	0.001	25.7536
133.1667	2.417	25.7263	0.001	25.7273
133.2	2.4133	25.6737	0.0036	25.6774
133.2333	2.4077	25.7	0.0023	25.7023
133.2667	2.4091	25.6869	0.001	25.6879

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
133.3	2.4068	25.7658	0.0023	25.7681
133.3333	2.4051	25.7263	0.001	25.7273
133.3667	2.4068	25.7658	0.0023	25.7681
133.4	2.4061	25.7789	0.001	25.7799
133.4333	2.4071	25.7921	0.001	25.7931
133.4667	2.4061	25.7526	0.001	25.7536
133.5	2.4094	25.7132	0.001	25.7142
133.5333	2.413	25.7921	0.0023	25.7944
133.5667	2.4153	25.8052	0.0036	25.8089
133.6	2.415	25.7921	0.001	25.7931
133.6333	2.4146	25.7658	0.0023	25.7681
133.6667	2.4183	25.7526	0.001	25.7536
133.7	2.4199	25.7658	0.001	25.7668
133.7333	2.4193	25.7789	0.001	25.7799
133.7667	2.4206	25.7789	0.001	25.7799
133.8	2.4265	25.8447	0.0023	25.847
133.8333	2.4262	25.7526	0.001	25.7536
133.8667	2.4262	25.8184	0.0023	25.8207
133.9	2.4295	25.7789	0.0036	25.7826
133.9333	2.4288	25.8052	0.001	25.8062
133.9667	2.4265	25.8052	0.0023	25.8075
134	2.4281	25.8447	0.0023	25.847
134.0333	2.4308	25.7789	0.0023	25.7812
134.0667	2.4331	25.8315	0.0023	25.8338
134.1	2.4324	25.871	0.0023	25.8733
134.1333	2.4344	25.8841	0.001	25.8851
134.1667	2.4331	25.8184	0.0036	25.822
134.2	2.4331	25.871	0.001	25.872
134.2333	2.4354	25.9104	0.001	25.9114
134.2667	2.4328	25.8973	0.001	25.8983
134.3	2.4304	25.871	0.001	25.872
134.3333	2.4318	25.9236	0.0023	25.9259
134.3667	2.4308	25.9104	0.0023	25.9127
134.4	2.4318	25.8841	0.001	25.8851
134.4333	2.4285	25.9236	0.0023	25.9259
134.4667	2.4272	25.9236	0	25.9236
134.5	2.4272	25.8841	0.0023	25.8864
134.5333	2.4268	25.8973	0.001	25.8983
134.5667	2.4268	25.8973	0.001	25.8983
134.6	2.4258	25.963	0	25.963
134.6333	2.4281	25.9367	0.0036	25.9404
134.6667	2.4265	25.9104	0.0023	25.9127
134.7	2.4275	25.963	0.0036	25.9667

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
134.7333	2.4258	25.9104	0.0023	25.9127
134.7667	2.4265	25.8841	0.001	25.8851
134.8	2.4216	25.9236	0.0036	25.9272
134.8333	2.4229	25.9104	0.001	25.9114
134.8667	2.4235	25.9104	0.0036	25.9141
134.9	2.4209	25.9499	0.001	25.9509
134.9333	2.4245	25.9367	0.0023	25.939
134.9667	2.4212	25.9236	0.001	25.9246
135	2.4206	25.9762	0.0023	25.9785
135.0333	2.4206	25.9367	0.001	25.9377
135.0667	2.4176	25.963	0.001	25.964
135.1	2.4189	25.9104	0.001	25.9114
135.1333	2.4209	25.8973	0.001	25.8983
135.1667	2.4196	25.9499	0.001	25.9509
135.2	2.4189	25.8973	0.001	25.8983
135.2333	2.4048	25.9236	0.001	25.9246
135.2667	2.3113	25.9762	0.001	25.9772
135.3	2.2264	25.9367	0.0036	25.9404
135.3333	2.1402	25.9104	0.001	25.9114
135.3667	2.0605	25.9236	0.001	25.9246
135.4	1.9792	25.871	0.0023	25.8733
135.4333	1.9042	25.871	0.0023	25.8733
135.4667	1.8262	25.7526	0.0023	25.7549
135.5	1.7567	25.7526	0.0023	25.7549
135.5333	1.6856	25.7263	0.0023	25.7286
135.5667	1.6142	25.7132	0.001	25.7142
135.6	1.5523	25.6606	0.001	25.6616
135.6333	1.4862	25.608	0.001	25.609
135.6667	1.4259	25.5685	0.0036	25.5722
135.7	1.368	25.5028	0.0036	25.5064
135.7333	1.3078	25.4239	0.0023	25.4262
135.7667	1.2521	25.2924	0.001	25.2934
135.8	1.1972	25.2661	0.001	25.2671
135.8333	1.1485	25.1478	0.001	25.1487
135.8667	1.0971	25.0163	0.001	25.0172
135.9	1.0474	24.9637	0	24.9637
135.9333	1.0053	24.7927	0.0023	24.795
135.9667	0.9582	24.5955	0.0023	24.5978
136	0.9125	24.4903	0.001	24.4913
136.0333	0.8713	24.3588	0.0023	24.3611
136.0667	0.8338	24.2273	0.0023	24.2296
136.1	0.7933	24.0563	0.001	24.0573
136.1333	0.7555	23.8854	0.0023	23.8877

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
136.1667	0.7163	23.7276	0.0023	23.7299
136.2	0.6801	23.5172	0.0023	23.5195
136.2333	0.6525	23.3331	0	23.3331
136.2667	0.6143	23.1753	0	23.1753
136.3	0.5873	22.9123	0.0036	22.9159
136.3333	0.5544	22.6756	0.001	22.6766
136.3667	0.5231	22.4784	0.001	22.4793
136.4	0.4984	22.2154	0.0023	22.2177
136.4333	0.4714	21.8866	0.001	21.8876
136.4667	0.4445	21.6631	0.001	21.6641
136.5	0.4224	21.3738	0.0023	21.3761
136.5333	0.3948	21.1634	0.001	21.1644
136.5667	0.372	20.8741	0.0023	20.8764
136.6	0.3539	20.5059	0.001	20.5069
136.6333	0.3279	20.2561	0.0023	20.2584
136.6667	0.3085	19.9142	0.0023	19.9165
136.7	0.2914	19.5986	0.0023	19.6009
136.7333	0.2717	19.2435	0.001	19.2445
136.7667	0.2578	18.8885	0.001	18.8895
136.8	0.2427	18.5597	0.0023	18.562
136.8333	0.2226	18.2047	0.001	18.2057
136.8667	0.2091	17.8365	0.001	17.8375
136.9	0.195	17.4683	0.0023	17.4706
136.9333	0.1775	17.1001	0.0023	17.1024
136.9667	0.169	16.7714	0.001	16.7724
137	0.1578	16.3506	0.0023	16.3529
137.0333	0.143	15.9824	0	15.9824
137.0667	0.1377	15.5616	0.0023	15.5639
137.1	0.1235	15.154	0.001	15.155
137.1333	0.117	14.8121	0.0023	14.8144
137.1667	0.1061	14.3781	0.0023	14.3804
137.2	0.0985	13.9968	0.001	13.9978
137.2333	0.0877	13.5891	0.001	13.5901
137.2667	0.0814	13.2341	0.0023	13.2364
137.3	0.0758	12.7607	0.0036	12.7643
137.3333	0.0709	12.4188	0.001	12.4198
137.3667	0.0636	11.9717	0.001	11.9727
137.4	0.0577	11.5772	0.001	11.5782
137.4333	0.0525	11.1433	0.001	11.1443
137.4667	0.0492	10.762	0.0023	10.7643
137.5	0.0462	10.328	0	10.328
137.5333	0.037	9.9467	0.001	9.9477
137.5667	0.035	9.5916	0.0023	9.5939

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
137.6	0.0337	9.1971	0.001	9.1981
137.6333	0.0307	8.8289	0.001	8.8299
137.6667	0.0265	8.4476	0.001	8.4486
137.7	0.0202	8.1057	0.001	8.1067
137.7333	0.0159	7.7375	0.001	7.7385
137.7667	0.0153	7.3956	0.001	7.3966
137.8	0.0139	7.1063	0.001	7.1073
137.8333	0.0087	6.7907	0.001	6.7917
137.8667	0.0087	6.4357	0.001	6.4367
137.9	0.0034	6.1727	0.001	6.1737
137.9333	0.0041	5.8834	0.001	5.8844
137.9667	-0.0022	5.5547	0.001	5.5557
138	0.0005	5.3706	0.001	5.3716
138.0333	-0.0028	5.0944	0.001	5.0954
138.0667	-0.0045	4.8051	0.001	4.8061
138.1	-0.0094	4.5816	0.0023	4.5839
138.1333	-0.0045	4.2791	0.001	4.2801
138.1667	-0.0088	4.0293	0.001	4.0303
138.2	-0.0065	3.8978	0.001	3.8988
138.2333	-0.013	3.5691	0	3.5691
138.2667	-0.0094	3.3587	0.001	3.3596
138.3	-0.0104	3.214	0.001	3.215
138.3333	-0.0107	0.0055	0.001	0.0065
138.3667	-0.0111	0.0318	0.0023	0.0341
138.4	-0.0124	0.0055	0.0036	0.0091
138.4333	-0.0104	0.0055	0.001	0.0065
138.4667	-0.015	0.0186	0.0023	0.0209
138.5	-0.0124	0.0186	0.0023	0.0209
138.5333	-0.0183	0.0055	0.001	0.0065
138.5667	-0.0121	0.0055	0.0023	0.0078
138.6	-0.0176	0.0186	0.001	0.0196
138.6333	-0.0157	0.0055	0.001	0.0065
138.6667	-0.0193	0	0	0
138.7	-0.019	0.0055	0.0023	0.0078
138.7333	-0.0203	0.0055	0	0.0055
138.7667	-0.0232	0.0186	0.0023	0.0209
138.8	-0.0203	0.0055	0.0023	0.0078
138.8333	-0.0196	0.0186	0.001	0.0196
138.8667	-0.0213	0.0055	0.0023	0.0078
138.9	-0.0226	0.0055	0.0036	0.0091
138.9333	-0.0206	0.0186	0.001	0.0196
138.9667	-0.0183	0.0186	0.001	0.0196
139	-0.0196	0.0055	0.0023	0.0078



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
139.0333	-0.0246	0.0055	0.0036	0.0091
139.0667	-0.0223	0.0055	0.001	0.0065
139.1	-0.0213	0.0055	0.001	0.0065
139.1333	-0.0213	0.0055	0.0023	0.0078
139.1667	-0.0203	0.0186	0.001	0.0196
139.2	-0.0229	0.0318	0.001	0.0328
139.2333	-0.0252	0.0186	0.001	0.0196
139.2667	-0.0239	0.0186	0.001	0.0196
139.3	-0.0252	0.0055	0.001	0.0065
139.3333	-0.0275	0.0318	0.0023	0.0341
139.3667	-0.0315	0.0186	0.0036	0.0222
139.4	-0.0279	0.0055	0.0023	0.0078
139.4333	-0.0298	0.0055	0.0023	0.0078
139.4667	-0.0265	0.0186	0.0023	0.0209
139.5	-0.0279	0.0186	0	0.0186
139.5333	-0.0288	0.0186	0.001	0.0196
139.5667	-0.0272	0.0186	0.001	0.0196
139.6	-0.0265	0.0055	0.0023	0.0078
139.6333	-0.0262	0.0055	0.001	0.0065
139.6667	-0.0298	0.0055	0.0023	0.0078
139.7	-0.0269	0.0055	0.0023	0.0078
139.7333	-0.0186	0.0055	0.001	0.0065
139.7667	-0.039	0	0.0023	0.0023
139.8	-0.0394	0.0186	0.0023	0.0209
139.8333	-0.0413	0.0186	0.0023	0.0209
139.8667	-0.0364	0.0186	0.0023	0.0209
139.9	-0.0381	0.0186	0.001	0.0196
139.9333	-0.0371	0.0186	0.0023	0.0209
139.9667	-0.0351	0.0318	0.001	0.0328
140	-0.0348	0.0055	0.001	0.0065
140.0333	-0.0377	0.0055	0	0.0055
140.0667	-0.0381	0.0055	0.001	0.0065
140.1	-0.0361	0.0055	0.001	0.0065
140.1333	-0.0331	0.0318	0.001	0.0328
140.1667	-0.0318	0.0186	0	0.0186
140.2	-0.0321	0.0186	0.0023	0.0209
140.2333	-0.0341	0.0186	0.001	0.0196
140.2667	-0.0009	0.0186	0.0023	0.0209
140.3	0.0139	8.3424	0.001	8.3434
140.3333	0.0452	10.9855	0.001	10.9865
140.3667	0.0791	12.7476	0.0023	12.7499
140.4	0.1344	13.7732	0.001	13.7742
140.4333	0.189	14.3781	0.0023	14.3804



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
140.4667	0.2253	15.3512	0.001	15.3522
140.5	0.2522	16.9292	0.001	16.9302
140.5333	0.3115	17.1396	0.0023	17.1419
140.5667	0.3694	17.2053	0.0023	17.2076
140.6	0.4267	17.4815	0.0023	17.4838
140.6333	0.4784	17.6787	0.0023	17.681
140.6667	0.5271	18.0469	0.001	18.0479
140.7	0.5728	18.3888	0.001	18.3898
140.7333	0.6113	18.9279	0.001	18.9289
140.7667	0.6581	19.2961	0.001	19.2971
140.8	0.6979	19.7564	0.0023	19.7587
140.8333	0.7407	20.2035	0.001	20.2044
140.8667	0.7782	20.6374	0.0023	20.6397
140.9	0.8137	21.1108	0.0023	21.1131
140.9333	0.8453	21.5579	0.001	21.5589
140.9667	0.8829	22.0444	0	22.0444
141	0.9141	22.5047	0.001	22.5056
141.0333	0.9464	22.9649	0.0023	22.9672
141.0667	0.9744	23.3725	0.001	23.3735
141.1	1.0069	23.8722	0	23.8722
141.1333	1.0346	24.3588	0.001	24.3598
141.1667	1.0619	24.7796	0	24.7796
141.2	1.0948	25.2135	0.001	25.2145
141.2333	1.1162	25.6737	0	25.6737
141.2667	1.1429	26.1077	0.001	26.1087
141.3	1.1715	26.5548	0.001	26.5558
141.3333	1.1959	27.0545	0.001	27.0555
141.3667	1.2176	27.4227	0.0023	27.425
141.4	1.2413	27.8829	0.0023	27.8852
141.4333	1.266	28.2379	0	28.2379
141.4667	1.2897	28.6456	0.001	28.6466
141.5	1.3094	29.0795	0.001	29.0805
141.5333	1.3318	29.382	0.001	29.383
141.5667	1.3532	29.8554	0.001	29.8563
141.6	1.3713	30.2499	0.001	30.2508
141.6333	1.3927	30.6312	0.001	30.6322
141.6667	1.4177	31.0125	0.0023	31.0148
141.7	1.4427	31.3807	0.001	31.3817
141.7333	1.4651	31.8147	0.001	31.8157
141.7667	1.4888	32.2223	0.0023	32.2246
141.8	1.5122	32.5774	0.0023	32.5797
141.8333	1.5296	32.9718	0.0023	32.9741
141.8667	1.5503	33.3926	0.0023	33.3949

