

RS-05-064

May 13, 2005

U. S. Nuclear Regulatory Commission  
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Dresden Nuclear Power Station, Units 2 and 3  
Facility Operating License Nos. DPR-19 and DPR-25  
NRC Docket Nos. 50-237 and 50-249

Quad Cities Nuclear Power Station, Units 1 and 2  
Facility Operating License Nos. DPR-29 and DPR-30  
NRC Docket Nos. 50-254 and 50-265

Subject: Commitments and Plans Related to Extended Power Uprate Operation

- References:
1. Letter from K. R. Jury (Exelon Generation Company, LLC) to U. S. NRC, "Commitments for Resolution of Steam Dryer Degradation Issue," dated June 27, 2003
  2. Letter from J. A. Benjamin (Exelon Generation Company, LLC) to U. S. NRC, "Commitments and Information Related to Extended Power Uprate," dated April 2, 2004
  3. Letter from K. R. Jury (Exelon Generation Company, LLC) to U. S. NRC, "Commitments and Plans Related to Extended Power Uprate Operation," dated May 12, 2004
  4. Letter from D. Bost (Exelon Generation Company, LLC) to U. S. NRC, "Commitments and Plans Related to Extended Power Uprate Operation," dated December 10, 2004
  5. Letter from D. Bost (Exelon Generation Company, LLC) to U. S. NRC, "Revised Commitments and Plans Related to Extended Power Uprate Operation," dated January 31, 2005

In the referenced letters, Exelon Generation Company, LLC (EGC) made regulatory commitments regarding operation of Dresden Nuclear Power Station (DNPS), Units 2 and 3, and Quad Cities Nuclear Power Station (QCNPS), Units 1 and 2, at extended power uprate (EPU) conditions. EGC has completed actions associated with a large portion of the

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commitments outlined in the referenced letters through engineering evaluations, inspections, equipment modifications, meetings with the NRC, and submittal of various responses to NRC requests for additional information and technical documentation. Attachment 1 to this letter outlines the remaining committed actions, as well as our going forward commitments that support operation of the DNPS and QCNPS units at EPU conditions. The commitments contained in Attachment 1 supersede those described in the referenced letters, and represent our commitments in their entirety.

As discussed with the NRC during meetings on April 25-27, and May 4, 2005, EGC's plans for operation of the QCNPS units at EPU conditions are inextricably linked to collection and evaluation of data from the QCNPS Unit 2 instrumented steam dryer and main steam lines. Attachment 2 to this letter provides the Startup Test Procedure that will be performed following replacement of the QCNPS Unit 2 steam dryer. The Startup Test Procedure provides step-by-step instructions for the incremental power ascension: (1) to ensure that the affected plant parameters and equipment performance remain within acceptable limits during EPU operation; (2) to ensure that regulatory commitments outlined in Attachment 1 have been completed, and operability constraints have been resolved, as required to increase power above 2511 MWt; and (3) to provide management oversight and control of the activities requiring completion to ensure QCNPS Unit 2 can safely operate at full EPU power.

If you have any questions concerning this submittal, please contact Mr. Patrick R. Simpson, at (630) 657-2823.

Respectfully,



Jeffrey A. Benjamin  
Vice President – Licensing and Regulatory Affairs

Attachments:

1. Summary of Commitments
2. Quad Cities Unit 2 Power Ascension Test Procedure for the Reactor Vessel Steam Dryer Replacement

**ATTACHMENT 1**  
**Summary of Commitments**

The following table identifies commitments being made by Exelon Generation Company, LLC (EGC). Any other actions discussed in this letter represent intended or planned actions by EGC. They are described for the NRC's information and are not regulatory commitments.

	<b>Commitment</b>	<b>Committed Date or Outage</b>
1	EGC will continue to conduct daily monitoring of moisture carryover and other key reactor and plant parameters while operating at full power at Dresden Nuclear Power Station (DNPS) Units 2 and 3, and Quad Cities Nuclear Power Station (QCNPS) Units 1 and 2, to provide an early indication of potential dryer structural integrity issues. If indications of steam dryer damage or structural integrity concerns are identified, EGC will reduce power at a minimum to the pre-extended power uprate (EPU) level on the affected unit and evaluate and disposition the issue in accordance with the corrective action process. For example, if sampling during the Startup Testing Program for QCNPS Units 1 and 2 indicates that moisture carryover is greater than 0.1%, the power level of the affected unit will be reduced to the power level at which the sample was taken until a second sample can be processed to determine whether further action is appropriate.	Ongoing
2	During the next scheduled refueling outage on DNPS Unit 2 and QCNPS Unit 2, EGC will perform a general visual inspection of the reactor pressure vessel internals, steam, and feedwater systems, including inspection and disassembly if needed of the most susceptible components, which include electromatic relief valves. The scope of the inspections will be based upon the results of the EPU vulnerability team effort. If the inspections indicate potential degradation of the reactor pressure vessel internals, steam, or feedwater systems and components, EGC will evaluate and disposition the issue in accordance with the corrective action process. EGC will implement the lessons learned and recommendations from assessment of the vulnerability of other plant equipment to adverse flow effects from EPU operation at DNPS and QCNPS.	Fall 2005 refueling outage for DNPS Unit 2  Spring 2006 refueling outage for QCNPS Unit 2
3	EGC will attempt to locate and retrieve the lost DNPS Unit 2 feedwater sample probe.	Fall 2005 refueling outage for DNPS Unit 2
4	EGC will perform future inspections of the DNPS and QCNPS steam dryers using guidance contained in BWRVIP-139, "BWR Vessel and Internals Project Steam Dryer Inspection and Flaw Evaluation Guidelines," dated April 2005.	Ongoing

**ATTACHMENT 1**  
**Summary of Commitments**

	<b>Commitment</b>	<b>Committed Date or Outage</b>
5	EGC will evaluate results of the Fall 2005 DNPS Unit 2 steam dryer inspection, and determine appropriate action for DNPS Unit 3. The acceptance criteria will be that no structurally significant cracking is identified that would limit operation.	Within 30 days of completing the Fall 2005 refueling outage for DNPS Unit 2
6	EGC will evaluate results of the Spring 2006 QCNPS Unit 2 steam dryer inspection, and determine appropriate action for QCNPS Unit 1. The acceptance criteria will be that no structurally significant cracking is identified that would limit operation.	Within 30 days of completing the Spring 2006 refueling outage for QCNPS Unit 2
7	Where lessons learned from evaluations or inspections conducted pursuant to commitments described in this letter indicate significant potential degradation of the steam dryer, EGC will take appropriate actions up to and including shutting down the applicable unit to conduct inspections or modifications on an expedited basis.	Fall 2006 refueling outage for DNPS Unit 3  Spring 2007 refueling outage for QCNPS Unit 1
8	EGC will meet with the NRC to share the results of the Fall 2005 DNPS Unit 2 steam dryer inspection, and the impact on, and plans for, DNPS Unit 3. EGC will factor the DNPS Unit 2 inspection results and analytical work done to date into the decision making process related to operating DNPS Unit 3 at EPU power levels and whether a mid-cycle outage is appropriate for a steam dryer inspection.	Within 30 days of completing the Fall 2005 refueling outage for DNPS Unit 2

**ATTACHMENT 1**  
**Summary of Commitments**

	<b>Commitment</b>	<b>Committed Date or Outage</b>
9	<p>After replacement of the QCNPS Unit 2 steam dryer, operation at EPU power levels will continue while detailed evaluations of the instrumented data are performed, provided the QCNPS Unit 2 Startup Test Plan acceptance criteria (i.e., go/no-go decisions) are met. Operation will be limited to a power level at which acceptance criteria are satisfied. Operational and analytical insights/results will be shared with the NRC on an ongoing basis during periodic updates. As a minimum, EGC will provide feedback to the NRC on the steam dryer data and other plant instrumentation data and the assessment of the design-basis load cases (i.e., including the acoustic circuit and scale models) during the 24-hour hold point at 2511 MWt, within 72 hours of data collection at 930 MWe or the maximum reactor thermal power level achieved, and after 14 days of EPU operation. Detailed evaluations will be performed to compare the predicted QCNPS Unit 2 steam dryer loads, developed using the acoustic circuit model and main steam line strain gauge data, with the actual QCNPS Unit 2 loads obtained from the instrumented steam dryer. EGC will determine whether the assessment of the design-basis load cases at the maximum reactor thermal power level achieved needs to be conducted in a "blind" manner (i.e., similar to the "blind" assessments at lower power levels) and will discuss that determination with the NRC prior to the load determination/blind benchmark. Specific acceptance criteria for the design-basis load cases, including the acoustic circuit and scale models, shall be prepared prior to initiating the assessment of the load cases. The detailed evaluations will be completed and submitted to the NRC within 60 days of data collection at 930 MWe or the maximum reactor thermal power level achieved.</p>	<p>During QCNPS Unit 2 startup, after 14 days of EPU operation, and within 60 days of QCNPS Unit 2 data collection at 930 MWe or the maximum reactor thermal power level achieved</p>
10	<p>After replacement of the QCNPS Unit 1 steam dryer, operation at EPU power levels will continue while detailed evaluations of the QCNPS Unit 2 instrumented data are performed, provided the QCNPS Unit 1 Startup Test Plan acceptance criteria (i.e., go/no-go decisions) are met. Operation will be limited to a power level at which acceptance criteria are satisfied. Operational and analytical insights/results will be shared with the NRC on an ongoing basis during periodic updates. EGC will provide the results of the validation of the acoustic circuit model based on QCNPS Unit 2 instrumented steam dryer data prior to exceeding 2511 MWt at QCNPS Unit 1. EGC will also provide feedback to the NRC on the plant instrumentation data and calculation of the steam dryer loads based on the acoustic circuit model prior to exceeding 2511 MWt and within seven days of reaching the maximum reactor thermal power level achieved. Detailed evaluations will be completed and submitted to the NRC within 60 days following reaching full power on QCNPS Unit 1 with the replacement steam dryer installed.</p>	<p>During QCNPS Unit 1 startup and within 60 days following reaching full power on QCNPS Unit 1 with the replacement steam dryer installed</p>