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
141.9	1.574	33.7214	0.001	33.7224
141.9333	1.5925	34.1816	0.001	34.1826
141.9667	1.6139	34.4841	0.001	34.4851
142	1.631	34.8917	0.0023	34.894
142.0333	1.6511	35.2336	0.0023	35.2359
142.0667	1.6678	35.6018	0.0023	35.6041
142.1	1.6859	36.0094	0.001	36.0104
142.1333	1.7034	36.2593	0.001	36.2603
142.1667	1.7189	36.6932	0.0023	36.6955
142.2	1.736	37.022	0.001	37.0229
142.2333	1.7508	37.377	0.001	37.378
142.2667	1.7725	37.6794	0	37.6794
142.3	1.783	37.9819	0.0023	37.9842
142.3333	1.7985	38.4027	0.0036	38.4063
142.3667	1.8153	38.6525	0.0023	38.6548
142.4	1.8281	39.1391	0.0023	39.1414
142.4333	1.8482	39.3363	0.001	39.3373
142.4667	1.8581	39.7308	0.001	39.7318
142.5	1.8739	40.0332	0.001	40.0342
142.5333	1.8887	40.2699	0.0023	40.2722
142.5667	1.8992	40.6776	0	40.6776
142.6	1.9137	41.0458	0.001	41.0468
142.6333	1.9242	41.2956	0.0023	41.2979
142.6667	1.9387	41.5849	0	41.5849
142.7	1.9496	41.8611	0.001	41.862
142.7333	1.9611	42.1241	0	42.1241
142.7667	1.9736	42.4659	0.001	42.4669
142.8	1.9851	42.7815	0.0023	42.7838
142.8333	1.9953	43.0314	0.001	43.0324
142.8667	2.0111	43.2681	0.0023	43.2704
142.9	2.0171	43.5574	0.0023	43.5597
142.9333	2.0302	43.8467	0	43.8467
142.9667	2.0398	44.1491	0.001	44.1501
143	2.0523	44.4121	0.0023	44.4144
143.0333	2.0621	44.7146	0.001	44.7155
143.0667	2.0707	44.9381	0.001	44.9391
143.1	2.0819	45.1222	0.0049	45.1271
143.1333	2.0905	45.4378	0.0023	45.4401
143.1667	2.0984	45.6876	0.0023	45.6899
143.2	2.1105	46.0164	0.0023	46.0187
143.2333	2.1204	46.2662	0.0023	46.2685
143.2667	2.126	46.4766	0.0023	46.4789
143.3	2.1375	46.7791	0.0023	46.7814

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
143.3333	2.1438	46.8974	0.0036	46.901
143.3667	2.1523	47.2919	0.001	47.2929
143.4	2.1632	47.3971	0.001	47.3981
143.4333	2.1708	47.6601	0.001	47.6611
143.4667	2.1783	47.9099	0.0023	47.9122
143.5	2.1866	48.094	0.0036	48.0976
143.5333	2.2037	48.3307	0.0023	48.333
143.5667	2.2142	48.5017	0.001	48.5027
143.6	2.2238	48.8304	0.001	48.8314
143.6333	2.2359	48.9619	0.0023	48.9642
143.6667	2.2458	49.1329	0.001	49.1338
143.7	2.255	49.4353	0.001	49.4363
143.7333	2.2688	49.672	0.001	49.673
143.7667	2.2784	49.8824	0.0036	49.886
143.8	2.283	50.0928	0.001	50.0938
143.8333	2.2958	50.29	0.0023	50.2923
143.8667	2.3047	50.553	0.0023	50.5553
143.9	2.3133	50.7897	0.0036	50.7933
143.9333	2.3251	50.9738	0.0036	50.9774
143.9667	2.3301	51.25	0.0023	51.2523
144	2.3406	51.3946	0.001	51.3956
144.0333	2.3452	51.6576	0.0023	51.6599
144.0667	2.3551	51.9469	0.0023	51.9492
144.1	2.3623	52.0784	0.001	52.0794
144.1333	2.3705	52.2756	0.001	52.2766
144.1667	2.3784	52.4334	0.0036	52.4371
144.2	2.3847	52.6307	0.0023	52.633
144.2333	2.3952	52.7622	0	52.7622
144.2667	2.4012	52.9594	0.0023	52.9617
144.3	2.4081	53.2224	0.0036	53.226
144.3333	2.4143	53.4854	0.001	53.4864
144.3667	2.4166	53.6038	0.001	53.6048
144.4	2.4275	53.8142	0.001	53.8151
144.4333	2.4291	53.9983	0.001	53.9992
144.4667	2.4285	54.1692	0.0023	54.1715
144.5	2.4278	54.3796	0.001	54.3806
144.5333	2.4232	54.4717	0.0023	54.474
144.5667	2.4222	54.6952	0.0023	54.6975
144.6	2.4193	54.9187	0	54.9187
144.6333	2.4163	55.0897	0.001	55.0907
144.6667	2.414	55.2343	0.0023	55.2366
144.7	2.4176	55.3132	0.0036	55.3168
144.7333	2.416	55.4842	0.001	55.4852

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
144.7667	2.4199	55.6288	0.001	55.6298
144.8	2.4199	55.7603	0.001	55.7613
144.8333	2.4199	55.9576	0.001	55.9586
144.8667	2.4183	55.9576	0.0023	55.9599
144.9	2.4219	56.1943	0.001	56.1953
144.9333	2.4222	56.3652	0	56.3652
144.9667	2.4245	56.4441	0.0023	56.4464
145	2.4212	56.5888	0.001	56.5897
145.0333	2.4225	56.7203	0.0023	56.7226
145.0667	2.4245	56.8386	0.0023	56.8409
145.1	2.4245	57.0227	0.001	57.0237
145.1333	2.4268	57.0621	0.0023	57.0644
145.1667	2.4252	57.2725	0.0023	57.2748
145.2	2.4301	57.4566	0.001	57.4576
145.2333	2.4301	57.5224	0.001	57.5234
145.2667	2.4331	57.5487	0.0036	57.5523
145.3	2.4344	57.7459	0.0023	57.7482
145.3333	2.4318	57.8511	0	57.8511
145.3667	2.4387	57.9432	0.001	57.9442
145.4	2.4334	58.1141	0	58.1141
145.4333	2.4351	58.2193	0.0023	58.2216
145.4667	2.4377	58.3508	0.001	58.3518
145.5	2.4367	58.5218	0	58.5218
145.5333	2.4334	58.6138	0.0023	58.6161
145.5667	2.4357	58.6401	0.001	58.6411
145.6	2.4357	58.7848	0.0023	58.7871
145.6333	2.4364	58.9426	0.001	58.9435
145.6667	2.4351	58.9557	0.0023	58.958
145.7	2.4367	59.1135	0.001	59.1145
145.7333	2.4314	59.153	0.001	59.1539
145.7667	2.436	59.3633	0.001	59.3643
145.8	2.4328	59.3633	0.0023	59.3657
145.8333	2.4301	59.337	0.001	59.338
145.8667	2.4288	59.6	0.001	59.601
145.9	2.4278	59.6395	0.001	59.6405
145.9333	2.4308	59.8236	0.0023	59.8259
145.9667	2.4291	59.8236	0.001	59.8246
146	2.4278	60.0077	0	60.0077
146.0333	2.4275	60.0734	0	60.0734
146.0667	2.4291	60.1523	0.001	60.1533
146.1	2.4311	60.3627	0.0023	60.365
146.1333	2.4255	60.1918	0.0023	60.1941
146.1667	2.4262	60.4285	0.001	60.4295

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
146.2	2.4272	60.4811	0.001	60.4821
146.2333	2.4245	60.6389	0.0023	60.6412
146.2667	2.4249	60.6915	0.001	60.6925
146.3	2.4272	60.6783	0.0023	60.6806
146.3333	2.4245	60.8624	0.001	60.8634
146.3667	2.4278	60.915	0.0023	60.9173
146.4	2.4249	60.8493	0.0023	60.8516
146.4333	2.4245	61.086	0.001	61.0869
146.4667	2.4245	61.1123	0.001	61.1132
146.5	2.4252	61.178	0.001	61.179
146.5333	2.4232	61.1912	0.0023	61.1935
146.5667	2.4245	61.2569	0.001	61.2579
146.6	2.4239	61.2964	0.001	61.2973
146.6333	2.4245	61.3884	0.001	61.3894
146.6667	2.4249	61.5068	0.0023	61.5091
146.7	2.4229	61.5988	0.001	61.5998
146.7333	2.4212	61.5725	0.0023	61.5748
146.7667	2.4232	61.7566	0.0023	61.7589
146.8	2.4229	61.7172	0.001	61.7181
146.8333	2.4232	61.8486	0.001	61.8496
146.8667	2.4258	61.8618	0.0023	61.8641
146.9	2.4235	61.9407	0.001	61.9417
146.9333	2.4249	61.9801	0.0023	61.9824
146.9667	2.4258	61.9933	0.001	61.9943
147	2.4255	62.0722	0.0023	62.0745
147.0333	2.4212	62.2168	0.001	62.2178
147.0667	2.4239	62.2168	0.0036	62.2205
147.1	2.4235	62.2957	0.001	62.2967
147.1333	2.4245	62.3089	0.0023	62.3112
147.1667	2.4262	62.4272	0	62.4272
147.2	2.4252	62.4404	0.0023	62.4427
147.2333	2.4219	62.4272	0.0023	62.4295
147.2667	2.4265	62.6113	0.0036	62.6149
147.3	2.4249	62.6245	0.001	62.6255
147.3333	2.4225	62.5982	0.0036	62.6018
147.3667	2.4212	62.7428	0.001	62.7438
147.4	2.4232	62.7428	0.0023	62.7451
147.4333	2.4209	62.7165	0.001	62.7175
147.4667	2.4232	62.848	0.0023	62.8503
147.5	2.4232	62.8349	0.001	62.8359
147.5333	2.4245	62.8743	0.001	62.8753
147.5667	2.4239	63.0321	0.0023	63.0344
147.6	2.4232	63.0321	0.001	63.0331



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
147.6333	2.4206	62.9664	0.0023	62.9687
147.6667	2.4262	63.1636	0.001	63.1646
147.7	2.4232	63.2294	0.0023	63.2317
147.7333	2.4202	63.2688	0.001	63.2698
147.7667	2.4255	63.2425	0.0023	63.2448
147.8	2.4212	63.2688	0.0023	63.2711
147.8333	2.4252	63.4135	0.001	63.4145
147.8667	2.4216	63.374	0.001	63.375
147.9	2.4232	63.4003	0.001	63.4013
147.9333	2.4219	63.4661	0.0023	63.4684
147.9667	2.4206	63.5318	0.001	63.5328
148	2.4229	63.5581	0.0023	63.5604
148.0333	2.4232	63.5713	0.001	63.5722
148.0667	2.4258	63.5976	0.0023	63.5999
148.1	2.4199	63.7159	0.001	63.7169
148.1333	2.4232	63.7422	0.0023	63.7445
148.1667	2.4232	63.8343	0.0023	63.8366
148.2	2.4219	63.7028	0.0023	63.7051
148.2333	2.4216	63.808	0.001	63.8089
148.2667	2.4209	63.8211	0.001	63.8221
148.3	2.4265	63.8343	0.0023	63.8366
148.3333	2.4219	63.9	0.001	63.901
148.3667	2.4252	63.9263	0.001	63.9273
148.4	2.4258	64.0578	0.0036	64.0614
148.4333	2.4262	63.9	0.0023	63.9023
148.4667	2.4219	63.9395	0.0023	63.9418
148.5	2.4235	64.1236	0.001	64.1245
148.5333	2.4245	64.0184	0.001	64.0193
148.5667	2.4258	64.0973	0.0023	64.0996
148.6	2.4252	64.1367	0.001	64.1377
148.6333	2.4245	64.2156	0.001	64.2166
148.6667	2.4245	64.2419	0.001	64.2429
148.7	2.4235	64.2156	0.001	64.2166
148.7333	2.4249	64.255	0.001	64.256
148.7667	2.4249	64.2813	0.001	64.2823
148.8	2.4232	64.3471	0	64.3471
148.8333	2.4245	64.3208	0.001	64.3218
148.8667	2.4235	64.3997	0.0023	64.402
148.9	2.4242	64.5443	0.0036	64.548
148.9333	2.4222	64.4786	0	64.4786
148.9667	2.4249	64.255	0.0023	64.2573
149	2.4232	64.4786	0.001	64.4796
149.0333	2.4249	64.6101	0.0023	64.6124



Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
149.0667	2.4219	64.4391	0.001	64.4401
149.1	2.4249	64.5838	0.0023	64.5861
149.1333	2.4222	64.5969	0.001	64.5979
149.1667	2.4258	64.6364	0.0023	64.6387
149.2	2.4235	64.5575	0.0023	64.5598
149.2333	2.4245	64.6101	0.001	64.6111
149.2667	2.4252	64.7284	0.001	64.7294
149.3	2.4219	64.7547	0.0023	64.757
149.3333	2.4229	64.7021	0.001	64.7031
149.3667	2.4245	64.8336	0.001	64.8346
149.4	2.4212	64.7942	0.0023	64.7965
149.4333	2.4258	64.8205	0.0023	64.8228
149.4667	2.4229	64.7284	0.001	64.7294
149.5	2.4265	64.8336	0.001	64.8346
149.5333	2.4245	64.8073	0	64.8073
149.5667	2.4212	64.952	0.0036	64.9556
149.6	2.4235	64.952	0.001	64.953
149.6333	2.4285	64.9651	0	64.9651
149.6667	2.4249	64.9651	0.0023	64.9674
149.7	2.4262	65.0835	0.001	65.0845
149.7333	2.4229	65.0177	0.001	65.0187
149.7667	2.3445	65.0046	0.0023	65.0069
149.8	2.2264	64.8599	0.0036	64.8636
149.8333	2.1168	64.8073	0.0023	64.8096
149.8667	2.0072	64.7416	0.001	64.7426
149.9	1.9107	64.426	0.001	64.427
149.9333	1.8123	64.2682	0	64.2682
149.9667	1.7261	63.9789	0.001	63.9799
150	1.6412	63.7817	0.001	63.7826
150.0333	1.5622	63.5187	0.001	63.5196
150.0667	1.4858	63.1242	0.001	63.1252
150.1	1.4167	62.7428	0.0036	62.7464
150.1333	1.3473	62.3352	0.0023	62.3375
150.1667	1.2834	62.0459	0.0023	62.0482
150.2	1.2232	61.7303	0.0023	61.7326
150.2333	1.1669	61.2569	0.0023	61.2592
150.2667	1.107	60.7572	0.001	60.7582
150.3	1.058	60.3233	0.001	60.3243
150.3333	1.0106	59.863	0.0023	59.8653
150.3667	0.9605	59.4028	0.001	59.4038
150.4	0.9164	59.0478	0.0023	59.0501
150.4333	0.8776	58.4166	0.0023	58.4189
150.4667	0.8381	57.9563	0	57.9563