**ATTACHMENT 1**  
**Summary of Commitments**

<b>Commitment</b>		<b>Committed Date or Outage</b>
11	EGC will meet with the NRC technical staff to discuss the results and conclusions of evaluations performed pursuant to commitments 9 and 10 above. EGC will also discuss the decision and basis regarding scale model testing of the DNPS steam dryers during this meeting.	July 29, 2005
12	EGC will meet with NRC management to discuss the results and conclusions of evaluations performed pursuant to commitments 9 and 10 above. Where NRC management leading the meeting is not satisfied with the results and conclusions of those evaluations, EGC will voluntarily return the affected QCNPS unit(s) to pre-EPU power levels if EGC is unable to resolve those concerns within 14 days.	August 31, 2005
13	Following resolution of any concerns identified as part of commitment 12, EGC will formally request the return of the affected unit(s) to EPU operation. Where no concerns are identified under commitment 12, EGC will formally request NRC acceptance for continuous EPU operation of the QCNPS units.	September 16, 2005

**ATTACHMENT 2**

**Quad Cities Unit 2 Power Ascension Test Procedure  
for the Reactor Vessel Steam Dryer Replacement**

**Quad Cities Unit 2  
Power Ascension  
Test Procedure for  
the Reactor Vessel  
Steam Dryer  
Replacement**



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1. **PURPOSE, OBJECTIVE, AND DISCUSSION**

1.1. **Purpose**

The purpose of this Temporary Procedure is to provide step-by-step instructions in carrying out the Unit 2 Start-up Test Program to Extended Power Uprate (EPU) conditions, with the Replacement, Instrumented Reactor Vessel Steam Dryer (Steam Dryer) in place. The incremental power increase methodology is intended to ensure a careful, monitored approach to achieve the targeted higher power level. First and foremost in the performance of this test is the safety of the reactor and nuclear plant. The Temporary Procedure was written with this specifically in mind, providing the necessary criteria, instruction, oversight, and precautions to successfully execute the Reactor Vessel Steam Dryer Replacement Power Ascension Test Program.

1.2. **Objectives**

The objectives of this Temporary Procedure are to:

- 1.2.1. Formally document in one place that the plant physical modifications and prerequisite testing have been satisfactorily completed and meet the established criteria to commence testing to 2511 MWt and beyond, with the replacement Steam Dryer in place.
- 1.2.2. Demonstrate that the affected plant parameters and equipment performance remain within acceptable limits as power is increased to the maximum allowed power level, with the replacement Steam Dryer in place.
- 1.2.3. Implement the test recommendations contained in GE Nuclear Energy 26A6388, Revision 3, "Steam Dryer Vibration Measurement Test Specification."
- 1.2.4. Implement the Steam Dryer Instrumentation Acceptance Criteria contained in GE Nuclear Energy GE-NE-0000-0032-1827P, DRF Section 0000-0036-2077, Revision 0, "Quad Cities Replacement Steam Dryer Instrumentation Acceptance Criteria."
- 1.2.5. Assure that regulatory commitments have been completed, and operability constraints have been resolved, as required to increase power above 2511 MWt.
- 1.2.6. Provide management oversight and control of the activities requiring completion to assure Quad Cities can safely operate at the full licensed power level, with the replacement Steam Dryer in place.
- 1.2.7. Provide Shift Operations personnel clear instructions on testing and operational maneuvers to be performed as power levels are increased in a step-wise manner to assure safe operation during all testing activities.
- 1.2.8. Provide management reviews and approvals of the test data and their authorization to increase power level in a controlled step-wise manner.

- 1.2.9. Assure that procedures requiring revision to operate at uprated power conditions with the replacement Steam Dryer in place have been revised as required and are available to plant personnel.
- 1.2.10. Verify that the requisite training has been completed to meet licensing commitments and provide safe operation of the plant.
- 1.3. Discussion
  - 1.3.1. Quad Cities Station installed a completely redesigned and fabricated Steam Dryer during Q2P03, to address cracks identified on the Original Unit 2 Steam Dryer during operation at EPU power levels. Accelerometers, strain gages, and pressure sensors were installed on it. A special instrument flange was installed on a spare reactor vessel head nozzle, and the instrument leads were brought across the pressure boundary through this flange, across the primary containment boundary through a spare drywell penetration, and inputted into a Data Acquisition System (DAS) located in the Reactor Building. Additionally, strain gages were installed at selected locations on the Main Steam Lines inside and outside of primary containment, and also inputted into the DAS. The listing of which instrument sensors feed which DAS channels is included as part of Attachment 9.3, "Data Acquisition System Data Sheet."
  - 1.3.2. Accelerometers and strain gages were also previously installed on Unit 2 Main Steam Lines and Components inboard of the primary containment, as part of the EPU Main Steam Line Vibration Evaluation. These sensors feed into an Accelerometer and Strain Gage Data Recorder. The listing of which instrument sensors feed which Recorder channels is included as part of Attachment 9.2, "EPU Vibration Monitoring Data Sheet."
  - 1.3.3. This Temporary Procedure provides for the monitoring, recording and evaluating of the Steam Dryer and Main Steam Line instrumentation inputted into the DAS and the Accelerometer and Strain Gage Data Recorder. It also provides for the monitoring, recording and evaluating of select plant operating parameters. Data gathered from these sources at each test plateau will be compared against acceptance criteria before power ascension to the next plateau.
  - 1.3.4. This Temporary Procedure provides for data collection during HPCI and RCIC testing at rated temperature and pressure prior to placing the main generator on line, continuing data collection to a pre-EPU power level of approximately 2511 MWt, and again during power ascension to short-term power operation at the licensed EPU power level of approximately 2957 MWt.
  - 1.3.5. Power will be increased to the licensed EPU power level for short-term operation for the purpose of collecting and analyzing data when operating at EPU conditions. Power will then be returned, after all the necessary data has been collected for evaluation, to 912 MWe, which is the Limiting Power Level of the current Main Generator Stability Study.

- 1.3.6. This Temporary Procedure is not intended to replace or substitute for operator power manipulations under QCGP 1-1, "Normal Unit Startup," or QCGP 3-1, "Reactor Power Operations." Operators will continue to use normal operating procedures to change power levels in the plant.
- 1.3.7. This Temporary Procedure accomplishes power increases in controlled, conservative and well-monitored incremental steps. The times given below are approximate, and are not mandatory, provided the testing requirements of Section 4.3, "Limitations," are met. The power levels also may be adjusted with permission from the SD Test Coordinator.
1. Test Condition 1 is at rated temperature and pressure conditions, prior to placing the unit on line, and at a core thermal power adequate to perform HPCI and RCIC operability testing. If HPCI and RCIC testing is to be performed with the generator on-line rather than prior to placing the generator on-line, Test Condition 1 will be combined with Test Condition 3.
  2. Test Condition 2, approximately 14% Core Thermal Power (CTP), is held for only for the time to gather a data set. Test Condition 3, approximately 18% CTP, is held for 6 hours. Test Condition 4, approximately 35% CTP, is held for 6 hours. Turbine Valve Testing is performed for the first time at Test Condition 4.
  3. Test Condition 5, approximately 56% CTP, is held for 2 hours, after which power is dropped to Test Condition 6, approximately 50% CTP, to perform a Control Rod Pattern Adjustment.
  4. Starting at Test Condition 6 until Test Condition 19, approximately 75% CTP, each power level change is an approximately two percent CTP increase. The two percent increase is over a one-hour period, with the actual increase taking place within the first 15 minutes of each period. Test Data is then obtained during the remainder of each period.
  5. Power is held steady at Test Condition 19 for 8 hours, after which power is decreased to Test Condition 20, approximately 60% CTP, to perform another Control Rod Pattern Adjustment. Steam Dryer data acquisition is performed at these two power levels.
  6. Starting at Test Condition 20 until Test Condition 33, approximately 85% CTP, each power level change is an approximately two percent CTP increase. The two percent increase is over a one-hour period, with the actual increase taking place within the first 15 minutes of each period. Test Data is then obtained during the remainder of each period.
  7. Power level is held at Test condition 33 (the pre-EPU 100% CTP level of 2511 MWt), for approximately 24 hours, during which time the results of a review of the Steam Dryer data collected to this point are presented to Station Senior Management. Authorization from Senior Management is obtained prior to increasing power above 2511 MWt.

8. Starting at Test Condition 34, approximately 87% CTP, until Test Condition 41, approximately 100% CTP, each power level change is an approximately two percent CTP increase. The two percent increase is over a four-hour period, with the actual increase taking place within the first 15 minutes of each period. Test Data is then obtained during the remainder of each period.
  9. Power level is held at Test Condition 41 for approximately 9 hours to gather data, after which power is lowered to 912 MWe.
- 1.3.8. Data and test results are reviewed and analyzed against pre-established limits and acceptance criteria. The results of the review are presented to the **STEAM DRYER TEST COORDINATOR** where concurrence to proceed to the next higher power is requested. Additionally, prior to increasing power to each Test Condition above 2511 MWt, authorization from the Plant Manager or his designee is also obtained.
  - 1.3.9. The **STEAM DRYER TEST COORDINATOR**, with concurrence by the **SHIFT MANAGER**, has the authority to NA steps based on plant conditions and shall note the justification in Log 10.2, "Exceptions Index."

## 2. MATERIAL AND SPECIAL EQUIPMENT

- 2.1 GE Nuclear Energy Data Acquisition System
- 2.2 Yokogawa DL750 Data Recorders
- 2.3 Portable Vibration Meter
- 2.4 Portable Pyrometer

## 3. RESPONSIBILITIES

### 3.1. Unit Supervisor

The **UNIT SUPERVISOR** has authority for the overall performance of this test and the safe operation of the Unit. He maintains the "Big Picture."

- The **STEAM DRYER TEST COORDINATOR** reports to the **UNIT SUPERVISOR**, is responsible for test execution, and provides an interface with appropriate levels of plant management.
- The **STEAM DRYER TEST COORDINATOR** does not provide direction to any Licensed Operators.
- All remaining personnel involved in the performance of this test report to the **STEAM DRYER TEST COORDINATOR**.