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
150.5	0.7989	57.4566	0.0023	57.4589
150.5333	0.7604	56.9306	0.0023	56.933
150.5667	0.7239	56.4047	0.0023	56.407
150.6	0.6903	55.8655	0.0023	55.8678
150.6333	0.6604	55.3658	0.001	55.3668
150.6667	0.6284	54.7478	0.0023	54.7501
150.7	0.6001	54.2876	0.0023	54.2899
150.7333	0.5705	53.6564	0.0023	53.6587
150.7667	0.5465	53.1041	0.0023	53.1064
150.8	0.5179	52.6438	0.001	52.6448
150.8333	0.4951	51.9338	0.0023	51.9361
150.8667	0.4682	51.3946	0.001	51.3956
150.9	0.4464	50.8818	0.001	50.8828
150.9333	0.4277	50.3163	0.001	50.3173
150.9667	0.4073	49.6983	0.001	49.6993
151	0.3855	49.0934	0	49.0934
151.0333	0.3684	48.4622	0.001	48.4632
151.0667	0.3483	47.8179	0.0023	47.8202
151.1	0.3312	47.2656	0.0023	47.2679
151.1333	0.3174	46.7396	0.001	46.7406
151.1667	0.2983	46.0953	0.0023	46.0976
151.2	0.2848	45.4641	0.0036	45.4677
151.2333	0.27	44.8329	0.0023	44.8352
151.2667	0.2575	44.2017	0.0036	44.2053
151.3	0.2427	43.5574	0.0023	43.5597
151.3333	0.2299	42.9656	0.001	42.9666
151.3667	0.2216	42.3213	0.001	42.3223
151.4	0.2088	41.677	0.001	41.678
151.4333	0.1983	41.0195	0.001	41.0205
151.4667	0.1854	40.4014	0.0023	40.4037
151.5	0.1752	39.7834	0.001	39.7844
151.5333	0.1693	39.1391	0.001	39.1401
151.5667	0.1565	38.5736	0.001	38.5746
151.6	0.1499	37.903	0.0023	37.9053
151.6333	0.1403	37.3113	0.0023	37.3136
151.6667	0.1324	36.6801	0.0036	36.6837
151.7	0.1275	36.0094	0.0023	36.0117
151.7333	0.1143	35.3914	0	35.3914
151.7667	0.1091	34.7865	0.001	34.7875
151.8	0.1081	34.1159	0.0023	34.1182
151.8333	0.0992	33.5241	0.0023	33.5264
151.8667	0.0913	32.9192	0.0023	32.9215
151.9	0.0831	32.2749	0.001	32.2759

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
151.9333	0.0831	31.6569	0.0023	31.6592
151.9667	0.0771	30.9862	0.001	30.9872
152	0.0702	30.4208	0.0023	30.4231
152.0333	0.0663	29.8159	0.0036	29.8195
152.0667	0.0607	29.1321	0.0023	29.1344
152.1	0.0551	28.5009	0.0023	28.5032
152.1333	0.0515	27.9749	0.001	27.9759
152.1667	0.0462	27.3569	0.0023	27.3592
152.2	0.0442	26.7915	0	26.7915
152.2333	0.0426	26.1734	0.001	26.1744
152.2667	0.0367	25.5685	0.001	25.5695
152.3	0.034	25.0426	0.001	25.0435
152.3333	0.0324	24.4245	0.0036	24.4281
152.3667	0.0294	23.7933	0.001	23.7943
152.4	0.0242	23.2016	0.0023	23.2039
152.4333	0.0245	22.6493	0.0023	22.6516
152.4667	0.0212	22.0576	0.001	22.0586
152.5	0.0172	21.5053	0.0036	21.5089
152.5333	0.013	20.9793	0.0036	20.9829
152.5667	0.013	20.3876	0.0023	20.3899
152.6	0.009	19.8221	0.001	19.8231
152.6333	0.0084	19.283	0.0023	19.2853
152.6667	0.009	18.7175	0.001	18.7185
152.7	0.0041	18.1521	0.001	18.1531
152.7333	0.0031	17.6261	0.001	17.6271
152.7667	-0.0012	17.1133	0.0023	17.1156
152.8	-0.0012	16.5741	0.001	16.5751
152.8333	-0.0028	16.0218	0.0023	16.0241
152.8667	-0.0032	15.5616	0.001	15.5626
152.9	-0.0074	14.9962	0.0036	14.9998
152.9333	-0.0058	14.5228	0.0023	14.5251
152.9667	-0.0101	14.0625	0	14.0625
153	-0.0091	13.5365	0.001	13.5375
153.0333	-0.0121	13.1026	0.001	13.1036
153.0667	-0.0117	12.5766	0.0023	12.5789
153.1	-0.017	12.1821	0.0023	12.1844
153.1333	-0.0167	11.6693	0.001	11.6703
153.1667	-0.0163	11.2748	0.0023	11.2771
153.2	-0.0183	10.854	0.0036	10.8576
153.2333	-0.0186	10.4464	0.001	10.4473
153.2667	-0.0176	10.0124	0.001	10.0134
153.3	-0.0226	9.5785	0.0023	9.5808
153.3333	-0.0203	9.2629	0.0036	9.2665

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
153.3667	-0.0219	8.8552	0.0049	8.8602
153.4	-0.0232	8.395	0.0036	8.3986
153.4333	-0.0216	8.0531	0.0023	8.0554
153.4667	-0.0232	7.8033	0.001	7.8043
153.5	-0.0219	7.4219	0.0036	7.4255
153.5333	-0.0226	7.1458	0.0036	7.1494
153.5667	-0.0226	6.7776	0.001	6.7786
153.6	-0.0219	6.4883	0.001	6.4893
153.6333	-0.0229	6.2253	0.001	6.2263
153.6667	-0.0236	5.9097	0.001	5.9107
153.7	-0.0269	5.7125	0.001	5.7134
153.7333	-0.0249	5.4495	0.0023	5.4518
153.7667	-0.0226	5.1602	0.001	5.1612
153.8	-0.0252	4.9103	0.001	4.9113
153.8333	-0.0282	4.6999	0.0023	4.7022
153.8667	-0.0292	4.5553	0.0023	4.5576
153.9	-0.0285	4.266	0.0023	4.2683
153.9333	-0.0282	4.095	0.0049	4.1
153.9667	-0.0279	3.8583	0.001	3.8593
154	-0.0265	3.7532	0.001	3.7541
154.0333	-0.0292	3.5691	0.0023	3.5714
154.0667	-0.0288	3.3718	0.001	3.3728
154.1	-0.0305	3.214	0	3.214
154.1333	-0.0308	3.0562	0.001	3.0572
154.1667	-0.0282	0.0055	0.0023	0.0078
154.2	-0.0295	0.0055	0.001	0.0065
154.2333	-0.0282	0.0055	0.0023	0.0078
154.2667	-0.0272	0.0318	0.0036	0.0354
154.3	-0.0275	0.0055	0.001	0.0065
154.3333	-0.0298	0.0055	0.0023	0.0078
154.3667	-0.0282	0.0055	0.001	0.0065
154.4	-0.0275	0.0186	0.0023	0.0209
154.4333	-0.0288	0.0186	0.0023	0.0209
154.4667	-0.0311	0.0055	0.0023	0.0078
154.5	-0.0292	0.0055	0.001	0.0065
154.5333	-0.0255	0.0186	0.0023	0.0209
154.5667	-0.0305	0.0318	0.0023	0.0341
154.6	-0.0275	0.0055	0.001	0.0065
154.6333	-0.0321	0.0186	0.0023	0.0209
154.6667	-0.0275	0.0186	0.0023	0.0209
154.7	-0.0292	0.0186	0.001	0.0196
154.7333	-0.0311	0.0055	0.0023	0.0078
154.7667	-0.0321	0.0055	0.001	0.0065

Areva NP, Inc.

Project No. G101276459SAT-005

October 22, 2013

Time (min)	Ch 1 dP (psi)	Ch 2 High Flow (LPM)	Ch 3 Low Flow (LPM)	Total Flow (LPM)
154.8	-0.0305	0.0186	0.001	0.0196
154.8333	-0.0305	0.0055	0.001	0.0065
154.8667	-0.0275	0.0318	0.0023	0.0341
154.9	-0.0282	0.0186	0.0023	0.0209
154.9333	-0.0272	0.0055	0.0023	0.0078
154.9667	-0.0298	0.0055	0	0.0055
155	-0.0311	0.0318	0.0036	0.0354
155.0333	-0.0282	0.0186	0.0023	0.0209
155.0667	-0.0298	0.0186	0.0023	0.0209
155.1	-0.0292	0.0186	0.001	0.0196
155.1333	-0.0308	0.0055	0.001	0.0065
155.1667	-0.0288	0.0318	0.0023	0.0341
155.2	-0.0279	0.0186	0.0023	0.0209
155.2333	-0.0302	0.0186	0.0023	0.0209
155.2667	-0.0295	0.0318	0.001	0.0328
155.3	-0.0282	0.0186	0.001	0.0196
155.3333	-0.0295	0.0055	0.001	0.0065
155.3667	-0.0308	0.0186	0.0023	0.0209
155.4	-0.0282	0.0186	0.001	0.0196
155.4333	-0.0295	0.0055	0.0023	0.0078
155.4667	-0.0328	0.0055	0.0023	0.0078
155.5	-0.0282	0.0186	0.001	0.0196
155.5333	-0.0318	0.0186	0	0.0186
155.5667	-0.0302	0.0186	0	0.0186
155.6	-0.0298	0.0055	0.001	0.0065
155.6333	-0.0282	0	0.001	0.001
155.6667	-0.0279	0.0186	0.001	0.0196
155.7	-0.0269	0.0055	0.0023	0.0078
155.7333	-0.0255	0.0055	0.0023	0.0078
155.7667	-0.0282	0.0055	0.001	0.0065
155.8	-0.0302	0.0186	0.001	0.0196
155.8333	-0.0275	0.0055	0.0023	0.0078
155.8667	-0.0282	0.0186	0.001	0.0196
155.9	-0.0318	0.0186	0.0023	0.0209
155.9333	-0.0315	0.0318	0.001	0.0328
155.9667	-0.0285	0.0055	0.001	0.0065
156	-0.0265	0.0186	0	0.0186
156.0333	-0.0292	0.0186	0.0023	0.0209
156.0667	-0.0279	0.0055	0.001	0.0065
156.1	-0.0288	0.0055	0.0023	0.0078
156.1333	-0.0288	0.0055	0.001	0.0065
156.1667	-0.0288	0.0318	0.001	0.0328
156.2	-0.0282	0.0055	0.0023	0.0078



Areva NP, Inc.