### 3.2. Site Steam Dryer Project Manager

The **SITE STEAM DRYER PROJECT MANAGER** has overall responsibility for assuring the successful completion of many activities to enable the Site to operate safely up to 2957 MWt, with the replacement Steam Dryer in place. Specifically with respect to this Temporary Procedure the **SITE STEAM DRYER PROJECT MANAGER** shall:

- **ASSURE** that plant physical modifications or work orders required for Steam Dryer replacement have been satisfactorily completed and that there are no exceptions, which affect the ability of the plant to support power ascension testing and operation at 2957 MWt.
- **ASSURE** that Regulatory Commitments related to Steam Dryer operation have been completed **or, if they involve testing, then they are incorporated** herein.

### 3.3. Steam Dryer Test Coordinator

The **STEAM DRYER TEST COORDINATOR** has the following **duties and responsibilities** with respect to the activities being controlled by this Temporary Procedure.

- **MAINTAINS** administrative and physical control of this Temporary Procedure.
- **COORDINATES** the activities requiring completion by this Temporary Procedure to assure they are completed in a timely manner.
- **MAINTAINS** technical control of this Temporary Procedure **and is AUTHORIZED** to make changes to the system and equipment acceptance limits following an engineering evaluation that justifies the change.
- **ASSURES** this Temporary Procedure is updated and maintained current with work and testing activities controlled by this Temporary Procedure.
- **PRESENTS** the power ascension test results to Station Management following completion of power ascension up to 2511 MWt.
- **REVIEWS** exceptions to this Temporary Procedure **and EXPEDITES** their resolution if they affect power ascension testing as required by this Temporary Procedure.
- **AUTHORIZES** the next step in power ascension up to 2511 MWt if test data results meet the Acceptance Criteria **or** Exceptions to Acceptance Criteria have been reconciled.
- **ADDS** additional equipment performance monitoring data collection at any time during the performance of this Temporary Procedure, **if necessary**.
- **OBTAINS** Plant Manager or designee approval for each power ascension step above 2511 MWt.
- **ASSURES** that Shift Personnel are knowledgeable of test activities being controlled and performed by this Temporary Procedure.



3.4. Data Taker or Verification Person

**DATA TAKER OR VERIFICATION PERSON** is any individual who takes system and equipment performance data, reviews data or verifies the accuracy of data, transfers data or verifies the data satisfies Test Criteria. This person may be any individual who by their position has the knowledge, experience or expertise to perform the specific activity required by the Temporary Procedure.

3.5. Responsible System Engineer

**RESPONSIBLE SYSTEM ENGINEER** has the authority to change system and equipment acceptance limits in conjunction with the **STEAM DRYER TEST COORDINATOR**.

4. PREREQUISITES, PRECAUTIONS, AND LIMITATIONS

4.1. Prerequisites

4.1.1. Quad Cities Station Management shall assign **STEAM DRYER TEST COORDINATOR(S)** to perform the duties as required by this Temporary Procedure.

Assigned: \_\_\_\_\_ Assigned: \_\_\_\_\_  
Steam Dryer Test Coordinator Steam Dryer Test Coordinator

Assigned By: \_\_\_\_\_  
Site Steam Dryer Project Mgr

4.1.2. **STEAM DRYER TEST COORDINATOR** shall assign **DATA TAKERS / VERIFICATION PERSONS** to be responsible for the data required by this Temporary Procedure, and shall log their names in Log 10.3, "Data Package Attachments." Changes in data taking responsibilities shall also be logged in Log 10.3 as they occur.

Assigned By: \_\_\_\_\_  
Steam Dryer Test Coordinator

4.1.3. **Perform** an Infrequent Plant Activity (IPA) briefing involving Senior Line Management in accordance with procedure HU-AA-1211, "Briefings, - Pre-job, Heightened Level of Awareness, Infrequent Plant Activity and Post-Job Briefings."

Completed By: \_\_\_\_\_  
Steam Dryer Test Coordinator

4.1.4. Steam Dryer – Related Modifications and Work Orders:

These modifications or parts replacement have been installed in accordance with design engineering requirements. Applicable post maintenance or modification testing has been sufficiently completed and procedures revised as required. Operations has accepted the modified system and there are no exceptions which preclude power ascension testing or power operation above 2511 MWt. This allows the possibility that some of these modifications or parts replacement may be tested at power as part of this test or separately. The **SITE STEAM DRYER PROJECT MANAGER (SDPM)** or **STEAM DRYER TEST COORDINATOR (SDTC)** may sign verification for these steps.

1. Replace Unit 2 Reactor Vessel Steam Dryer EC 351168  

Verified \_\_\_\_\_ / \_\_\_\_\_  
SDPM or SDTC      Date
  
2. Install New Circuit Breakers to Support EPU Response Time EC 352322  

Verified \_\_\_\_\_ / \_\_\_\_\_  
SDPM or SDTC      Date
  
3. Upgrade Target Rock SRV WO 741114  

Verified \_\_\_\_\_ / \_\_\_\_\_  
SDPM or SDTC      Date
  
4. Install Data Acquisition System, Cabling, and Sensors Required to Support Dryer Replacement EC 353006  

Verified \_\_\_\_\_ / \_\_\_\_\_  
SDPM or SDTC      Date

4.1.5. Additional desired plant equipment or system monitoring requirements, solicited from Systems Engineers and from Review of EPU Vulnerability Study have been incorporated into appropriate Test Condition planned activities.

Verified \_\_\_\_\_ / \_\_\_\_\_  
SD Test Coordinator      Date

4.1.6. Final Report for Pressure Sensing Mounting Bracket Correction Factors has been issued and Acceptance Criteria values have been adjusted as necessary.

Verified \_\_\_\_\_ / \_\_\_\_\_  
SD Test Coordinator      Date

4.1.7. Final Report for Steam Dryer Instrumentation Acceptance Criteria has been issued and incorporated into this Temporary Procedure.

Verified \_\_\_\_\_ / \_\_\_\_\_  
SD Test Coordinator      Date

4.1.8. Q2P03 Startup Power Ascension Plan has been provided to Exelon Energy Delivery/Transmission System Operations. Ensure that PD 0P050040 by Transmission Planning for stability protection is complete.

Verified \_\_\_\_\_ / \_\_\_\_\_  
David Haberkorn      Date  
Switchyard Modifications Project Manager

4.1.9. Data Acquisition System, EPU Vibration Monitoring, and Pressure Transducer & Turbine Control Valve Position Instrumentation Systems were successfully functionally checked during the prior-to-startup Reactor Vessel and Piping Leak Test.

Verified \_\_\_\_\_ / \_\_\_\_\_  
SD Test Coordinator      Date

4.1.10. Operations has developed an Adverse Condition Monitoring Plan for the reactor and plant parameters (i.e. reactor pressure, reactor level, main steam line flows and steam flow versus feed flow mismatch) in accordance with OP-AA-108-111.

Verified \_\_\_\_\_ / \_\_\_\_\_  
SD Test Coordinator      Date

4.1.11. Replacement Steam Dryer Training Completed.

The required training to operate the plant under EPU conditions, with the replacement Steam Dryer in place, has been conducted. This prerequisite does not pertain to any particular Just-in-Time training Operations Management chooses to conduct for Operations personnel performance of the refuel outage startup fragnet or power ascension testing.

Evaluation Comments (if none, enter none in the space provided):

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Verified \_\_\_\_\_ / \_\_\_\_\_  
Shift Operations Supt Date

4.1.12. NRC Commitments

Throughout the Quad Cities Replacement Steam Dryer Project, commitments may have been made to the NRC. If made, these commitments were tracked via Corporate Licensing, and the items requiring completion have been completed or will be upon completion of the activities controlled by this Temporary Procedure.

Evaluation Comments (if none, enter none in the space provided):

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Verified \_\_\_\_\_ / \_\_\_\_\_  
Steam Dryer Project Mngr Date

4.1.13. Temporary Modifications Review

The Temporary Modification Log has been reviewed and all installed Temporary Modifications have been evaluated for their impact on this Power Ascension Test and EPU operation with the replacement Steam Dryer in place, and have been found acceptable. Exceptions requiring action shall be listed below.

Evaluation Comments (if none, enter none in the space provided):

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Verified \_\_\_\_\_ / \_\_\_\_\_  
SD Test Coordinator      Date

4.1.14. Procedure Review and Issuance

The Replacement Steam Dryer Project and other Outage Activities have resulted in the completion of many EC's. These changes may have affected many of the Site procedures.

Procedures required for startup testing and power ascension have been issued and distributed for plant usage.

Evaluation Comments (if none, enter none in the space provided):

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Verified \_\_\_\_\_ / \_\_\_\_\_  
Steam Dryer Project Mngr      Date

4.1.15. 10 CFR 50.59 Evaluations Review

10 CFR 50.59 Evaluations for work in progress and 10 CFR 50.59 Evaluations completed but not yet included in the UFSAR have been reviewed for required changes due to EPU operation with the replacement Steam Dryer in place.

Evaluation Comments (if none, enter none in the space provided):

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Verified \_\_\_\_\_ / \_\_\_\_\_  
Engineering Supervisor      Date

4.1.16. Equipment Clearance Orders

The plant equipment has been reviewed and any equipment that is Out-Of-Service that can affect the ability of the plant to support power ascension testing has had its plant impact evaluated and found acceptable for power increase. It is acceptable to take credit for the Lead Unit Planner's Start-Up Directive's, QCGP 1-1 Attachment B, provided this Temporary Procedure is being performed soon after start-up. Exceptions requiring action shall be listed below by exception number and shall be annotated in Log 10.2, "Exceptions Index."

Evaluation Comments (if none, enter none in the space provided):

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Verified \_\_\_\_\_ / \_\_\_\_\_  
SD Test Coordinator      Date

4.1.17. Equipment Status Tags

Equipment Status Tags have been reviewed and any equipment that has a tag attached that can affect the ability of the plant to support power ascension testing has had its plant impact evaluated and found acceptable for power increase. It is acceptable to take credit for the Lead Unit Planner's Start-up Directive's, QCGP 1-1 Attachment B provided this Temporary Procedure is being performed soon after start-up. Exceptions requiring action shall be listed below by exception number and shall be annotated in Log 10.2, "Exceptions Index."

Evaluation Comments (if none, enter none in the space provided):

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Verified \_\_\_\_\_ / \_\_\_\_\_  
SD Test Coordinator Date

4.1.18. Issue Report Verification

Issue Reports have been reviewed before continuing the power increase above 2511 MWt. The verification must determine whether any issues exist that would preclude the continuation of the power ascension above 2511 MWt. Exceptions requiring action shall be listed below by exception number and shall be annotated in Log 10.2, "Exceptions Index."

Evaluation Comments (if none, enter none in the space provided):

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Verified \_\_\_\_\_ / \_\_\_\_\_  
SD Test Coordinator Date

4.1.19. Authorization for Power Ascension up to 2511 MWt and operating within the MELLA Region of the Power/Flow Map

The requirements of Section 4.1, "Prerequisites," of this Temporary Procedure have been completed and any exceptions have been evaluated and found acceptable for commencement of power ascension up to 2511 MWt and Senior Management's approval has been obtained. Separate Senior Management approval will be obtained again for power ascension above 2511 MWt.

Authorized by:

Regulatory Assurance Manager

\_\_\_\_\_  
(Signature / Date)

Steam Dryer Test Coordinator

\_\_\_\_\_  
(Signature / Date)

Engineering Director

\_\_\_\_\_  
(Signature / Date)

Operations Director

\_\_\_\_\_  
(Signature / Date)

Plant Manager

\_\_\_\_\_  
(Signature / Date)

4.2. Precautions

4.2.1. This Temporary Procedure provides for power ascension during the Fuel Pre-Conditioning Operating Region to occur in 2 percent power increments. This is to be accomplished by increasing core flow along a constant rod line to the best extent possible. It is recognized that some minor rod adjustments may be necessary to achieve 100% power. Above 85% power, no rod movements will be made which increase power above the previous maximum tested power.

4.2.2. All reactor power levels given in percent are a percentage of the Licensed Power Uprate (LPU) value of 2957 MWt. The step increases in power of 2% will be performed as 20 MWe steps, which corresponds to 60 MWt  $\pm$  20 MWt.

4.2.3. Section 6, "Main Body," contains separate steps for each increase in power level. Each step shall be completed in order (step 6.1 before step 6.2 before step 6.3 ... etc). Each sub-step requires the collection and evaluation of system and equipment performance data. Data collection and evaluation may be performed in any order within that particular power level.

4.2.4. System and equipment performance shall be closely monitored to assure that operating limits are not exceeded and test criteria are met. In addition to equipment monitoring related to the replacement Steam Dryer modification, monitoring of



equipment affected by other modifications installed during Q2P03, and monitoring of equipment previously discovered to be vulnerable at EPU conditions, is also necessary. Additionally, plant systems and equipment in general are monitored in accordance with normal operating procedures, annunciators, computer alarms, round sheets, etc.

#### 4.3. Limitations

- 4.3.1. This power ascension test procedure provides requirements for monitoring, reviewing and evaluating steam dryer performance data, key reactor and plant parameters, Main Steam Line strain gage data and vibration data during HPCI and RCIC testing prior to placing the Main Generator on line, and during power ascension to the pre-EPU power level of approximately 2511 MWt. This Temporary Procedure also provides for data collection during power ascension from approximately 2511 MWt to the licensed EPU power level of approximately 2957 MWt.
- 4.3.2. Short-term operation at EPU licensed power will be maintained for a **minimum** of 5 hours to a **maximum** of 8 hours for the purpose of collecting data and checking moisture carryover values, after which time power will be returned to 912 MWe, which is the limiting power level of the current Main Generator Stability Study.
- 4.3.3. The **PLANT MANAGER** or his designee shall **AUTHORIZE** each power ascension step above 2511 MWt.
- 4.3.4. A Data Acquisition System (DAS) was installed under temporary configuration change 350831. Inputting into this DAS are the Steam Dryer accelerometers, strain gages, and pressure sensors. Also inputting into the DAS are MSL strain gages from locations within the Primary Containment. DAS data acquisition will be performed during power ascension to the pre-EPU power level of approximately 2511 MWt, and then from 2511 MWt to short term operation at licensed EPU power. DAS data shall be recorded after stable power operation is achieved at each established test condition during power ascension to licensed EPU power.
- 4.3.5. Vibration Monitoring of the four Electromagnetic Relief Valves, Target Rock Valve, B Main Steam Isolation Valve, B Main Steam Line, and the HPCI 2301-4 valve actuator was installed as part of the EPU Main Steam Line Vibration Evaluation. Strain gages were also installed on the B MSL upstream of the E ERV, and on the B ERV. Data acquisition/recording of vibration and strain gage data will be performed during power ascension to the pre-EPU power level of approximately 2511 MWt, and then from 2511 MWt to short term operation at licensed EPU power. Vibration data shall be recorded after stable power operation is achieved at each established test condition during power ascension to licensed EPU power.
- 4.3.6. If any strain gage, pressure sensor or accelerometer becomes nonfunctional during power ascension, then the **STEAM DRYER TEST COORDINATOR** will **DETERMINE** the acceptability of continued monitoring with the loss of that instrument.

- 4.3.7. Pressure transducers have been installed on the Upper 400 Inch Reactor Water Level LT reference leg, (+) 48 Inch A & B RFP & Turbine Trip LITS reference leg, and A, B, C and D MSL venturi upstream taps. These transducers feed into digital data recorders. Position indication of the four Turbine Control Valves (CV) has also been inputted into the recorders. Pressure and CV position will be recorded during power ascension to the licensed EPU Power level of approximately 2957 MWt. The data collected will be used for future evaluations and comparisons.
- 4.3.8. Engineering shall **RECORD and EVALUATE** key reactor and plant parameters (i.e. reactor pressure, reactor level, feedwater flows, main steam line flows, steam flow versus feed flow mismatch, 25 point moving average for steam flow deviation and 25 point moving average for steam flow) after stable plant operation has been achieved for a minimum of one hour at the pre-EPU power level of approximately 2511 MWt, and at short term operation at licensed EPU power.
- 4.3.9. **MONITORING** of reactor and plant parameters (i.e. reactor pressure, reactor level, main steam line flows and steam flow versus feed flow mismatch) shall be **PERFORMED** hourly starting at approximately 2511 MWt by Operations in accordance with OP-AA-108-111.
- 4.3.10. Moisture carryover measurements shall be taken in accordance with CY-QC-120-502, "Reactor Water Carryover and Powder Demin Radioactive Removal Efficiency,"
1. **After** stable plant operation has been achieved for a **minimum** of 3.5 hours at Test Condition 37 (approximately 93% power);
  2. **After** stable plant operation has been achieved for a **minimum** of five hours at Test Condition 19 (approximately 75% power) at Test Condition 33 (approximately 85% power), at Test Condition 41 (licensed EPU power); and
  3. Daily in accordance with CY-QC-110-637, "Schedule of Surveillance Requirements."
- 4.3.11. If unexplained Moisture Carryover is > 0.1%, then the Station Duty Team shall be **CONTACTED** for resolution and the power ascension halted. If a sample confirmation taken 24 hours after the first sample is still > 0.1% and sample contamination is ruled out and if reasonable assurance of dryer structural integrity cannot be confirmed, then **POSITIVE ACTIONS** will be taken to further reduce reactor power up to and including reactor shutdown.
- 4.3.12. The reaching of any Abort Criteria or any unexplained change in reactor and plant parameters, Steam Dryer sensor levels, MSL and valve strain gage or vibration levels, or moisture carryover must be **DOCUMENTED** by the initiation of an Issue Report (IR). The Corrective Action Program will control resolution of the condition.
- 4.3.13. If data collected as part of Data Sets possessing Level 1 or Level 2 Acceptance Criteria are suspected to be erroneous, then an Issue Report shall be **INITIATED** and **ENGINEERING** shall **RESOLVE** the Issue. If the erroneous data resulted in a

Level 1 Acceptance Criteria being exceeded, then **PLANT MANAGER/Designee Approval** of the Issue Resolution shall be **OBTAINED**.

- 4.3.14. If any unexpected plant perturbations occur (e.g. relay chatter) during power ascension from 2511 MWt to approximately 2957 MWt that could adversely affect the safe operation of the unit, then **REQUEST** operations to **REDUCE POWER** and **RETURN** the plant to the last known acceptable operating configuration. An IR shall be **GENERATED**.
- 4.3.15. After each increase in plant power level by the steps in this Temporary Procedure, an approximate 45 minute period below 2511 MWt, and an approximate 3 hour and 45 minutes period above 2511 MWt will occur during which system and equipment performance data is recorded. During this data collection period the plant shall be **MAINTAINED** in as stable a condition as is possible ( i.e. no condensate demineralizer change outs, pump swap-over, etc.) until data collection has been completed.
- 4.3.16. Upon completion of data collection and during the soak period until the next step in power ascension, reactor power shall be **MAINTAINED** and shall not **EXCEED** the level required by the last step increase in accordance with station operating procedures and shift instructions.
- 4.3.17. When raising power above a previously tested condition for the first time, the power maneuver shall be **MADE** using reactor recirculation flow. If control rod withdrawal is desired to adjust the flow control line, a power reduction to a known tested condition shall be **PERFORMED** first.
- 4.3.18. Computer printouts containing performance data shall be **ATTACHED** to their respective Data Sheet and **LOGGED** in Log 10.3, "Data Package Attachments."
- 4.3.19. Computer program OD5 determines reactor thermal power for license compliance and is used for recording reactor thermal power as required by this Temporary Procedure.
- 4.3.20. The Start-Up Test standard for later model BWRs allows the 100% test condition to be met provided at least 95% of rated thermal power and 95% of rated core flow are achieved. The Power Ascension portion of this test is considered successfully completed when this condition is met.
- 4.3.21. The Main Generator gross output limit is determined by the Main Generator Capability Curve contained in QCGP 3-1"Reactor Power Operations." This relates to 960 MVA with the maximum MVAR loading at 300 MVARs and a power factor of 0.95. At these conditions the Generator will be limited to 912 MWe. Additionally, the Station is limited by the Interconnect grid study, which assumes a maximum net output of 1734 MWe from the Site. Therefore, it is possible to safely exceed 912 MWe output by use of this Temporary Procedure from the Unit 2 Generator provided the Capability Curve requirements are met and power output from Unit 1 is reduced to maintain the net total output at less than 1734 MWe.