Project No. G101276459SAT-005

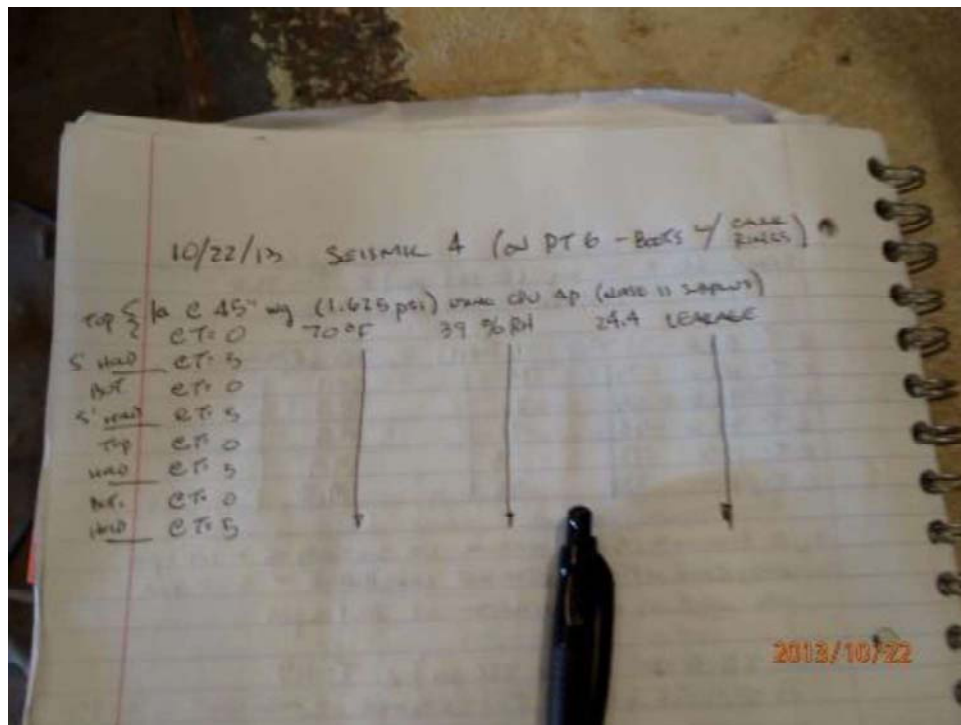
October 22, 2013

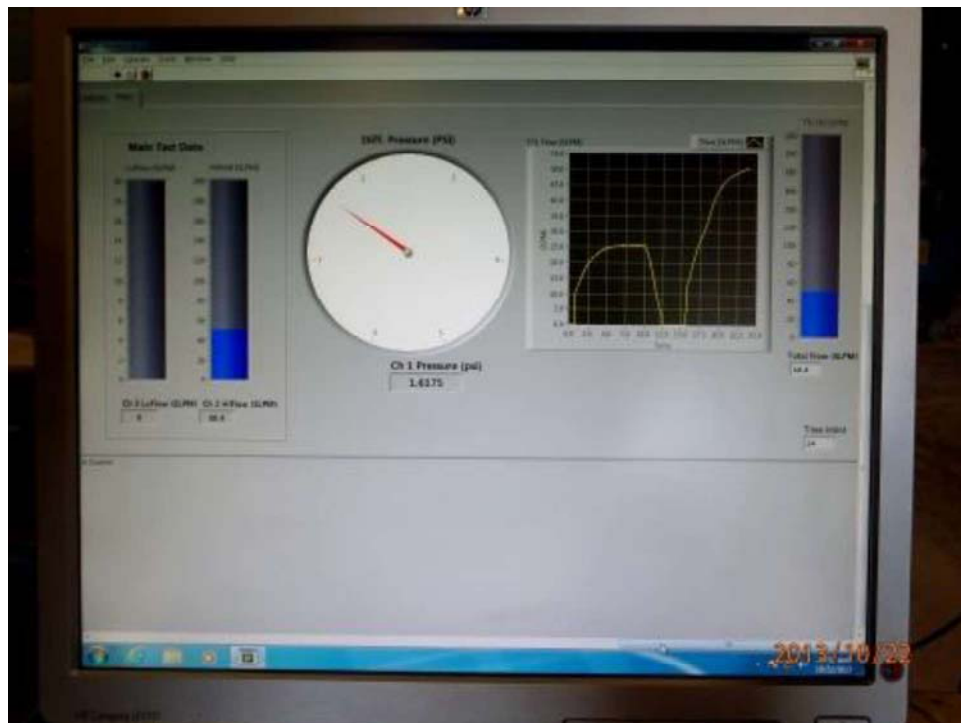
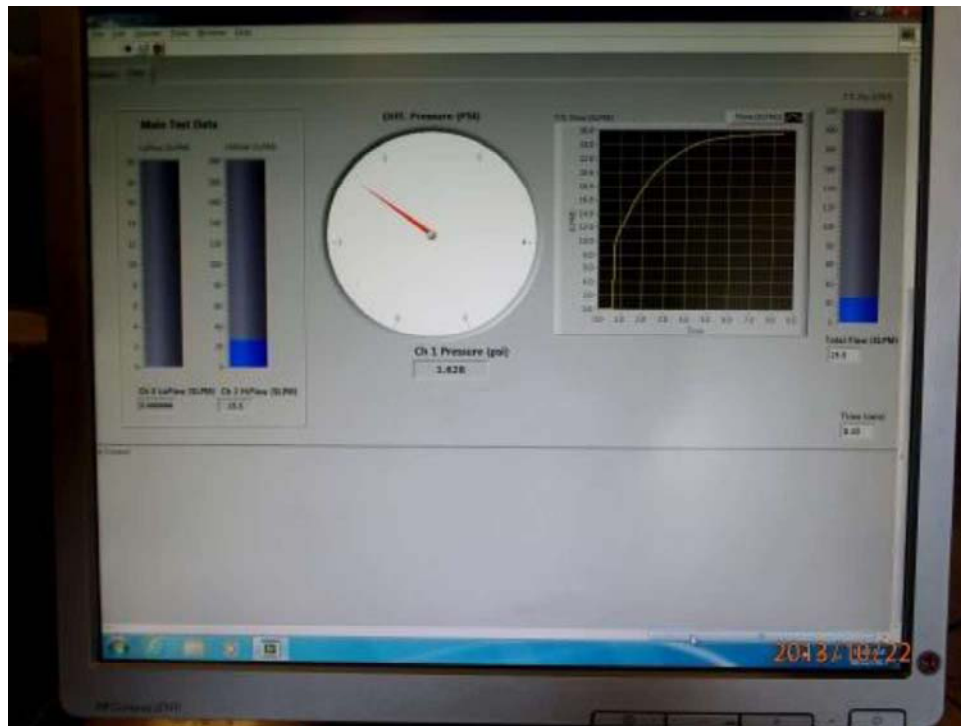
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156.2667	-0.0292	0.0318	0.001	0.0328
156.3	-0.0311	0.0055	0.001	0.0065
156.3333	-0.0292	0.0055	0.001	0.0065
156.3667	-0.0311	0.0055	0.001	0.0065
156.4	-0.0302	0.0186	0.0023	0.0209
156.4333	-0.0295	0.0055	0.001	0.0065
156.4667	-0.0311	0	0.0023	0.0023
156.5	-0.0295	0.0186	0.001	0.0196
156.5333	-0.0275	0.0186	0.001	0.0196
156.5667	-0.0279	0	0.0023	0.0023
156.6	-0.0265	0.0186	0.0023	0.0209
156.6333	-0.0255	0.0186	0.001	0.0196
156.6667	-0.0265	0.0055	0.001	0.0065
156.7	-0.0279	0.0055	0.0023	0.0078
156.7333	-0.0265	0.0055	0.001	0.0065
156.7667	-0.0308	0.0186	0.0036	0.0222
156.8	-0.0308	0.0186	0.0023	0.0209
156.8333	-0.0279	0.0055	0.0023	0.0078
156.8667	-0.0275	0.0055	0.0023	0.0078
156.9	-0.0285	0.0318	0.0023	0.0341
156.9333	-0.0255	0.0186	0.001	0.0196
156.9667	-0.0302	0.0186	0.001	0.0196
157	-0.0295	0.0055	0	0.0055
157.0333	-0.0325	0.0186	0.0023	0.0209
157.0667	-0.0288	0.0055	0.001	0.0065
157.1	-0.0325	0.0055	0.0023	0.0078
157.1333	-0.0295	0.0186	0.001	0.0196
157.1667	-0.0262	0.0186	0.0023	0.0209
157.2	-0.0295	0.0055	0.001	0.0065
157.2333	-0.0298	0.0055	0.001	0.0065
157.2667	-0.0288	0.0055	0.0023	0.0078
157.3	-0.0328	0.0186	0.001	0.0196
157.3333	-0.0295	0.0055	0.001	0.0065
157.3667	-0.0288	0.0186	0.0023	0.0209

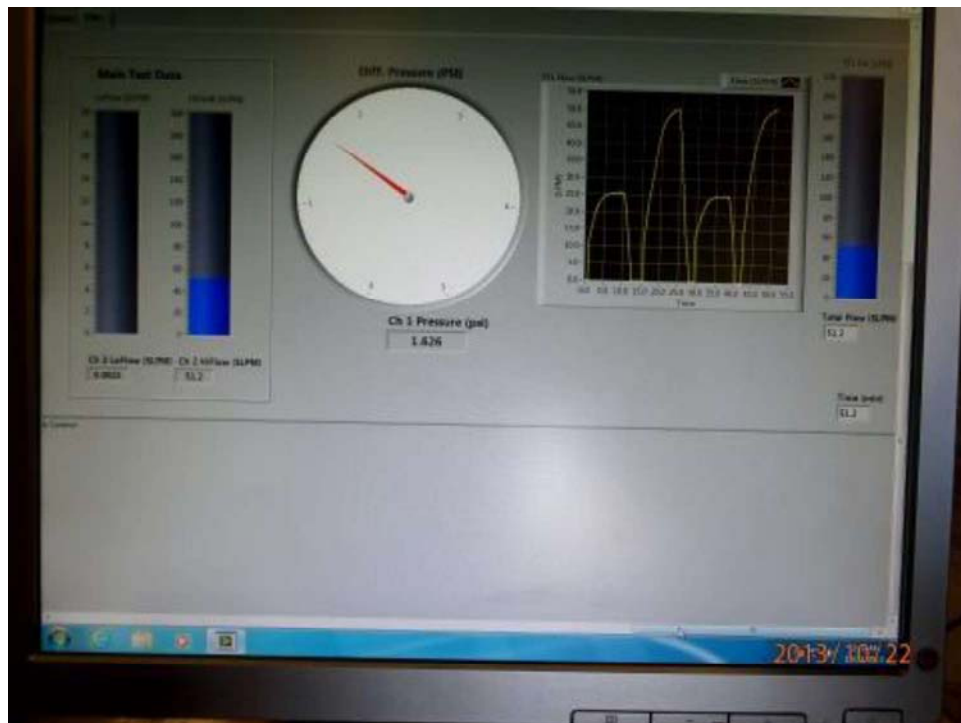
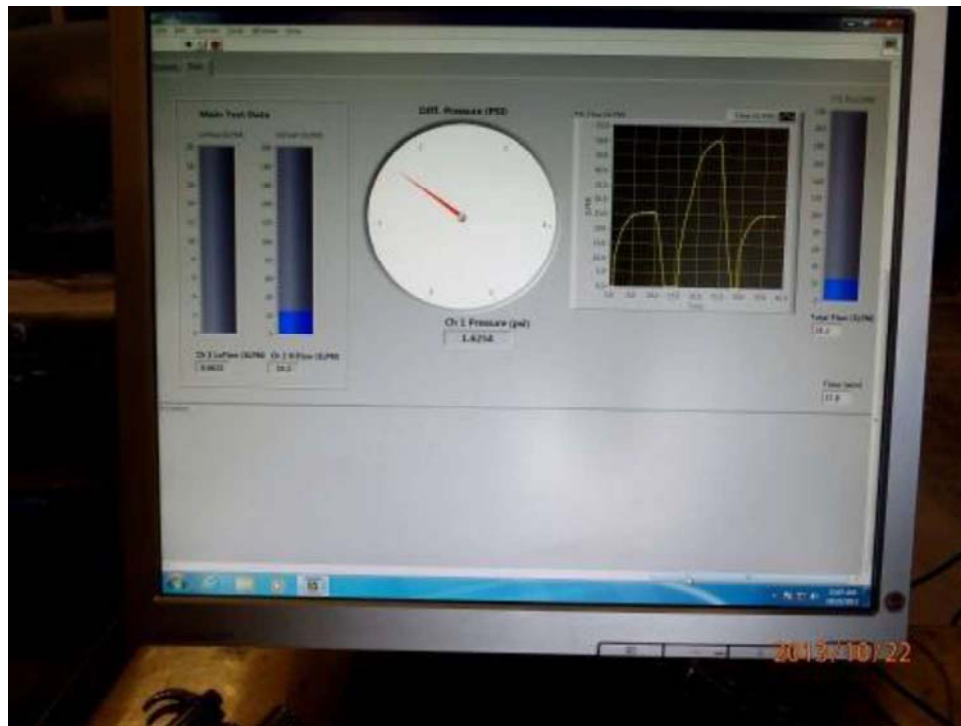