- 4.3.22. All Plant maneuvers and operation shall be **PERFORMED** in accordance with applicable Quad Cities procedures per the existing command and control authority as defined in the Station Administrative Procedures, **including** power changes in accordance with QCGP 3-1, "Reactor Power Operations."
- 4.3.23. If Differences **should** arise between this Procedure and Vender-Supplied Reference Documents, **then** this Procedure shall Rule.
- 4.3.24. Abort Criteria
1. If unexpected plant conditions occur during the performance of this Temporary Procedure, **then STOP** the test. If testing is stopped due to adverse plant conditions or at the order of the **UNIT SUPERVISOR**, **then REQUEST** operations to **REDUCE POWER** and **RETURN** the plant to the last known acceptable operating configuration.
  2. The **STEAM DRYER TEST COORDINATOR** may suspend testing if system **and/or** equipment performance does not exhibit predictable behavior in compliance with design expectations.
  3. If power ascension is suspended for any reason, **then** the date and time of the suspension along with an explanation for the suspension **shall be ENTERED** into Log 10.2, "Exception Index," and signed by the **STEAM DRYER TEST COORDINATOR**. Following correction of the reason for suspension, **then** the **STEAM DRYER TEST COORDINATOR** by written instruction on the Exception Index, with concurrence from the **SHIFT MANAGER**, shall **AUTHORIZE** restart of power ascension testing. These instructions shall identify the step within this Temporary Procedure from which restart commences. If a step within the Temporary Procedure is to be repeated, **then** copies of the applicable pages **shall be ATTACHED** (and identified as such on the exception page and attachment index page) **and COMPLETED** in the same manner as the original step of the test.
  4. Notify the **UNIT SUPERVISOR** immediately when:
    - A procedure step cannot be successfully completed.
    - Recorded data fails to meet the Acceptance Criteria.
    - Any abnormality is noted in System or Equipment operating performance.

4.3.25. Authorization for Power Ascension above 2511 MWt and operating within the MELLA Region of the Power/Flow Map

The results of data collection during the Power Ascension steps up to and including 2511 MWt have been reviewed, including any exceptions, and are acceptable for power ascension above 2511 MWt. In addition to the Authorizing Signatures obtained below, **Plant Manager or Designee Authorization will be OBTAINED** for each Power Ascension Step above 2511 MWt.

Authorized by:

Regulatory Assurance Manager	_____
	(Signature / Date)
Steam Dryer Test Coordinator	_____
	(Signature / Date)
Engineering Director	_____
	(Signature / Date)
Operations Director	_____
	(Signature / Date)
Plant Manager	_____
	(Signature / Date)

5. **PERFORMANCE ACCEPTANCE CRITERIA**

5.1. **General**

**Any change other than Editorial Changes to the methodology described in Section 5 of this procedure must be approved by PORC.**

5.1.1. **LEVEL 1 TEST CRITERIA could be associated with plant safety.**

1. **If a LEVEL 1 TEST CRITERION LIMIT is not satisfied, then the plant shall be PLACED in a known safe condition based on prior testing.**
2. **An Issue Report shall be INITIATED.**
3. **RESOLUTION of the Issue must be immediately pursued by equipment adjustments or through engineering evaluation as appropriate. Following resolution, the applicable test portion must be repeated to verify that the Level 1 requirement is satisfied. A description of the Issue, its resolution and successful completion of the test must be documented within this Temporary Procedure.**
4. **The STEAM DRYER TEST COORDINATOR may not change LEVEL 1 TEST CRITERION LIMITS.**

- 5.1.2. **LEVEL 2 TEST CRITERIA** are usually associated with design expectations of system performance.
1. If a **LEVEL 2 TEST CRITERION LIMIT** is **not** satisfied, then plant operation or test plans would **not** necessarily have to be altered.
  2. An Issue Report shall be **INITIATED**.
  3. The **STEAM DRYER TEST COORDINATOR** with concurrence from the **PLANT MANAGER** can authorize continuation of this test.
  4. The **STEAM DRYER TEST COORDINATOR** may change **LEVEL 2 TEST CRITERION LIMITS**.
- 5.1.3. **PLANT EQUIPMENT ACCEPTANCE LIMITS** are normally alarm points or established equipment operating limitations based upon historical performance data. These Limits are identified in the body of the spreadsheet that is used to capture the Plant Performance data.
1. When a **PLANT EQUIPMENT ACCEPTANCE LIMIT** is exceeded, then the **STEAM DRYER TEST COORDINATOR** shall **INITIATE** an investigation of the problem and **INITIATE** corrective action(s) for resolution.
  2. The **SYSTEM ENGINEER** with concurrence from the **STEAM DRYER TEST COORDINATOR** and **SHIFT MANAGER** has the authority to revise **PLANT EQUIPMENT ACCEPTANCE LIMITS** within this test.
- 5.2. EPU Vibration Monitoring Instrumentation Acceptance Criteria
- 5.2.1. EPU Vibration Monitoring Instrumentation Acceptance Criteria have been incorporated into Attachment 9.2, "EPU Vibration Monitoring Instrumentation Data Sheet."
- 5.3. Data Acquisition System (DAS) Instrumentation Acceptance Criteria
- 5.3.1. DAS Instrumentation Acceptance Criteria have been incorporated into Attachment 9.3, "Data Acquisition System Instrumentation Data Sheet."
- 5.4. Individual Equipment Vibration Monitoring Acceptance Criteria
- 5.4.1. Individual Equipment Vibration Monitoring Acceptance Criteria have been incorporated into Attachment 9.4, "Equipment Vibration Monitoring Utilizing Hand Held M&TE."
- 5.5. Core Performance Monitoring Acceptance Criteria
- 5.5.1. Core Performance Monitoring Acceptance Criteria have been incorporated into Attachment 9.5, "Core Performance Monitoring Data Sheet."

5.6. Turbine Valve Testing Acceptance Criteria

5.6.1. Turbine Valve Testing Acceptance Criteria have been incorporated into Attachment 9.6, "Turbine Valve Testing."

5.7. Steam Dryer Moisture Carryover Acceptance Criteria

5.7.1. Steam Dryer Moisture Carryover Acceptance Criteria have been incorporated into Attachment 9.7, "Steam Dryer Moisture Carryover Data Sheet."

5.8. System and Equipment Performance Acceptance Criteria

5.8.1. System and Equipment Performance Acceptance Criteria have been incorporated into Attachment 9.8, "System and Equipment Performance Data Sheet."

5.9. Manually Logged Control Room and Plant Readings Acceptance Criteria

5.9.1. Manually Logged Control Room and Plant Readings Acceptance Criteria have been incorporated into Attachment 9.9, "Manually Logged Control Room and Plant Readings."

5.10. Reactor Parameters Acceptance Criteria:

5.10.1. Reactor Parameters Acceptance Criteria have been incorporated into Attachment 9.10, "Reactor Parameters Data Sheet."

5.11. Pressure Transducer & Turbine Control Valve Position Acceptance Criteria:

5.11.1. Pressure Transducer & Turbine Control Valve Position Acceptance Criteria have been incorporated into Attachment 9.11, "Pressure Transducer & Turbine Control Valve Position Data Sheet."

6. MAIN BODY

6.1. General Instructions

6.1.1. Activities that recur at different Test Conditions are listed on Log 10.1, "Evaluation and Completion Signoff."

1. Test Condition Steps that follow, that have activities listed on Log 10.1, also have a Log 10.1 Completion signoff.
2. **When** all Log 10.1 activities required for a particular Test Condition are complete, **then** the **STEAM DRYER TEST COORDINATOR** shall **SIGN** and **DATE** the corresponding Test Condition sub-step signoff.

- 6.1.2. Unique Activities relating to particular Test Conditions are identified in Test Condition sub-steps, along with corresponding signoffs.
1. **When each Unique Activity is complete, then the STEAM DRYER TEST COORDINATOR shall SIGN and DATE** the corresponding Test Condition sub-step signoff.
- 6.1.3. For all Test Conditions above 2511 MWt, the **STEAM DRYER TEST COORDINATOR shall OBTAIN PLANT MANAGER/Designee** authorization to proceed.
- 6.1.4. **When all Activities for a particular Test Condition are complete, then the STEAM DRYER TEST COORDINATOR shall SIGN and DATE** the Authorization to proceed to the next Test Condition.
- 6.1.5. **RECORD** the initial Data Acquisition System (DAS) and Digital Recorder Channel Numbers on the Master Copy of Attachments 9.2, 9.3, and 9.11. **If DAS or Digital Recorder Channel Inputs are required to be re-configured during the testing period for any reason, then MAKE pen-and-ink changes to the appropriate attachments and DOCUMENT** the reasons for the re-configuration in Log 10.2, "Exceptions Index"



6.2. Test Condition 1 Baseline and HPCI & RCIC Testing

6.2.1. **When Reactor Pressure reaches 920 psig during the initial reactor heat up, then BALANCE and CALIBRATE** the Steam Dryer and MSL Strain Gage channels. When the reactor reaches elevated temperature (~> 500 deg F), there is a possibility that the bridge may not balance because of the unequal resistance between active and dummy resistors. If the amplifier cannot balance the difference, it will be necessary to install balance resistors on the PC boards. GE will direct the necessary actions.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

NOTE: Coordinate the gathering of EPU Vibration Monitoring Instrumentation, Steam Dryer DAS Instrumentation and Pressure Sensor & TCV Position Instrumentation data to coincide with the HPCI & RCIC Testing. If HPCI & RCIC Testing are to be performed after the unit is on-line, this test condition can be moved to that condition.

6.2.2. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2, during **both HPCI Testing and RCIC Testing**. **IDENTIFY** the Attachment 9.2 as related to **either HPCI Testing or RCIC Testing**.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.2.3. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3, during both HPCI Testing and RCIC Testing. **IDENTIFY** the Attachment 9.3 as related to either HPCI Testing or RCIC Testing.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.2.4. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11, during both HPCI Testing and RCIC Testing. **IDENTIFY** the Attachment 9.11 as related to either HPCI Testing or RCIC Testing.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.2.5. If HPCI / RCIC High Pressure Testing is required, then:

1. **PERFORM** QCOS 2300-05, "Quarterly HPCI Pump Operability Test"

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

2. **PERFORM** QCOS 1300-05, "Quarterly RCIC Pump Operability Test"

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.3. Test Condition 2                      14.4 %                      426 MWt

6.3.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.3.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.3.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.4. Test Condition 3                      17.5 %                      517 MWt

6.4.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.4.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.4.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.4.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.5. Test Condition 4                      34.9 %                      1033 MWt

NOTE: Coordinate the gathering of EPU Vibration Monitoring Instrumentation, Steam Dryer DAS Instrumentation and Pressure Sensor & TCV Position Instrumentation data to coincide with the Turbine Valve Testing.

6.5.1. While performing Turbine Valve Testing, **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2. **IDENTIFY** the Attachment 9.2 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.5.2. While performing Turbine Valve Testing, **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3. **IDENTIFY** the Attachment 9.3 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.5.3. While performing Turbine Valve Testing, **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11. **IDENTIFY** the Attachment 9.11 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.5.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.5.5. Turbine Valve Testing

1. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," to stroke Main Stop Valve (M.S.V.) #1.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

2. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," to stroke Combined Intermediate Valve (CIV) #1.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

3. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," for Bypass Valve #1.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

4. Perform the applicable steps of QOS 5600-01, "Turbine Control Valve Fast Closure (Load Reject) Scram Circuit Functional Test," to test Turbine Control Valve #1 (CV-1).

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

5. Evaluate the results using Attachment 9.6 and record the decision to perform any of the tests again at the next power level plateau. (enter results/decision)

\_\_\_\_\_  
\_\_\_\_\_

6. Requirements of Attachment 9.6 complete.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.6. Test Condition 5                      55.5 %                      1640 MWt

6.6.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.6.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.6.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.6.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.7. Test Condition 6                      49.9 %                      1476 MWt

6.7.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.7.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.7.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.7.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.8. Test Condition 7                      52.1 %                      1542 MWt

6.8.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.8.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.8.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.8.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.9. Test Condition 8                      54.3 %                      1607 MWt

6.9.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.9.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.9.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.9.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.10. Test Condition 9 56.5 % 1672 MWt

6.10.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.10.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.10.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.10.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.11. Test Condition 10 58.8 % 1738 MWt

6.11.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.11.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.11.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.11.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.12. Test Condition 11                      60.5 %                      1790 MWt

6.12.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.12.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.12.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.12.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.13. Test Condition 12                      62.4 %                      1846 MWt

6.13.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.13.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.13.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.13.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date



6.14. Test Condition 13                      64.3 %                      1903 MWt

6.14.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.14.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.14.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.14.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.15. Test Condition 14                      66.2 %                      1959 MWt

6.15.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.15.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.15.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.15.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.16. Test Condition 15                      68.2 %                      2016 MWt

6.16.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.16.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.16.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.16.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.17. Test Condition 16                      70.1 %                      2072 MWt

6.17.1. **OBTAIN** Data Set from EPU Vibration Monitoring DS instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.17.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.17.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.17.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.18. Test Condition 17                      72.0 %                      2128 MWt

6.18.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.18.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.18.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.18.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.19. Test Condition 18                      73.4 %                      2180 MWt

6.19.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.19.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.19.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.19.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.20. Test Condition 19 75.3 % 2228 MWt

NOTE: Coordinate the gathering of EPU Vibration Monitoring Instrumentation, Steam Dryer DAS Instrumentation and Pressure Transducer & Turbine Control Valve Position Instrumentation data to coincide with the Turbine Valve Testing.

6.20.1. While performing Turbine Valve Testing, **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2. **IDENTIFY** the Attachment 9.2 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.20.2. While performing Turbine Valve Testing, **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3. **IDENTIFY** the Attachment 9.3 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.20.3. While performing Turbine Valve Testing, **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11. **IDENTIFY** the Attachment 9.2 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.20.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.20.5. Turbine Valve Testing

1. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," to stroke Main Stop Valve (M.S.V.) #2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

2. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," to stroke Combined Intermediate Valve (CIV) #2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

3. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," for Bypass Valve #2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

4. Perform the applicable steps of QOS 5600-01, "Turbine Control Valve Fast Closure (Load Reject) Scram Circuit Functional Test," to test Turbine Control Valve #2 (CV-2).

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

5. Evaluate the results using Attachment 9.6 and record the decision to perform any of the tests again at the next power level plateau. (enter results/decision)

\_\_\_\_\_  
\_\_\_\_\_

6. Requirements of Attachment 9.6 complete.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

NOTE: Stable plant operation **must be** achieved for a minimum of five hours **before** the data acquisition required by Attachment 9.7 is obtained.

- 6.20.6. **PERFORM** Steam Dryer Moisture Carryover, Attachment 9.7.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

- 6.20.7. **OBTAIN** System and Equipment Performance Data Set, Attachment 9.8.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

- 6.20.8. **OBTAIN** Manually Logged Control Room and Plant Readings Data Set, Attachment 9.9.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.21. Test Condition 20                      60.5 %                      1790 MWt

6.21.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.21.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.21.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.21.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.22. Test Condition 21                      62.4 %                      1846 MWt

6.22.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.22.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.22.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.22.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.23. Test Condition 22                      64.5 %                      1903 MWt

6.23.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.23.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.23.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.23.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.24. Test Condition 23                      66.2 %                      1959 MWt

6.24.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.24.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.24.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.24.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.25. Test Condition 24                      68.2 %                      2016 MWt

6.25.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.25.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.25.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.25.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date



6.26. Test Condition 25                      70.1 %                      2072 MWt

6.26.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.26.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.26.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.26.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.27. Test Condition 26                      72.0 %                      2128 MWt

6.27.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.27.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.27.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.27.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.28. Test Condition 27 73.9 % 2185 MWt

6.28.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.28.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.28.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.28.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.29. Test Condition 28 75.8 % 2241 MWt

6.29.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.29.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.29.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.29.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.30. Test Condition 29 77.7 % 2297 MWt

6.30.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.30.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.30.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.30.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.31. Test Condition 30 79.6 % 2354 MWt

6.31.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.31.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.31.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.31.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.32. Test Condition 31                      81.7 %                      2416 MWt

6.32.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.32.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.32.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.32.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.33. Test Condition 32                      83.8 %                      2479 MWt

6.33.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.33.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.33.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.33.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.34. Test Condition 33                      84.9 %                      2511 MWt

NOTE: Coordinate the gathering of EPU Vibration Monitoring Instrumentation, Steam Dryer DAS Instrumentation and Pressure Transducer & Turbine Control Valve Position Instrumentation data to coincide with the Turbine Valve Testing.

6.34.1. While performing Turbine Valve Testing, **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2. **IDENTIFY** the Attachment 9.2 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.34.2. While performing Turbine Valve Testing, **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3. **IDENTIFY** the Attachment 9.3 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.34.3. While performing Turbine Valve Testing, **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.34.4. **PERFORM** Equipment Vibration Monitoring Utilizing Hand Held M&TE, Attachment 9.4.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.34.5. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.34.6. Turbine Valve Testing

1. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," to stroke Main Stop Valve (M.S.V.) #3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

2. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," to stroke Combined Intermediate Valve (CIV) #3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

3. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," for Bypass Valve #3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

4. Perform the applicable steps of QOS 5600-01, "Turbine Control Valve Fast Closure (Load Reject) Scram Circuit Functional Test," to test Turbine Control Valve #3 (CV-3).

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

5. Evaluate the results using Attachment 9.6 and record the decision to perform any of the tests again at the next power level plateau. (enter results/decision)

\_\_\_\_\_  
\_\_\_\_\_

6. Requirements of Attachment 9.6 complete.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

**NOTE:** Stable plant operation **must be** achieved for a minimum of five hours **before** the data acquisition required by Attachment 9.7 is obtained.

6.34.7. **PERFORM** Steam Dryer Moisture Carryover, Attachment 9.7.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.34.8. **OBTAIN** System and Equipment Performance Data Set, Attachment 9.8.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.34.9. **OBTAIN** Manually Logged Control Room and Plant Readings Data Set, Attachment 9.9.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

**NOTE:** Stable plant operation **must be** achieved for a minimum of one hour **before** the data acquisition required by Attachment 9.10 is obtained.

6.34.10. **PERFORM** Reactor Parameters monitoring, Attachment 9.10.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.34.11. **VERIFY** that Operations has **INITIATED** the Adverse Condition Monitoring Plan for the reactor and plant parameters (i.e. reactor pressure, reactor level, main steam line flows and steam flow versus feed flow mismatch) in accordance with OP-AA-108-111.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.34.12. **PROVIDE** Attachment 9.3 data obtained at Test Condition 33 to Continuum Dynamics, Inc. for analysis.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.34.13. **PROVIDE** Attachment 9.3 data (Main Steam Line Strain Gauge Data) obtained at Test Condition 33 to Exelon Corporate Engineering to benchmark Acoustic Circuit (AC) analysis methods.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.34.14. **AUTHORIZATION** for power ascension above 2511 MWt has been obtained as per Section 4.3, "Limitations," Step 4.3.25 and steps 4.1.18 and 4.1.19.

Authorized: \_\_\_\_\_ / \_\_\_\_\_  
Plant Manager or Designee      Date



6.35. Test Condition 34                      87.0 %                      2574 MWt

6.35.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.35.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.35.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.35.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.35.5. **AUTHORIZATION** for power ascension to Test Condition 35

Authorized: \_\_\_\_\_/\_\_\_\_\_  
Plant Manager or Designee      Date

6.36. Test Condition 35                      89.2 %                      2637 MWt

**NOTE:** Coordinate the gathering of EPU Vibration Monitoring Instrumentation, Steam Dryer DAS Instrumentation and Pressure Transducer & Turbine Control Valve Position Instrumentation data to coincide with the Turbine Valve Testing.