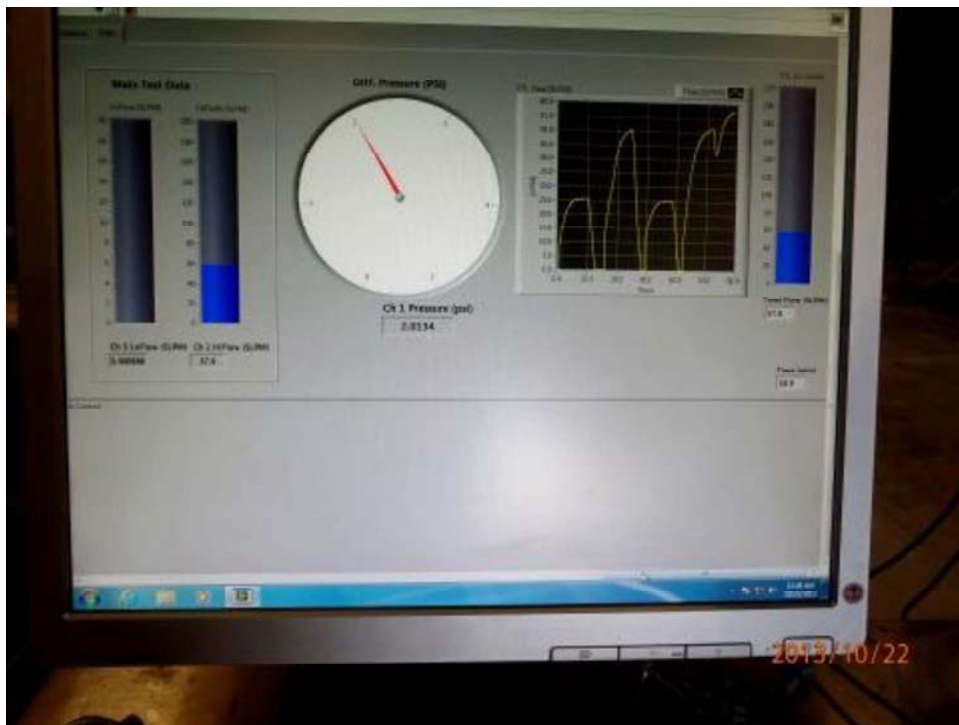
## APPENDIX C

### Photographs

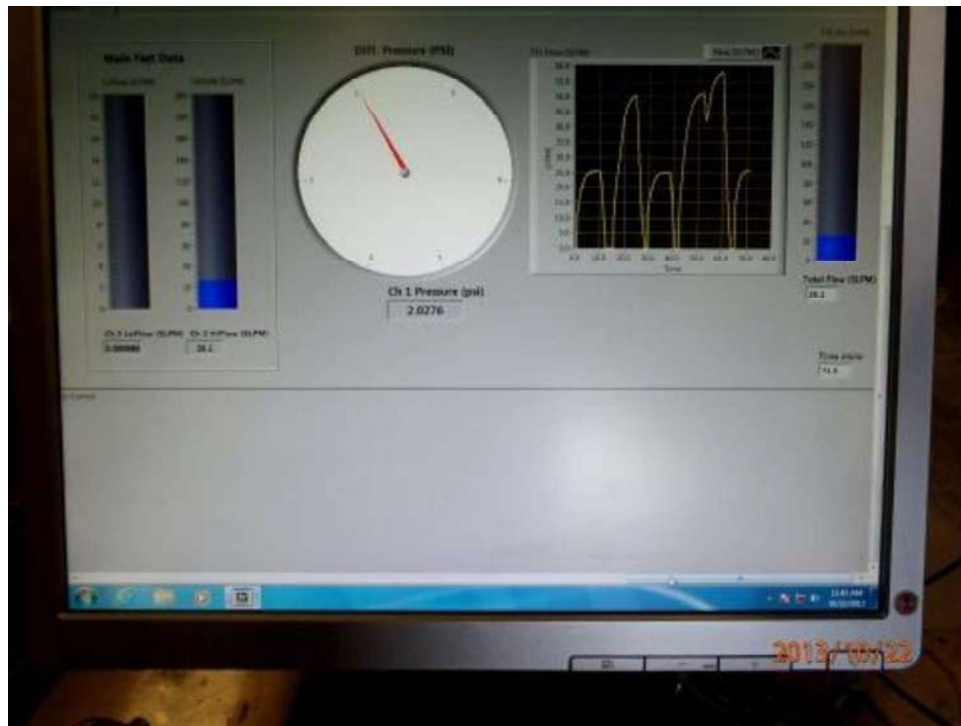




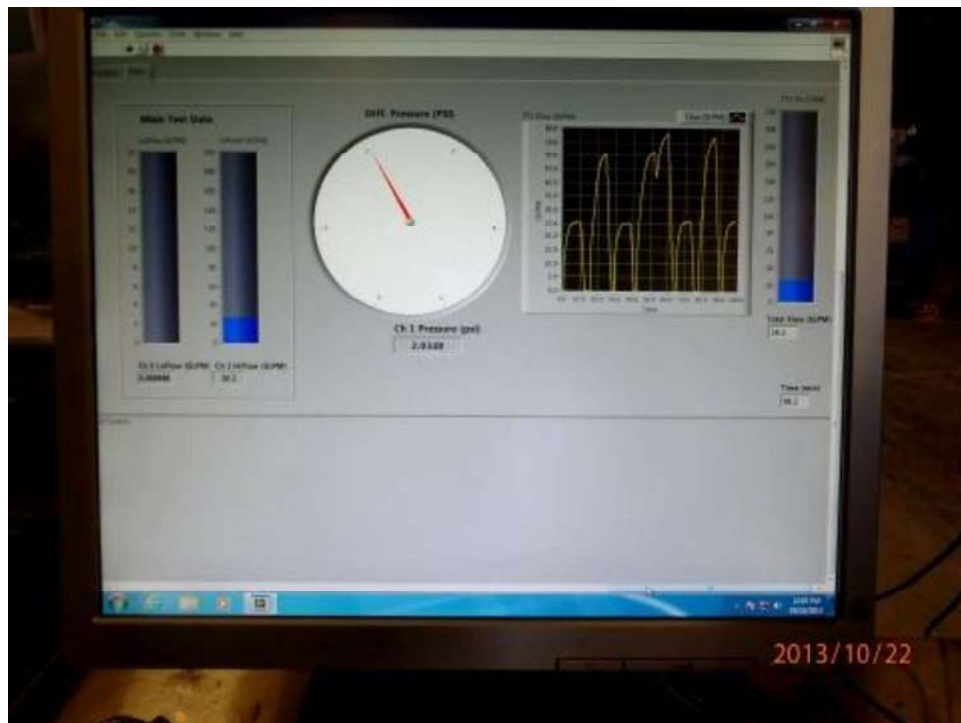
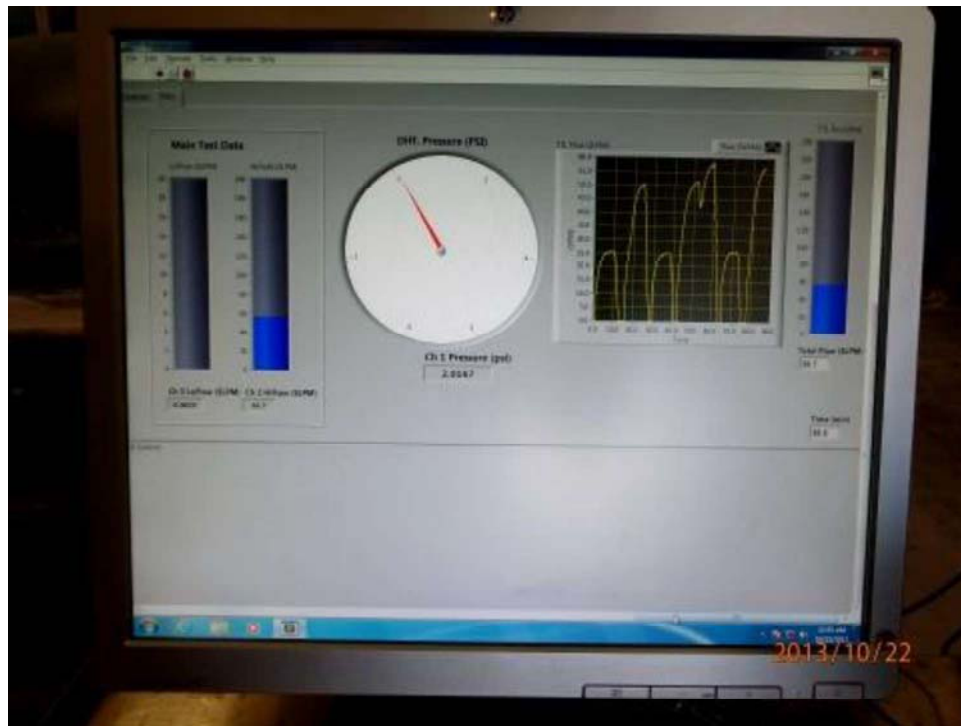


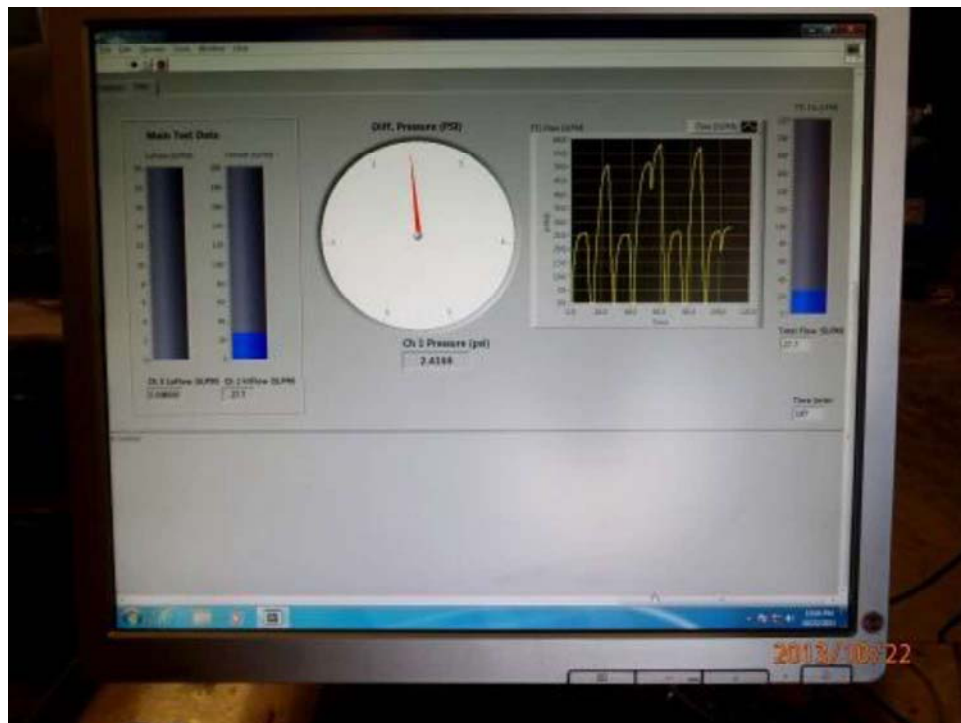
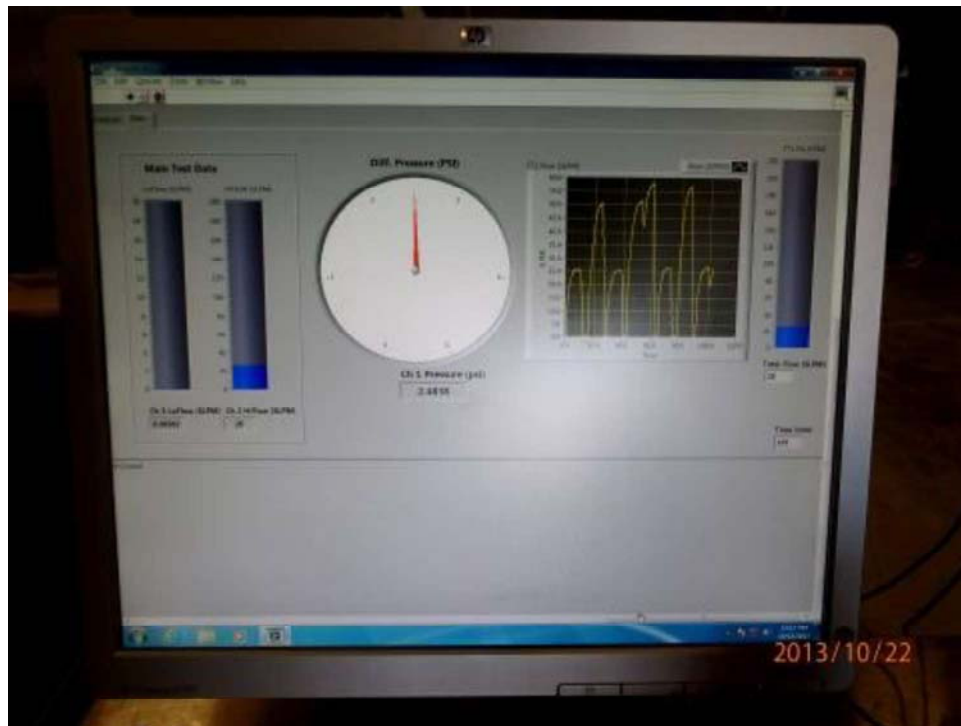


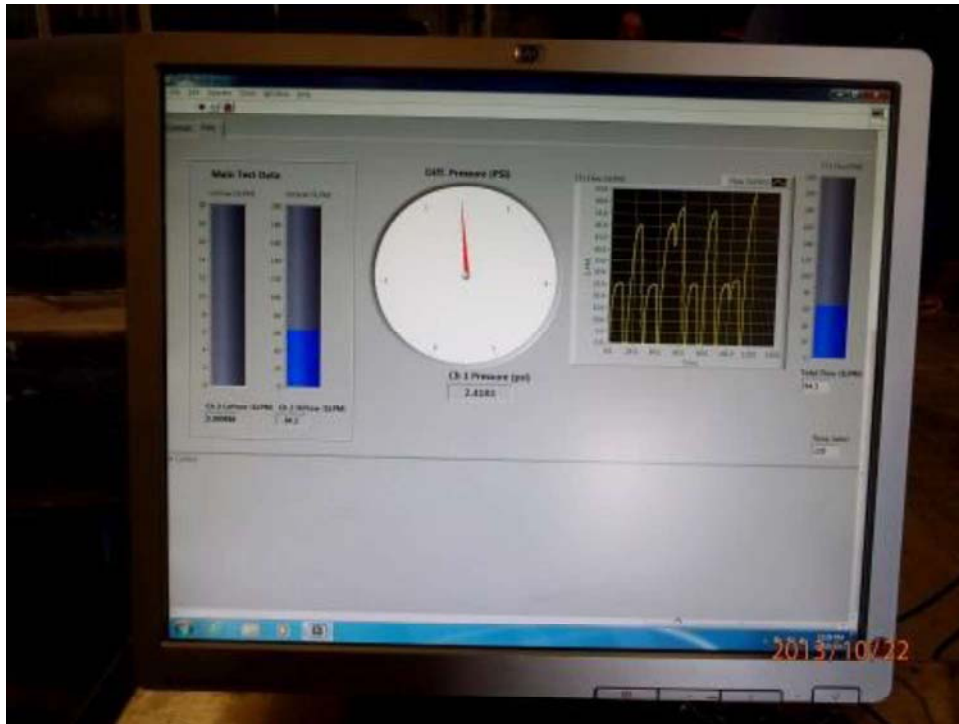


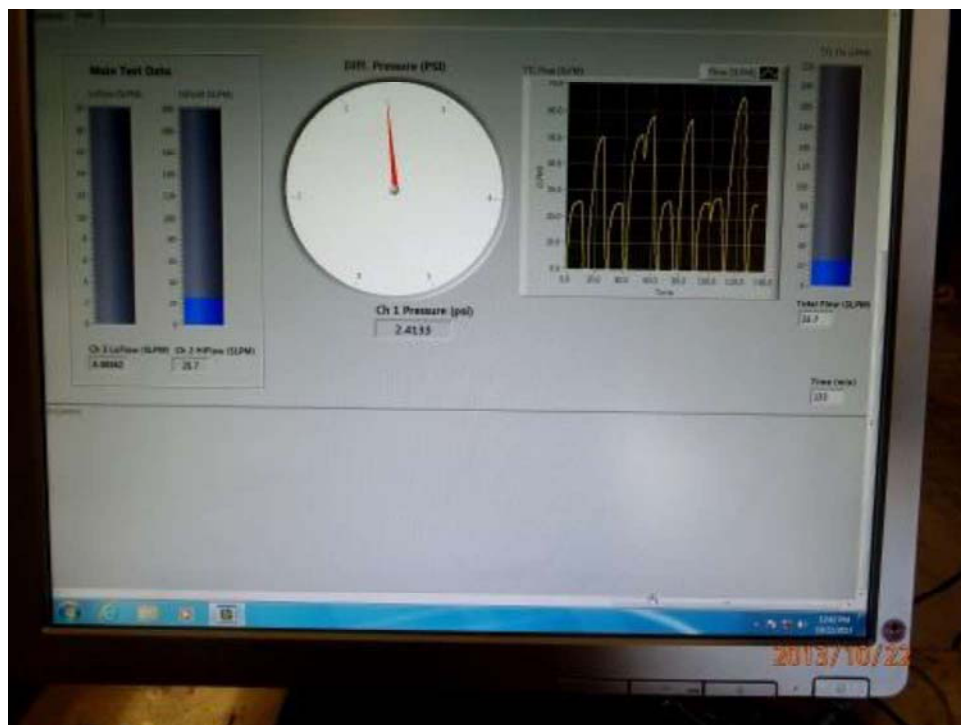
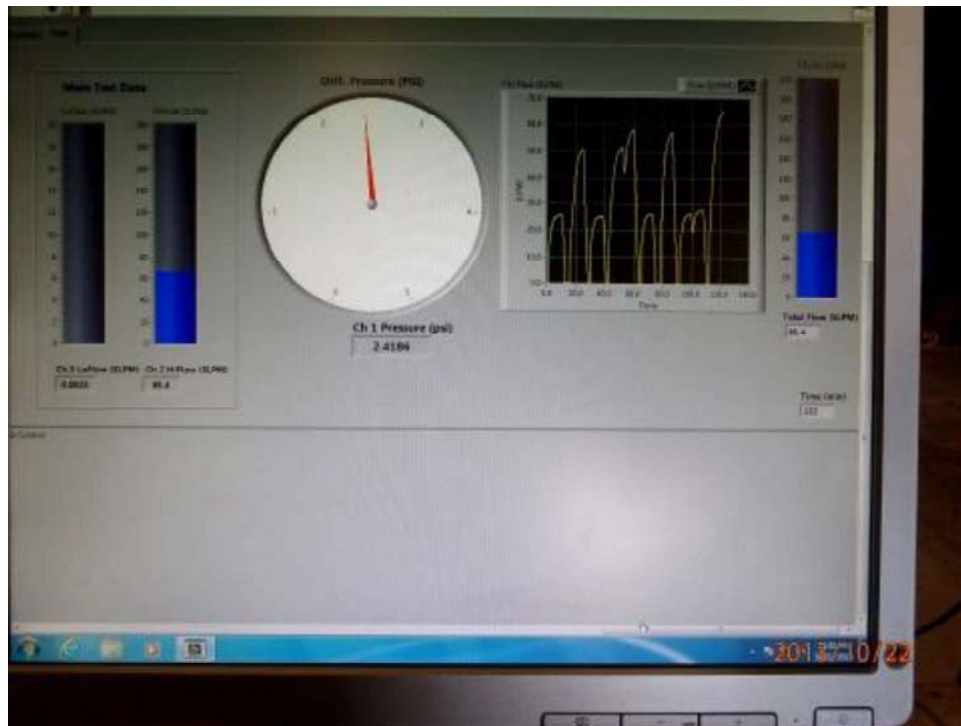


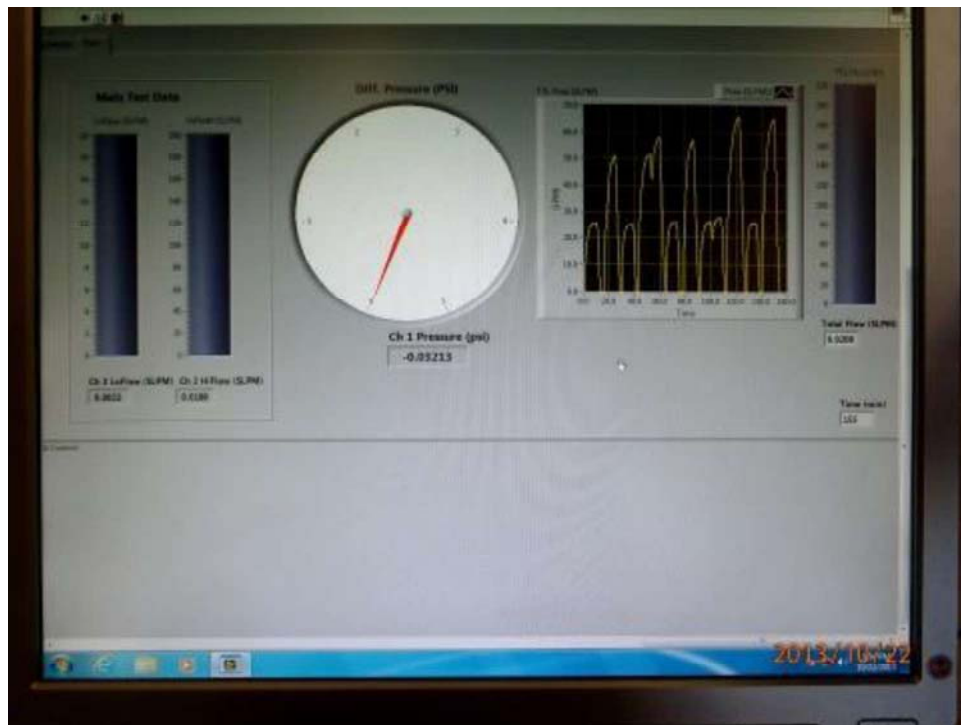
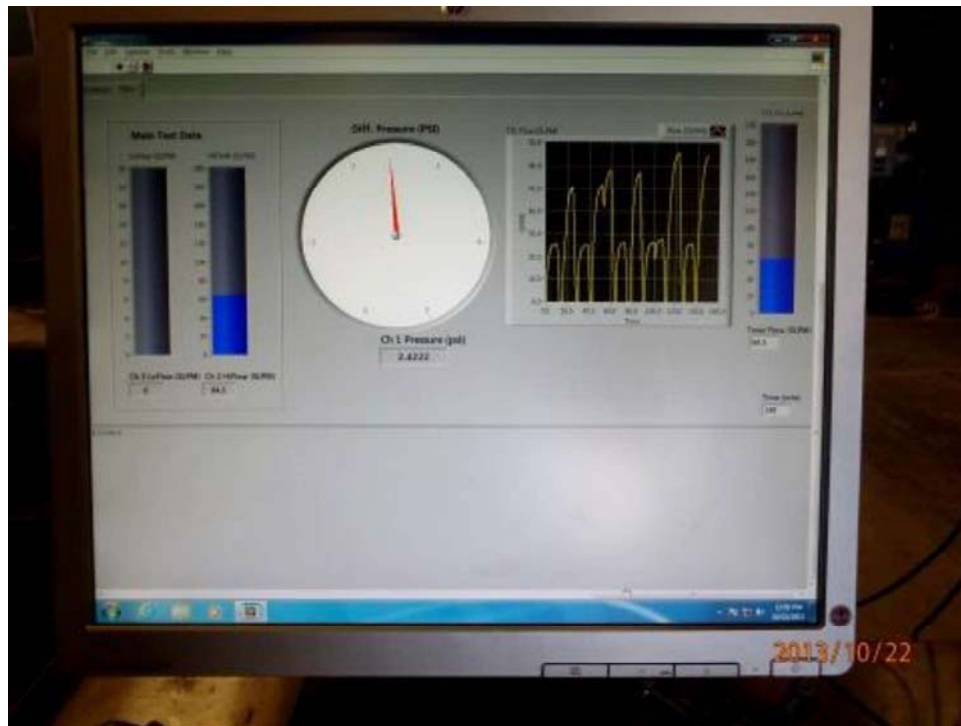




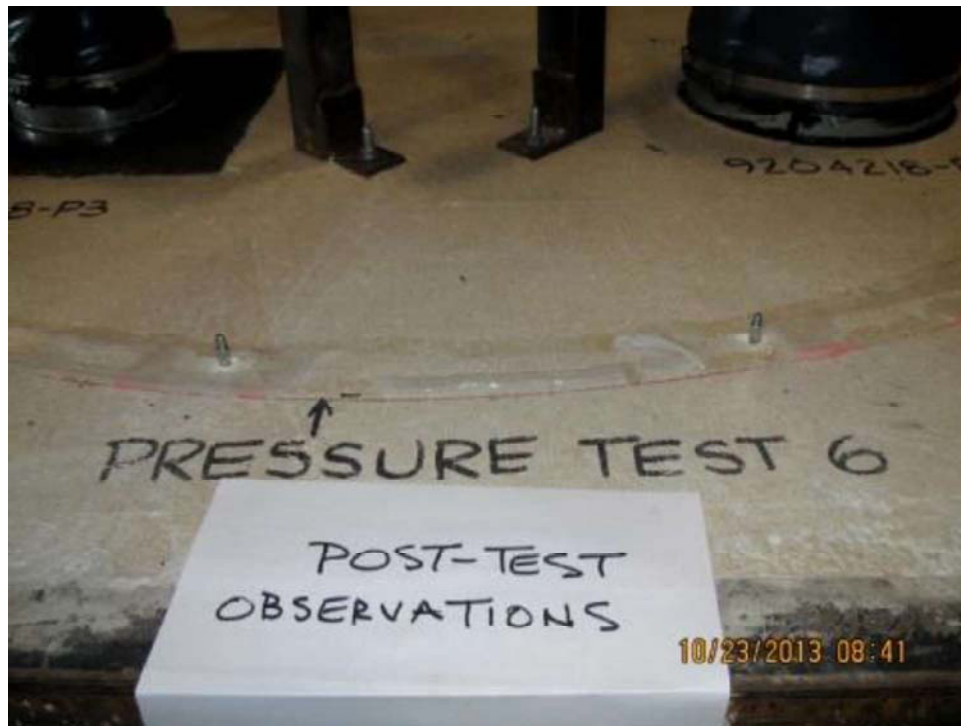














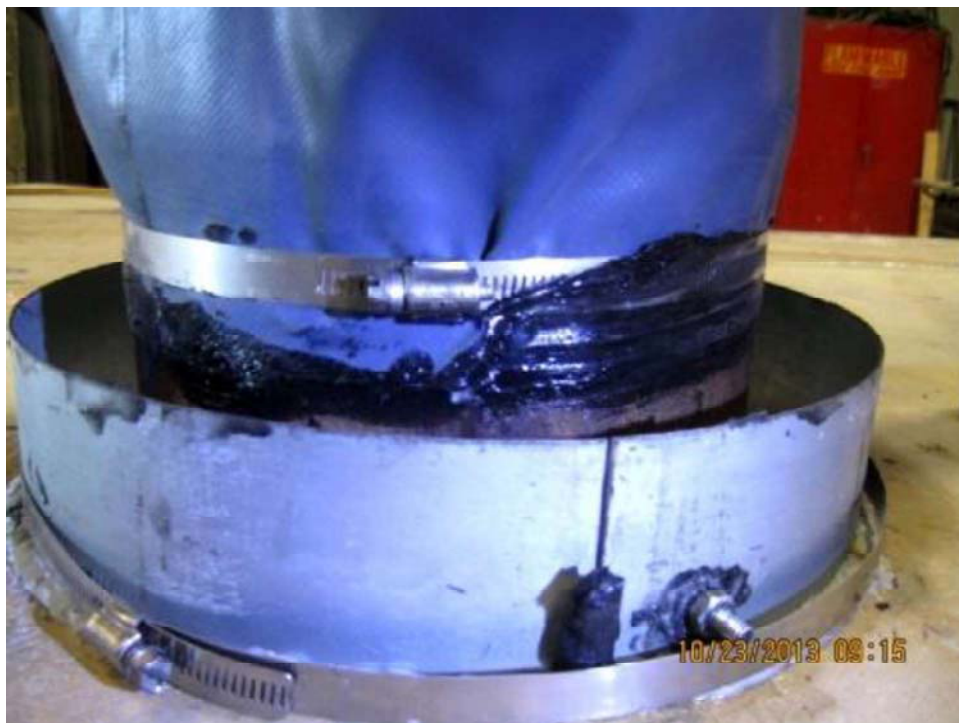




























## APPENDIX D

### Test Plan





20004-019 (11/20/2012)

## AREVA NP Inc.

### Engineering Information Record

Document No.: 51 - 9208265 - 000

#### Detailed Test Plan for Conducting Seismic Pressure Test 4

Mike Dey  
Staff Engineer

Michael A. Brown  
Quality Supervisor

Page 1 of 27



20004-019 (11/20/2012)  
Document No.: 51-9208265-000

Detailed Test Plan for Conducting Seismic Pressure Test 4

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
Aaron Adrian Princ Des Eng Spec II / PEYFI-A		P	8-12-13	All
Donald Meyer Engineer II / PEYFI-A		R	8/12/13	All
Scott Groesbeck Manager Tech Ops / PEYFI-A		A	8/12/13	All
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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

MOX Services concurrence		Engineer	12 Aug 13
Name / Title		Date	



20004-019 (11/20/2012)  
Document No.: 51-9208265-000

Detailed Test Plan for Conducting Seismic Pressure Test 4

**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 1-20), Appendix A (1 page), Appendix B (4 pages) and Appendix C (2 pages) for a total of 27 pages.



Document No.: 51-9208265-000

Detailed Test Plan for Conducting Seismic Pressure Test 4

**Table of Contents**

	Page
SIGNATURE BLOCK.....	2
RECORD OF REVISION .....	3
LIST OF TABLES .....	6
ACRONYMS .....	7
BACKGROUND .....	8
1.0 PURPOSE .....	8
2.0 OBJECTIVE .....	8
2.1 Test Deck Description.....	8
2.2 Test Description.....	9
2.3 Critical Characteristics and Limiting Parameters Being Tested .....	10
3.0 ACCEPTANCE CRITERIA .....	11
4.0 RESPONSIBILITIES .....	11
4.1 MOX Services.....	12
4.2 AREVA .....	12
4.3 Testing Laboratory.....	12
4.4 Other Subcontracted Entities .....	13
5.0 PROCUREMENT PLAN .....	13
5.1 Penetration Seal Materials .....	13
5.2 Test Deck/Test Slab .....	14
5.3 Penetrating Items.....	15
6.0 SPECIAL PRECAUTIONS .....	15
6.1 Precautions for Construction of Test Assemblies .....	15
6.2 Precautions for Installation of Seal Assemblies.....	15
6.3 Precautions for Conducting Seismic Pressure Tests.....	15
7.0 PREREQUISITES .....	15
7.1 General Test Configuration Requirements.....	15
7.2 Safety Related Materials .....	15
7.3 Dimensioned Drawings.....	16
7.4 Test Configuration .....	16



Document No.: 51-9208265-000

Detailed Test Plan for Conducting Seismic Pressure Test 4

**Table of Contents**  
(continued)

	Page
8.0 TEST ASSEMBLY CONSTRUCTION .....	16
8.1 Test Slab Construction .....	16
8.2 Penetration Seal Installation .....	16
8.3 Pre-Test Verifications .....	16
9.0 PROCEDURE .....	16
9.1 Seismic Pressure Test Apparatus .....	16
9.2 Process .....	17
9.3 Post Test Examination.....	19
10.0 DATA SYSTEMS .....	19
11.0 TEST REPORT .....	20
12.0 REFERENCES.....	20
APPENDIX A : TEST DECK/TEST SLAB DRAWINGS .....	A-1
APPENDIX B : BILL OF MATERIALS.....	B-1
APPENDIX C : DESIGN VERIFICATION CHECKLIST .....	C-1



Document No.: 51-9208265-000

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Detailed Test Plan for Conducting Seismic Pressure Test 4

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**List of Tables**

**Page**

TABLE 9-1: DIFFERENTIAL SEISMIC PRESSURE TEST LEVELS .....	17
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Document No.: 51-9208265-000

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Detailed Test Plan for Conducting Seismic Pressure Test 4

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**ACRONYMS**

CGD	Commercial Grade Dedication
CGI	Commercial Grade Item
IROFS	Items Relied On For Safety
lbs	pounds
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
sqft	Square foot
w.g.	Water Gauge

Penetration Seal Materials

DC-170	Dow Corning Sylgard® 170 Silicone Elastomer
QSiI 5558MC	Quantum Silicones QSiI 5558MC Silicone Elastomer
SF-150NH	Promatec SF-150NH High Density Silicone Elastomer



Document No.: 51-9208265-000

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Detailed Test Plan for Conducting Seismic Pressure Test 4

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## BACKGROUND

AREVA NP (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 seismic pressure tests 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 4. 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 seal Seismic Pressure Test 4 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 4 is the same assembly that was tested under Pressure Test 6 (51-9204218, latest revision). This configuration is comprised of four boot seals of various configurations.

### 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 configuration to be tested is 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 there will be four penetrations, two (2) 12" diameter openings, and two 16" x 16" blockouts. Details for the four penetrations are provided in Section 2.2. Three of the penetrations will be unlined (bare concrete) and one will be steel lined (cast in place 12" diameter pipe). The test deck will be horizontally oriented with a hemispherical 72" diameter steel pressure vessel mounted on each side of the precast openings in the slab.



Document No.: 51-9208265-000

#### Detailed Test Plan for Conducting Seismic Pressure Test 4

Note: It is anticipated that the slab with the boot assemblies and silicone elastomer seals installed for Pressure Test 6 will not be damaged during Pressure Test 6 and will be available for reuse in this seismic pressure test. For the purpose of Seismic Pressure Test 4, no changes will be made to the silicone elastomer seals or boot assemblies installed for Pressure Test 6 (51-9204218, latest revision).

Additionally, most of the openings (penetrations) in the MOX facility have been cast with a  $\frac{3}{4}$ " bevel on both sides of the opening. For testing and qualification purposes, this feature is considered aesthetic, and it has no adverse effect on the functional performance of the penetration seal installation. In fact for some applications, such as in the case of pressure resistant penetrations seals, the bevel provides a benefit over non-beveled openings. Therefore, for the purposes of the penetration seal test program, the bevel feature will not be included for seismic pressure tests covered 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 6 was damaged during testing or is otherwise not available, this test plan will require revision.

## 2.2 Test Description

There are four openings to be sealed and tested in Seismic Pressure Test 4.