6.36.1. While performing Turbine Valve Testing, **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2. **IDENTIFY** the Attachment 9.2 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.36.2. While performing Turbine Valve Testing, **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3. **IDENTIFY** the Attachment 9.3 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.36.3. While performing Turbine Valve Testing, **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11. **IDENTIFY** the Attachment 9.11 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.36.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.36.5. Turbine Valve Testing

1. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," to stroke Main Stop Valve (M.S.V.) #4.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

2. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," to stroke Combined Intermediate Valve (CIV) #4.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

3. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," for Bypass Valve #4.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

4. Perform the applicable steps of QOS 5600-01, "Turbine Control Valve Fast Closure (Load Reject) Scram Circuit Functional Test," to test Turbine Control Valve #4 (CV-4).

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

5. Evaluate the results using Attachment 9.6 and record the decision to perform any of the tests again at the next power level plateau. (enter results/decision)

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6. Requirements of Attachment 9.6 complete.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

- 6.36.6. OBTAIN System and Equipment Performance Data Set, Attachment 9.8.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

- 6.36.7. OBTAIN Manually Logged Control Room and Plant Readings Data Set, Attachment 9.9.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

- 6.36.8. AUTHORIZATION for power ascension to Test Condition 36

Authorized: \_\_\_\_\_/\_\_\_\_\_  
Plant Manager or Designee Date

- 6.37. Test Condition 36                      91.3 %                      2699 MWt

- 6.37.1. OBTAIN Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

- 6.37.2. OBTAIN Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

- 6.37.3. OBTAIN Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.37.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/  
SD Test Coordinator/Date

6.37.5. **AUTHORIZATION** for power ascension to Test Condition 37

Authorized: \_\_\_\_\_/  
Plant Manager or Designee Date

6.38. Test Condition 37                      93.4 %                      2762 MWt

NOTE: Coordinate the gathering of EPU Vibration Monitoring Instrumentation, Steam Dryer DAS Instrumentation and Pressure Transducer & Turbine Control Valve Position Instrumentation data to coincide with the Turbine Valve Testing.

6.38.1. While performing Turbine Valve Testing, **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2. **IDENTIFY** the Attachment 9.2 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/  
SD Test Coordinator/Date

6.38.2. While performing Turbine Valve Testing, **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3. **IDENTIFY** the Attachment 9.3 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/  
SD Test Coordinator/Date

6.38.3. While performing Turbine Valve Testing, **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11. **IDENTIFY** the Attachment 9.11 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/  
SD Test Coordinator/Date

6.38.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/  
SD Test Coordinator/Date

6.38.5. Turbine Valve Testing

1. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," to stroke Main Stop Valve (M.S.V.) #1.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

2. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," to stroke Combined Intermediate Valve (CIV) #5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

3. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," for Bypass Valve #5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

4. Perform the applicable steps of QOS 5600-01, "Turbine Control Valve Fast Closure (Load Reject) Scram Circuit Functional Test," to test Turbine Control Valve #1 (CV-1).

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

5. Evaluate the results using Attachment 9.6 and record the decision to perform any of the tests again at the next power level plateau. (enter results/decision)

\_\_\_\_\_  
\_\_\_\_\_

6. Requirements of Attachment 9.6 complete.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

NOTE 1: For this Test Condition, stable plant operation **must be** achieved for a minimum of four hours **before** the data acquisition required by Attachment 9.7 is obtained.

NOTE 2: Steam Dryer Moisture Carryover measurements entail another seven-hour period after the four-hour stabilization period prior to obtaining the samples. For this Test Condition, It is not necessary to delay the ascension to the next power level while the samples are being analyzed. Step 6.38.5 can be signed off after samples are obtained, and power ascension can proceed.

6.38.6. **PERFORM** Steam Dryer Moisture Carryover, Attachment 9.7.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.38.7. **OBTAIN** System and Equipment Performance Data Set, Attachment 9.8.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.38.8. **OBTAIN** Manually Logged Control Room and Plant Readings Data Set, Attachment 9.9.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.38.9. **AUTHORIZATION** given for power ascension to Test Condition 38.

Authorized: \_\_\_\_\_/\_\_\_\_\_  
Plant Manager or Designee Date

6.39. Test Condition 38                      95.6 %                      2825 MWt

6.39.1. **OBTAIN** Data Set from EPU Vibration Monitoring instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.39.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.39.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.39.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.39.5. **AUTHORIZATION** for power ascension to Test Condition 39

Authorized: \_\_\_\_\_/\_\_\_\_\_  
Plant Manager or Designee Date

**CAUTION**

Do **not** exceed the Main Generator gross output nominal limit of 912 MWe without either reducing power on Unit 1 to maintain less than 1734 MWe net total output from the Station, or obtaining a revised interconnect agreement allowing a greater total net output.

If neither condition can be met, then **STOP** Power Ascension at 912 MWe, **RECORD** the Power Level in the Exceptions Log, and **PERFORM** a last Data Collection. This last Data collection should include all the Data Sets required at Test Condition 41.

6.40. Test Condition 39                      97.7 %                      2888 MWt

**NOTE:** Coordinate the gathering of EPU Vibration Monitoring Instrumentation, Steam Dryer DAS Instrumentation and Pressure Transducer & Turbine Control Valve Position Instrumentation data to coincide with the Turbine Valve Testing.

6.40.1. While performing Turbine Valve Testing, **OBTAIN** Data Set from EPU Vibration Monitoring DAS instrumentation, Attachment 9.2. **IDENTIFY** the Attachment 9.2 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.40.2. While performing Turbine Valve Testing, **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3. **IDENTIFY** the Attachment 9.3 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.40.3. While performing Turbine Valve Testing, **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11. **IDENTIFY** the Attachment 9.11 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.40.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.40.5. Turbine Valve Testing

1. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," to stroke Main Stop Valve (M.S.V.) #2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

2. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," to stroke Combined Intermediate Valve (CIV) #6.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

3. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," for Bypass Valve #6.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

4. Perform the applicable steps of QOS 5600-01, "Turbine Control Valve Fast Closure (Load Reject) Scram Circuit Functional Test," to test Turbine Control Valve #2 (CV-2).

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date



5. Evaluate the results using Attachment 9.6 and record the decision to perform any of the tests again at the next power level plateau. (enter results/decision)

\_\_\_\_\_  
\_\_\_\_\_

6. Requirements of Attachment 9.6 complete.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

- 6.40.6. **OBTAIN** System and Equipment Performance Data Set, Attachment 9.8.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

- 6.40.7. **OBTAIN** Manually Logged Control Room and Plant Readings Data Set, Attachment 9.9.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

- 6.40.8. **AUTHORIZATION** for power ascension to Test Condition 40.

Authorized: \_\_\_\_\_/\_\_\_\_\_  
Plant Manager or Designee Date

**CAUTION**

Do **not** exceed the Main Generator gross output nominal limit of 912 MWe without **either** reducing power on Unit 1 to maintain less than 1734 MWe net total output from the Station, **or** obtaining a revised interconnect agreement allowing a greater total net output.

If neither condition can be met, **then STOP** Power Ascension at 912 MWe, **RECORD** the Power Level in the Exceptions Log, and **PERFORM** a last Data Collection. This last Data collection **should** include all the Data Sets required at Test Condition 41.

6.41. Test Condition 40 98.6 % 2917 MWt

6.41.1. **OBTAIN** Data Set from EPU Vibration Monitoring DAS instrumentation, Attachment 9.2.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.41.2. **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.41.3. **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.41.4. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.41.5. **AUTHORIZATION** for power ascension to Test Condition 41.

Authorized: \_\_\_\_\_/\_\_\_\_\_  
Plant Manager or Designee Date

**CAUTION**

Do **not** exceed the Main Generator gross output nominal limit of 912 MWe without **either** reducing power on Unit 1 to maintain less than 1734 MWe net total output from the Station, **or** obtaining a revised interconnect agreement allowing a greater total net output.

If neither condition can be met, then **STOP** Power Ascension at 912 MWe, **RECORD** the Power Level in the Exceptions Log, and **PERFORM** a last Data Collection. This last Data collection **should** include all the Data Sets required at Test Condition 41.

6.42. Test Condition 41 99.6 % 2945 MWt

NOTE: Coordinate the gathering of EPU Vibration Monitoring Instrumentation, Steam Dryer DAS Instrumentation and Pressure Transducer & Turbine Control Valve Position Instrumentation data to coincide with the Turbine Valve Testing.

6.42.1. While performing Turbine Valve Testing, **OBTAIN** Data Set from EPU Vibration Monitoring DAS instrumentation, Attachment 9.2. **IDENTIFY** the Attachment 9.2 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.42.2. While performing Turbine Valve Testing, **OBTAIN** Data Set from Steam Dryer DAS instrumentation, Attachment 9.3. **IDENTIFY** the Attachment 9.3 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.42.3. While performing Turbine Valve Testing, **OBTAIN** Data Set from Pressure Transducer & Turbine Control Valve Position instrumentation, Attachment 9.11. **IDENTIFY** the Attachment 9.11 as related to Turbine Valve Testing.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.42.4. **PERFORM** Equipment Vibration Monitoring Utilizing Hand Held M&TE, Attachment 9.4.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.42.5. **PERFORM** Core Performance Monitoring, Attachment 9.5.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.42.6. Turbine Valve Testing

1. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," to stroke Main Stop Valve (M.S.V.) #3.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

2. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," to stroke Combined Intermediate Valve (CIV) #1.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

3. Perform the applicable steps of QOS 5600-05, "Turbine Generator Periodic Testing," for Bypass Valve #7.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

4. Perform the applicable steps of QOS 5600-01, "Turbine Control Valve Fast Closure (Load Reject) Scram Circuit Functional Test," to test Turbine Control Valve #3 (CV-3).

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

5. Evaluate the results using Attachment 9.6. (enter results)

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6. Requirements of Attachment 9.6 complete.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

NOTE: Stable plant operation **must be** achieved for a minimum of five hours **before** the data acquisition required by Attachment 9.7 is obtained.

6.42.7. **PERFORM** Steam Dryer Moisture Carryover, Attachment 9.7.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.42.8. **OBTAIN** System and Equipment Performance Data Set, Attachment 9.8.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

6.42.9. **OBTAIN** Manually Logged Control Room and Plant Readings Data Set, Attachment 9.9.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

NOTE: Stable plant operation **must be** achieved for a minimum of one hour **before** the data acquisition required by Attachment 9.10 is obtained.