- Penetration P1: This penetration is to be a round 12" diameter precast (or core-drilled) opening with a 16 gauge galvanized sheet metal sleeve sized to fit the precast opening. The sheet metal sleeve shall be a approximately 18" long and installed such that the sleeve extends approximately 3" on both sides of the test slab. The sheet metal sleeve shall be fastened to the concrete opening in accordance with AREVA NP Inc. Document 01-9198306 (latest revision), *Installation Instruction Manual for MOX Penetration Seal Test Program* [Reference 12.5]. An 8" diameter schedule 40 carbon steel pipe will pass through the sleeve. The pipe will be capped on at least one side or fitted with a welded cover plate (Note: caps and/or cover plates are construction aids only and are not being qualified by this seismic pressure test). The cap/welded cover plate shall be made air tight, so that any leakage during the test must pass through the seal assembly and not internal to the pipe. The gap between the sleeve and the pipe will be sealed using a silicone rubber boot assembly as described in AREVA NP Inc. Document 01-9198306 (latest revision), *Installation Instruction Manual for MOX Penetration Seal Test Program* [Reference 12.5]. The annular space between the pipe and the sleeve is to be filled full slab depth (12') using Unifrax Fiberfrax® Durablanket® S.
- Penetration P2: This penetration is to be a 16"x16" square precast opening. A 16 gauge 12" diameter galvanized sheet metal sleeve (approximately 14" long) shall be sealed in place using an eight (8) inch thick seal of half Dow Corning Sylgard® 170 Silicone Elastomer (DC-170) and half Quantum Silicones QSi1 5558MC Silicone Elastomer (QSi1 5558MC) with no permanent damming installed in the penetration. The sleeve shall be situated such that the sleeve extends approximately 3" beyond the test slab on the top side of the barrier. The sheet metal sleeve shall be fabricated and installed in accordance with AREVA NP Inc. Document 01-9198306 (latest revision), *Installation Instruction Manual for MOX Penetration Seal Test Program* [Reference 12.5]. The division of penetration seal materials will be located within the opening as shown in Appendix B. An 8" diameter schedule 40 carbon steel pipe will pass through the sleeve. The pipe will be capped on at least one side or fitted with a welded cover plate (Note: caps and/or cover plates are construction aids only and are not being qualified by this seismic pressure test). The cap/welded cover plate shall be made air tight, so that any leakage during the test must pass through the seal assembly and not internal to the pipe. The gap between the sleeve and the pipe will be sealed using a silicone rubber boot assembly as described in AREVA NP Inc. Document





Document No.: 51-9208265-000

#### Detailed Test Plan for Conducting Seismic Pressure Test 4

01-9198306 (latest revision), *Installation Instruction Manual for MOX Penetration Seal Test Program* [Reference 12.5]. The annular space between the pipe and the sleeve is to be filled full slab depth (12") using Unifrax Fiberfrax® Durablanket® S.

- Penetration P3: This penetration is to be a 16"x16" square precast opening with a 16 gauge 8" diameter galvanized sheet metal sleeve (approximately 14" long) sealed in place with an eight (8) inch thick Promatec SF- 150NH High-Density Silicone Elastomer (SF-150NH) seal with no permanent damming installed in the penetration. The sleeve shall be situated such that the sleeve extends approximately 3" beyond the test slab on the top side of the barrier. The sheet metal sleeve shall be fabricated and installed in accordance with AREVA NP Inc. Document 01-9198306 (latest revision), *Installation Instruction Manual for MOX Penetration Seal Test Program* [Reference 12.5]. A 4" diameter schedule 40 carbon steel pipe will pass through the sleeve. The pipe will be capped on at least one side or fitted with a welded cover plate (Note: caps and/or cover plates are construction aids only and are not being qualified by this seismic pressure test). The cap/welded cover plate shall be made air tight, so that any leakage during the test must pass through the seal assembly and not internal to the pipe. The gap between the sleeve and the pipe will be sealed using a silicone rubber boot assembly as described in AREVA NP Inc. Document 01-9198306 (latest revision), *Installation Instruction Manual for MOX Penetration Seal Test Program* [Reference 12.5]. The annular space between the pipe and the sleeve is to be filled full slab depth (12") using Unifrax Fiberfrax® Durablanket® S.
- Penetration P4: This penetration is to be a round opening with a 12" diameter cast-in-place schedule 40 steel pipe sleeve (approximately 12" long). The pipe sleeve shall be cast in the slab such that the sleeve is flush with the slab on both sides of the barrier. A galvanized sheet metal sleeve extension (approximately 9" long) will be added to the top side of the opening to facilitate installation of a boot assembly. The sleeve extension shall extend approximately 3" above the slab and shall be installed in accordance with AREVA NP Inc. Document 01-9198306 (latest revision), *Installation Instruction Manual for MOX Penetration Seal Test Program* [Reference 12.5]. An 8" diameter schedule 40 carbon steel pipe will pass through the sleeve. The 8" diameter pipe will be capped on at least one side or fitted with a welded cover plate (Note: caps and/or cover plates are construction aids only and are not being qualified by this seismic pressure test). The cap/welded cover plate shall be made air tight, so that any leakage during the test must pass through the seal assembly and not internal to the pipe. The gap between the cast-in place sleeve and the pipe will be sealed using a silicone rubber boot assembly as described in AREVA NP Inc. Document 01-9198306 (latest revision), *Installation Instruction Manual for MOX Penetration Seal Test Program* [Reference 12.5]. The annular space between the pipe and the sleeve is to be filled full slab depth (12") using Unifrax Fiberfrax® Durablanket® S.

The penetrating items will be located within the openings as shown in Appendix B. One silicone rubber boot is to be installed to seal the openings between the pipe and the sleeve for each penetration. All four boots will be installed on the top side of the test deck and tested 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 4 are as follows:

- A silicone rubber boot seal assembly installed between a cast-in-place pipe sleeve fitted with a sheet metal sleeve extension and a carbon steel pipe. This configuration bounds the configuration where the boot is attached directly to a cast-in-place sleeve where a sleeve extension is not necessary.
- A silicone rubber boot seal assembly installed between a 16 gauge galvanized sheet metal sleeve adhered to the concrete opening using Dow Corning® 790 Silicone Building Sealant and a carbon steel pipe.



Document No.: 51-9208265-000

#### Detailed Test Plan for Conducting Seismic Pressure Test 4

- A silicone rubber boot seal assembly installed between a 16 gauge galvanized sheet metal sleeve embedded in an (8) eight inch thick seal of half Dow Corning Sylgard® 170 Silicone Elastomer (DC-170) and half Quantum Silicones QSil 5558MC Silicone Elastomer (QSil 5558MC) with no permanent damming installed and a carbon steel pipe.
- A silicone rubber boot seal assembly installed between a 16 gauge galvanized sheet metal sleeve embedded in an (8) eight inch thick Promatec SF-150NH High-Density Silicone Elastomer (SF-150NH) seal with no permanent damming installed and a carbon steel pipe.

Note: The SF-150NH seal is not being seismically qualified by this test. Refer to Section 9.2 Note 1 for additional information.

- Penetration seal material compatibility between DC-170 and QSil 5558MC.

### 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 pressure 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 seismic pressure test plan.



Document No.: 51-9208265-000

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Detailed Test Plan for Conducting Seismic Pressure Test 4

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**4.1 MOX Services**

- 4.1.1 Provide review and concurrence of detailed seismic pressure test plans.
- 4.1.2 Provide concurrence for any revisions made to detailed seismic pressure test plans 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 tests.

**4.2 AREVA**

- 4.2.1 Develop detailed seismic pressure test plans.
- 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 seismic pressure tests.
- 4.2.8 Perform post-test examinations.
- 4.2.9 Review, approve and issue final test reports.

**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 the 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 the 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 the approved detailed seismic pressure test plan.
- 4.3.6 Assist AREVA, as necessary, in conducting detailed post-test destructive examinations of the test assemblies.





Document No.: 51-9208265-000

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Detailed Test Plan for Conducting Seismic Pressure Test 4

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

4.3.8 Generate final test reports 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*



Document No.: 51-9208265-000

#### Detailed Test Plan for Conducting Seismic Pressure Test 4

- *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 these seismic pressure tests, the following materials shall be procured by AREVA and base-lined for future dedication activities.

1. Silicone Rubber Boot Material – Arlon Silicone Impregnated Fiberglass Fabric (56493F031)
2. Ideal Clamp 9/16" All Stainless Steel 64 Series
3. Unifrax Fiberfrax® Durablanket® S
4. Dow Corning® 732 Multi-Purpose Sealant
5. Dow Corning® 790 Silicone Building Sealant
6. Dow Corning Sylgard® 170 Silicone Elastomer (DC-170)
7. Quantum Silicones QSi 5558MC Silicone Elastomer (QSi 5558MC)
8. Promatec SF-150NH High-Density Silicone Elastomer (SF-150NH)

## 5.2 Test Deck/Test Slab

The test deck/test slab will be used to simulate a boundary in 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.

Openings cast into the test deck/test slab will simulate certain features consistent with MOX penetrations (e.g., painted or coated interior finishes, etc.) as defined by detailed test plan drawings contained in Appendix A.



Document No.: 51-9208265-000

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Detailed Test Plan for Conducting Seismic Pressure Test 4

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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., pipe and sleeves) will be used in this pressure test to simulate MOX-specific plant commodities during the pressure test but are not considered an integral part of the penetration seal assemblies being tested. Therefore, the quality level of the penetrating items is **Non-safety**.

Penetrating items for this pressure test will come from one of two sources: MOX Services or the testing laboratory. MOX Services supplied items are identified on the MOX Services Bill of Materials in Section B.2 of Appendix C. Items provided by the testing laboratory are identified on the Testing Laboratory 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).





Document No.: 51-9208265-000

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Detailed Test Plan for Conducting Seismic Pressure Test 4

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**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, *Installation Instruction Manual for MOX Penetration Seal Test Program* [Reference 12.5].

**8.0 TEST ASSEMBLY CONSTRUCTION**

**8.1 Test Slab Construction**

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

AREVA QC (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 for each test assembly, 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



Document No.: 51-9208265-000

#### Detailed Test Plan for Conducting Seismic Pressure Test 4

"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 the seismic pressure test 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	45 (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: Although Seismic Pressure Test 4 is testing the same seal assemblies that were tested in Pressure Test 6, Seismic Pressure Test 4 is only intended to seismically qualify boot seal assemblies and silicone elastomer seal materials installed in piping penetrations. The high density seal material contained in this test specimen (i.e., the penetration with SF-150NH material) is not being seismically qualified by this test. The SF-150NH material has a nominal density of approximately 150 pcf, which is significantly higher than the other materials contained in this test. Therefore, the SF-150NH material must be subjected to much higher pressures in order to be seismically qualified. For this reason, the SF-150NH material will be evaluated under Seismic Pressure Test 7, which is described in AREVA test plan document 51-9209334 (latest revision).

For the silicone elastomer seals materials contained in Seismic Pressure Test 4, a nominal density of 85 pcf was used for the purposes of determining the test penetration seal's weight per square foot. 85 pcf bounds both the DC-170 and QSiil 5558MC silicone elastomer seal materials with margin. 85 pcf times a seal depth of 8", yields a seal weight of approximately 56.7 pcf. Based on Figure B-2.1 of Reference 12.1, the corresponding seismic pressure for a seal weight of 56.7 pcf is approximately 44.7 inches w.g. Therefore, for Seismic Pressure Test 4 an





Document No.: 51-9208265-000

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Detailed Test Plan for Conducting Seismic Pressure Test 4

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equivalent seismic pressure of 45 inches w.g. shall be used to seismically qualify the silicone elastomer seal materials.

The boot seal assemblies in Seismic Pressure Test 4 are considered to be bounded by the 45 inches w.g. pressure being applied for silicone elastomer seal materials. Boot seal assemblies are comprised of multiple components each having a different mass. Example 3 in Attachment C of Reference 12.1 implies that a boot seal will have a known weight. This is not the case, since a boot assembly is not a pre-manufactured component, but rather it is an assembly of materials custom made at the penetration for each required application. The boot assemblies contained in Seismic Pressure Test 4 are bounded by the 45 inches w.g. pressure with substantial margin based on the following logic:

Boot assemblies are comprised of a silicone rubber boot installed on both sides of the penetration, with a 12" depth of ceramic fiber blanket material installed in the annular space between the pipe and the inside of the penetration. Stainless steel hose clamps are used to clamp the boot fabric to the pipe and the sleeve on both sides of the penetration (4 clamp locations total). Each clamp location, as well as the longitudinal boot fabric seam, contain varying amounts of silicone caulk applied as an adhesive at these locations. This compilation of materials is bounded silicone elastomer seal material weight of 66.7 psf as described below.

For a one square foot boot assembly, the annular space between the pipe and the opening would be filled with a 12" depth of 6 pcf ceramic fiber blanket material installed with blanket material compressed approximately 50%. Discounting the space occupied by the pipe, a conservative approximation of the mass of the ceramic fiber blanket material would be 12 lbs (approximated as 1 sqft times 1 ft depth times 6 pcf times 50% compression equals 12 lbs). The amount of boot fabric required for a one square foot boot assembly on one side of the penetration is much less than 1 square yard. Boot fabric weighs approximately 33.1 ounces per square yard (~ 2 lbs). Considering there are two boots required for each assembly (one boot on each side of the wall), a conservative approximation of the mass of the boot material would be 4 lbs. A bead of silicone caulk is installed and spread at the longitudinal seam of the boot and at the boot to pipe and boot to sleeve interface. A conservative approximation for the mass of caulk required to assemble and install a one square foot boot assembly on both sides of a wall or floor penetration would 2 lbs. The stainless steel hose clamps are completely self-supported by their compressive force and thus, they do not add to the mass of the overall boot seal assembly. Therefore, a conservative total mass for a one square foot boot assembly is 18 lbs (or 18 psf; approximated by 12 lbs of ceramic fiber plus 4 lbs of boot fabric plus 2 lbs of silicone caulk for a 1 square foot penetration sealed with a boot assembly). This mass is approximately 1/3 the mass per square foot for the silicone elastomer seal material being qualified in Seismic Pressure Test 4. Therefore, boot assembly seismic qualification is bounded by the 45 inches w.g. being applied in this test.

Each 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, each test assembly shall be attached to the 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.



Document No.: 51-9208265-000

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Detailed Test Plan for Conducting Seismic Pressure Test 4

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- 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 seismic 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 silicone elastomer seal material installed at a depth of 8 inches and having a seal material density of 85 pcf. Should the test be successful, possible subsequent testing pressures may include those for a 10 inch depth of silicone elastomer seal material (56 inches w.g.) and a 12 inch depth of silicone elastomer seal material (67 inches w.g.).

- 9.2.6 If at any pressure level (or test stage) the penetration seal becomes dislodged from the opening or otherwise catastrophically fails, the seismic 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 any permanent damming materials
- 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 seismic pressure tests.

### 10.0 DATA SYSTEMS

During the seismic pressure test, the various data systems connected to the test apparatus (blowers, anemometers, manometers, etc.) shall be controlled and monitored by the testing laboratory. Data recorded for these components shall be compiled and contained in the seismic pressure test report.



Document No.: 51-9208265-000

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Detailed Test Plan for Conducting Seismic Pressure Test 4

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## 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
- A chronological log (Event Log) of all activities from receipt of materials through final test report

## 12.0 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 13, "*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 51-9204218, latest revision, "*Detailed Test Plan for Conducting Pressure Test 6*"

### Retrieval of Reference Documents

References 12.1, 12.2, 12.6, and 12.7 of this document were not entered into the AREVA NP Records Management system because they can be retrieved using the Shaw AREVA MOX Services Records Management system. These documents have been authorized for use as design information in this document with the AREVA NP Project Manager's written authorization as indicated by the PM's signature on Page 2.



Document No.: 51-9208265-000

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Detailed Test Plan for Conducting Seismic Pressure Test 4

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**APPENDIX A: TEST DECK/TEST SLAB DRAWINGS**

It is anticipated that the slab with the silicone elastomer seals and silicone rubber boot assemblies installed for Pressure Test 6 will not be damaged during Pressure Test 6 and will be available for reuse in this seismic pressure test. For the purpose of Seismic Pressure Test 4, no changes will be made to the silicone elastomer seals or boot assemblies installed for Pressure Test 6. For test slab drawings see Pressure Test 6 drawings in Appendix A and Appendix B of Document 51-9204218, latest revision, *Detailed Test Plan for Conducting Pressure Test 6* [Reference 12.8].



Document No.: 51-9208265-000

Detailed Test Plan for Conducting Seismic Pressure Test 4

#### APPENDIX B: BILL OF MATERIALS

This appendix contains the Bill of Materials for this fire 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.

Page B-1





Document No.: 51-9208265-000

Detailed Test Plan for Conducting Seismic Pressure Test 4

**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*				

\* Assuming a successful Pressure Test 6, the seals will already be in place, no additional materials will be necessary.



Document No.: 51-9208265-000

Detailed Test Plan for Conducting Seismic Pressure Test 4

**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*				

\* Assuming a successful Pressure Test 6, the seals will already be in place, no additional materials will be necessary.



Document No.: 51-9208265-000

Detailed Test Plan for Conducting Seismic Pressure Test 4

**B.3 Bill of Materials for Intertek Supplied Items**

Bill of Material for Intertek Supplied Items* <sup>1</sup>					
Item	Description	Part Number	Quantity	Units	Total
	None*				

\* Assuming a successful Pressure Test 6, the seals will already be in place, no additional materials will be necessary.

<sup>1</sup> 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.



Document No.: 51-9208265-000

Detailed Test Plan for Conducting Seismic Pressure Test 4

APPENDIX C: DESIGN VERIFICATION CHECKLIST

22410-8 (02/25/2013) Page 1 of 2



AREVA		DESIGN VERIFICATION CHECKLIST		
Document Identifier 51 - 9208265 - 000				
Title Detailed Test Plan for Conducting Seismic Pressure Test 4				
1.	Were the inputs correctly selected and incorporated into design or analysis?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> 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.	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> 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?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> 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?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N/A
5.	Have applicable construction and operating experience been considered?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N/A
6.	Have the design interface requirements been satisfied?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N/A
7.	Was an appropriate design or analytical method used?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N/A
8.	Is the output reasonable compared to inputs?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N/A
9.	Are the specified parts, equipment and processes suitable for the required application?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N/A
10.	Are the specified materials compatible with each other and the design environmental conditions to which the material will be exposed?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N/A
11.	Have adequate maintenance features and requirements been specified?	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A
12.	Are accessibility and other design provisions adequate for performance of needed maintenance and repair?	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A
13.	Has adequate accessibility been provided to perform the in-service inspection expected to be required during the plant life?	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A
14.	Has the design properly considered radiation exposure to the public and plant personnel?	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A
15.	Are the acceptance criteria incorporated in the design documents sufficient to allow verification that design requirements have been satisfactorily accomplished?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N/A
16.	Have adequate preoperational and subsequent periodic test requirements been appropriately specified?	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A
17.	Are adequate handling, storage, cleaning and shipping requirements specified?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N/A
18.	Are adequate identification requirements specified?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> 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?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N/A



Document No.: 51-9208265-000

Detailed Test Plan for Conducting Seismic Pressure Test 4

22410-8 (02/25/2013) Page 2 of 2

		<b>DESIGN VERIFICATION CHECKLIST</b>	
Document Identifier 51 - 9208265 - 000			
Comments on the preceding responses: None			
Verified By: (First, MI, Last)	D. T. Meyer		8/12/2013
	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 51-9212659-000, "Dow Corning Sylgard 170 Silicone Elastomer Critical Characteristics"
- AREVA Document 51-9212663-000, "Quantum Silicones QSil 5558MC Silicone Elastomer Critical Characteristics"
- AREVA Document 51-9212666-000, "Dow Corning 732 Multi-Purpose Sealant Critical Characteristics"
- AREVA Document 51-9212668-000, "Dow Corning 790 Silicone Building Sealant Critical Characteristics"
- AREVA Document 51-9212669-000, "Arlon 56493F031 Critical Characteristics"
- AREVA Document 51-9212670-000, "Unifrax Durablanket S Critical Characteristics"
- AREVA Document 51-9212671-000, "Ideal Tridon Series 64 Hose Clamp 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 4 was the same assembly tested in Pressure Test 6. 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-001B (Pressure Test 6) [AREVA document 58-9223133-000].

## LIST OF CALIBRATED EQUIPMENT

Description	Serial No.	Calibration Due Date
Thermo-Hygrometer	111901142	11/2/2013
Data Acquisition System	18041FE	1/16/2014*
Pressure Transducer	406707	7/16/2014*
Mass Flowmeter	4270050001001	2/1/2014*
Mass Flowmeter	4270050003001	2/1/2014*
Stop watch	122601005	10/23/2014

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



Calibration  
Certificate No. 1750.01

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

Cert. No.: 4094-3993529

**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: 11-001-11, FB01252, 255TD G/N: 111901142 Manufacturer: Control Company

**Standards/Equipment:**

Description	Serial Number	Due Date	NIST Traceable Reference
Chilled Mirror Hygrometer	31674/H2048MCR	5/12/12	9193
Digital Thermometer	90969500	9/14/12	4000-3893285

**Certificate Information:**

Technician: 104 Procedure: CAL-17 Cal Date: 11/02/11 Cal Due: 11/02/13  
Test Conditions: 22.5°C 45.0 %RH 1017 mBar

**Calibration Data: (New Instrument)**

Unit(s)	Nominal	As Found	In Tol	Nominal	As Left	In Tol	Min	Max	±U	TUR
°C		N.A.		23.667	23	Y	23	25	0.590	1.7:1
%RH		N.A.		41.450	41	Y	37	45	0.000	0.0:1

**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

Nicot Rodriguez, Quality Manager

Wanda Berry, Technical Manager

**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:**

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

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-01805-2008-AQ-HOU-ANAB.  
International Laboratory Accreditation Cooperation (ILAC) - Multilateral Recognition Arrangement (MRA).



## Certificate of Calibration

Certificate Number:	2994344	Date:	28-MAY-2014
Serial Number:	18041FE	Part Number:	194710E-04L
Description:	CCA,USB-0210		
Calibration Date:	06-DEC-2012	Shelf Life:	0 Days
Calibration Due Date*:	-	Recommended Calibration Interval:	12 Months
Temperature:	22.26 °C	Humidity:	40.7% RH

### Standards Used

Manufacturer	Model	Tracking Number	Calibration Date	Calibration Due
NATIONAL INSTRUMENTS	PXI-4070	5112	26-JUN-12	26-JUN-13
NATIONAL INSTRUMENTS	PXI-6259	0871	27-JUN-12	27-JUN-13
NATIONAL INSTRUMENTS	PXI-5421	7591	25-JUN-12	25-JUN-13
VAISALA	HMT331	7885	24-MAY-12	24-MAY-13

National Instruments certifies that at the time of test, the above product was calibrated in accordance with applicable National Instruments procedures. The procedures are designed to ensure that the product listed above meets or exceeds National Instruments specifications.

We further certify that the environment in which this product was calibrated is maintained within the operating specifications of the instrument(s) standards. The measurement standards used during calibration are traceable to NIST and/or other International Measurement Institutes (NMI's) that signatories of the International Committee of Weights and Measure (CIPM) Mutual Recognition Agreement (MRA).


The information shown on this certificate applies only to the instrument identified above and this certificate may not be reproduced, except in full, without prior written consent of National Instruments.

\*Optional field. **Calibration Due Date** may be established by combining the *Recommended Calibration Interval*, *Calibration Date* and, when applicable, accounting for *Shelf Life*. Shelf life defines how long an instrument may be stored, after calibration, without impact to its specifications.

The instrument's Calibration Due Date can be calculated using the following methods:

- If date placed in service is within *Calibration Date + Shelf Life*: *Calibration Due Date* = date placed in service + *Recommended Calibration Interval*
- If date placed in service is outside *Calibration Date + Shelf Life*: *Calibration Due Date* = *Calibration Date* + *Shelf Life* + *Recommended Calibration Interval*

For questions or comments, please contact National Instruments Technical Support.

  
Andrew Krupp  
Vice President, Quality and Continuous Improvement

## 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.

\_\_\_\_\_  
**Accepted and Certified By**

7/15/2011  
**Date**



CERTIFICATE OF ACCURACY

This is to certify that meter serial number 4270050001001 is certified to an accuracy of +/- 1 % of 20 ppm 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: 2-1-13

Uncertainty of measurements: +/- 0.3 % of reading

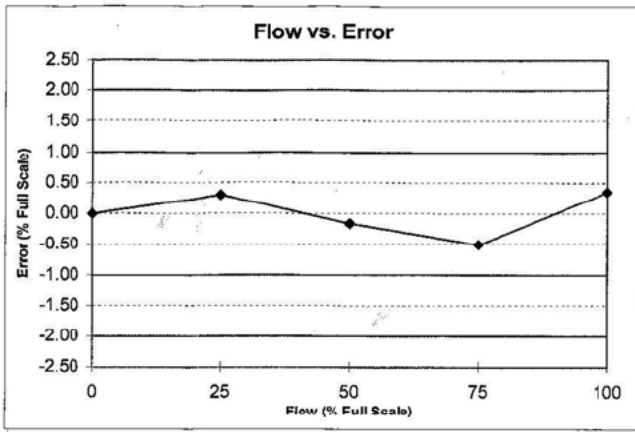
Calibrations were performed under a controlled Quality System Manual, which incorporates the requirements of ISO Guide 25, ISO 10012-1, ISO 9001 (1994) and ISO 13485. The released ISO 13485 registration (Medical Devices – Quality Management Systems – System Requirements for Regulatory Purposes) includes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

0122220B

FM-1011 REV B



**Mass Flowmeter/Flow Controller Calibration Data Sheet**



**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

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<sub>1</sub>) 20 PSIG  
Outlet (P<sub>2</sub>) 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)

**LEAK TEST DATA**

Inboard (Externally Pressurized) Helium Leak Rate: < 1 x 10<sup>-8</sup> atm cc/sec  
Vacuum Pressure: < 5 milliTor

Tested By: [Redacted] Date: 2-1-13

FM-1119 Rev. K



CERTIFICATE OF ACCURACY

This is to certify that meter serial number 4270050003001 is certified to an accuracy of  $\pm$  1 % of 200 slpm of N<sub>2</sub> 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:	<u>1667</u>
Vol-U-Meter Number:	<u>613</u>
Type of Gas:	<u>N<sub>2</sub></u>
Gas Used for Calibration:	<u>N<sub>2</sub></u>
Pressure Gauge Number:	<u>1950</u>
Timer Number:	<u>1876</u>
Thermometer Number:	<u>985</u>
Voltmeter:	<u>NA</u>
Calibrated By:	<u>[REDACTED]</u>
Date Calibrated:	<u>2-7-13</u>

Uncertainty of measurements:  $\pm$  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





## 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) <input checked="" type="checkbox"/> Vdc <input type="checkbox"/> 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: <1x 10<sup>-8</sup> atm cc/sec

VACUUM PRESSURE: <5 millitorr

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

FM-355-OE Rev. 0



Calibration  
Certificate No. 1750.01

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

Cert. No.: 1042-4689088

**Traceable® Certificate of Calibration for Waterproof Stopwatch**

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

**Instrument Identification:**

Model Numbers: 0666256, FB70240 S/N: 122601005 Manufacturer: Control Company

**Standards/Equipment:**

Description	Serial Number	Due Date	NIST Traceable Reference
Non-contact Frequency Counter	26.6 2025	3/06/13	1000313632

**Certificate Information:**

Technician: 67 Procedure: CAL-01 Cal Date: 10/23/12 Cal Due: 10/23/14  
Test Conditions: 22.5°C 45.0 %RH 1015 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	-0.600	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

**Maintaining Accuracy:**

In our opinion once calibrated your Waterproof Stopwatch should maintain its accuracy. There is no exact way to determine how long calibration will be maintained. Waterproof Stopwatches 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

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-01805-2008-AQ-HOU-ANAB.  
International Laboratory Accreditation Cooperation (ILAC) - Multilateral Recognition Arrangement (MRA).

### TEST ARTICLE ATTRIBUTE CHECKLIST

PROJECT NO: G101276459-C05

CLIENT: AREVA

Project Description SEISMIC #4

**I. ASSEMBLY**

SAT    UNSAT

Proper materials used .....  
Material documentation complete.....  
Configuration/dimensions in accordance w/ approved drawings....  
Description of assembly: MOX SEISMIC #4

X  
X  
X  
X

**II. ELECTRICAL CABLE**

Correct material used .....  
Material documentation complete .....  
Correct cable lay-in and fill requirements .....  
Description of electrical cable: \_\_\_\_\_

N/A

**III. THERMOCOUPLES**

Correct thermocouple type, certs received .....  
Thermocouples positioned in accordance with test plan .....  
Adequately labeled and secured .....  
Quality Assurance verification done .....  
Description of thermocouples: \_\_\_\_\_

N/A

**IV. FIRE BARRIER**

Name or type of material .....  
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 N/A

X  
X  
X  
X  
X

**V. FINAL PREBURN VERIFICATION**

Final visual inspection & approval (initials)    INTERTEK                      Client                     

CALIBRATION DOCUMENTATION (S/N and calibration due date)

Data Acquisition Equipment: \_\_\_\_\_  
Other Measurement Devices: SEE TEST DATA PACKAGE

Temperature 70 Humidity 39 Date 10-22-13 Time of Test start 10:30A

INTERTEK pre-burn checklist performed by                     

Client representative present to witness test                     

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

9/12 NQAP-007.7.3

### Certificate of Conformance

Client Name: AREVA NP Inc.

Date: August 7, 2014

Project No: G101276459SAT-005

Intertek Testing Services NA (Intertek) has conducted testing for AREVA NP Inc., on the seismic pressure resistance capabilities of Arlon Silicone Impregnated Fiberglass Fabric, IDEAL Clamp 9/16" All Stainless Steel 64 Series, Unifrax Fiberfrax® Durablanket®, Quantum Silicones QSII 5558MC Silicone Elastomer, Dow Corning® Sylgard 170 Silicone Elastomer, Promatec SF-150NH High-Density Silicone Elastomer, Dow Corning® 732 Multi-Purpose Sealant and Dow Corning® 790 Silicone Building Sealant through a 12" thick concrete deck, for compliance with the applicable requirements of and in accordance with AREVA NP Inc. Document No. 51-9208265-000, *Detailed Test Plan for Conducting Seismic Pressure Test 4*. This evaluation took place on October 22, 2013.

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.



Michael A Brown  
Quality Supervisor

August 7, 2014

Date

Intertek Testing Laboratory  
16015 Shady Falls Road, Elmhurst 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
August 7, 2014	Original Issue Date