6.42.10. **PERFORM** Reactor Parameters monitoring, Attachment 9.10.

Complete: \_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

7. **RETURN TO NORMAL**

7.1. **Post-Testing Power Level**

7.1.1. **RETURN** power to 912 MWe.

\_\_\_\_\_/\_\_\_\_\_  
SD Test Coordinator/Date

8. **REFERENCES**

8.1. **Commitments** - None

8.2. **Procedures**

8.2.1. QCGP 1-1, "Normal Unit Startup"

8.2.2. QCGP 3-1, "Reactor Power Operations"

8.2.3. QCGP 4-1, "Control Rod Movements and Control Rod Sequence"

8.2.4. CY-QC-120-502, "Reactor Water Carryover and Powder Demin Radioactive Removal Efficiency"

8.2.5. CY-QC-110-637, "Schedule of Surveillance Requirements"

8.2.6. QCOS 2300-05, "Quarterly HPCI Pump Operability Test"

- 8.2.7. QCOS 1300-05, "Quarterly RCIC Pump Operability Test"
- 8.3. Other
- 8.3.1. GE Nuclear Energy 26A6266, Revision 1, "Steam Dryer Design Specification"
- 8.3.2. GE Nuclear Energy 26A6388, Revision 3, "Steam Dryer Vibration Measurement Test Specification"
- 8.3.3. GE Nuclear Energy GE-NE-0000-0032-1827P, DRF Section 0000-0036-2077, Revision 0, "Quad Cities Replacement Steam Dryer Instrumentation Acceptance Criteria", April 2005
- 8.3.4. Engineering Evaluation EC 348316, "Evaluation of Quad Cities Unit 2 Main Steam Vibrations at EPU Power Levels."
- 8.3.5. C.D.I. Technical Memorandum No. 05-17, Pretest Predictions for New Dryer Loads for Quad Cities, Continuum Dynamics, Inc.
- 8.3.6. NES-MS-03.04, "Small Bore Piping Design for High cycle Fatigue"

9. **ATTACHMENTS**

- 9.1. Test Condition Summary
- 9.2. EPU Vibration Monitoring Instrumentation Data Sheet
- 9.3. Data Acquisition System Instrumentation Data Sheet
- 9.4. Equipment Vibration Monitoring Utilizing Hand Held M&TE
- 9.5. Core Performance Data Sheet
- 9.6. Turbine Valve Testing
- 9.7. Steam Dryer Moisture Carryover Data Sheet
- 9.8. System and Equipment Performance Data Cover Sheet
- 9.9. Manually Logged Control Room and Plant Readings
- 9.10. Reactor Parameters Data Sheet
- 9.11. Pressure Transducer & Turbine Control Valve Position Data Sheet

- 10. **LOGS**
- 10.1. Evaluation and Completion Signoff
- 10.2. Exceptions Index
- 10.3. Data Package Attachments

**ATTACHMENT 9.1:TEST CONDITION SUMMARY**

Test Condition	Generator Power (MWe)	Core Thermal Power (MWt)	Core Thermal Power (%)
1	HPCI & RCIC Testing	225	7.6
2	80	426	14.4
3	120	517	17.5
4	300	1033	34.9
5	500	1640	55.5
6	450	1476	49.9
7	470	1542	52.1
8	490	1607	54.3
9	510	1672	56.5
10	530	1738	58.8
11	550	1790	60.5
12	570	1846	62.4
13	590	1903	64.3
14	610	1959	66.2
15	630	2016	68.2
16	650	2072	70.1
17	670	2128	72.0



**ATTACHMENT 9.1:TEST CONDITION SUMMARY**

Test Condition	Generator Power (MWe)	Core Thermal Power (MWt)	Core Thermal Power (%)
18	690	2180	73.4
19	705	2228	75.3
20	550	1790	60.5
21	570	1846	62.4
22	590	1903	64.5
23	610	1959	66.2
24	630	2016	68.2
25	650	2072	70.1
26	670	2128	72.0
27	690	2185	73.9
28	710	2241	75.8
29	730	2297	77.7
30	750	2354	79.6
31	770	2416	81.7
32	790	2479	83.8
33	800	2511	84.9
34	820	2574	87.0
35	840	2637	89.2
36	860	2699	91.3

**ATTACHMENT 9.1: TEST CONDITION SUMMARY**

Test Condition	Generator Power (MWe)	Core Thermal Power (MWt)	Core Thermal Power (%)
37	880	2762	93.4
38	900	2825	95.6
39	912	2888	97.7
40	921	2917	98.6
41	930	2945	99.6

**ATTACHMENT 9.2: EPU VIBRATION MONITORING DATA SHEET**

**SECTION 1 DATA GATHERING**

Test Condition: \_\_\_\_\_

Power Level (MWt) \_\_\_\_\_

=

Instructions:

**NOTE:** Initial EPU Vibration Instrument Sensor Channel locations have been recorded in Section 3. If, due to sensor or channel failures, Channel inputs must be re-configured, then perform pen-and-ink changes to Section 3 and make a clarifying entry into Log 10.2, "Exceptions Index."

1. For all specified Test Conditions, **VERIFY** that a set of data was **OBTAINED** at this Test Condition for the EPU vibration instruments.

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

2. For Test Conditions 3, 4, 19, and 33 through 41, **VERIFY** that the Acceptance Criteria of Section 2 were **SATISFIED** or **RECONCILED**.

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

3. **SIGN** Log 10.1, "Evaluation and Completion Signoff," for this Attachment at this Test Condition.

Completed: \_\_\_\_\_  
Data Taker or SD Test Coordinator

**ATTACHMENT 9.2: EPU VIBRATION MONITORING DATA SHEET**

**SECTION 2 ACCEPTANCE CRITERIA**

Level 1

There are no Level 1 Criteria for either the Main Steam Line Strain Gages or the Accelerometers

Level 2

- a) Level 2 Criteria have **not** been established for the Main Steam Line Strain Gages. These sensors are being utilized to gather data to support future analysis. The data will be used to identify the source of any induced flow vibration.
- b) Main Steam Line Accelerometers: Data will be gathered at all of the Test Conditions specified in the Main Body of the Temporary Procedure, in order to support future analysis. However, not all Test Conditions have Level 2 Criteria.

For Test Conditions 3, 4, 19, and 33 through 41, **ENGINEERING** shall compare data gathered under this Temporary Procedure to data from the same locations, previously gathered and analyzed as part of Engineering Evaluation EC 348316, "Evaluation of Quad Cities Unit 2 Main Steam Vibrations at EPU Power Levels." The Level 2 Criteria is deemed to have been met if **ENGINEERING** determines that operation at this power level, and power ascension to the next test condition where the data will be evaluated, poses no threat to continued equipment operation.

**ATTACHMENT 9.2: EPU VIBRATION MONITORING DATA SHEET**

**SECTION 3 EPU VIBRATION INSTRUMENTATION LOCATIONS**

**SECTION 3A MAIN STEAM LINE ACCELEROMETER LOCATIONS**

Location	MSL A	MSL B	MSL C	MSL D	Galvanic Separator Inputs	Recorder Channel
	Sensor Orientation					
ERV 3E Inlet Flange		X				
ERV 3E Inlet Flange		Y				
ERV 3E Inlet Flange		Z				
ERV 3E Pilot Valve		X				
ERV 3E Pilot Valve		Y				
ERV 3E Pilot Valve		Z				
ERV 3B Inlet Flange		X				
ERV 3B Inlet Flange		Y				
ERV 3B Inlet Flange		Z				
ERV 3B Pilot Valve		X				
ERV 3B Pilot Valve		Y				
ERV 3B Pilot Valve		Z				
ERV 3C Inlet Flange			X			
ERV 3C Inlet Flange			Y			
ERV 3C Inlet Flange			Z			
ERV 3D Inlet Flange				X		
ERV 3D Inlet Flange				Y		
ERV 3D Inlet Flange				Z		
ERV 3D Pilot Valve				X		
ERV 3D Pilot Valve				Y		
ERV 3D Pilot Valve				Z		

<b>ATTACHMENT 9.2: EPU VIBRATION MONITORING DATA SHEET</b>						
<b>SECTION 3 EPU VIBRATION INSTRUMENTATION LOCATIONS</b>						
<b>SECTION 3A MAIN STEAM LINE ACCELEROMETER LOCATIONS</b>						
Location	MSL A	MSL B	MSL C	MSL D	Galvanic Separator Inputs	Recorder Channel
	Sensor Orientation					
QC2-ID-MSB-2 B2-3012		X				
QC2-ID-MSB-2 B2-3012		Y				
QC2-ID-MSB-2 B2-3012		Z				
HPCI 2-2301-4 Valve Operator			X			
HPCI 2-2301-4 Valve Operator			Y			
HPCI 2-2301-4 Valve Operator			Z			
Target Rock 3A Inlet Flange	X					
Target Rock 3A Inlet Flange	Y					
Target Rock 3A Inlet Flange	Z					
1B MSIV Inlet Flange		X				
1B MSIV Inlet Flange		Y				
1B MSIV Inlet Flange		Z				
Total Number of MSL accelerometers & Recorder Channels					33	33

<b>ATTACHMENT 9.2: EPU VIBRATION MONITORING DATA SHEET</b>						
<b>SECTION 3 EPU VIBRATION INSTRUMENTATION LOCATIONS</b>						
<b>SECTION 3B MAIN STEAM LINE STRAIN GAGE LOCATIONS</b>						
<b>Location</b>	<b>MSL A</b>	<b>MSL B</b>	<b>MSL C</b>	<b>MSL D</b>	<b>Bridge</b>	<b>Recorder</b>
	<b>Sensor Number</b>				<b>Inputs</b>	<b>Channel</b>
20" pipe 2-3001-B, upstream of ERV 3E		MSL S1 & S2 (2 Hoop)			2	
ERV 3E 6" Inlet Branch Pipe		MSL S3 & S4 (2 Hoop)			2	
ERV 3B 6" Inlet Branch Pipe		MSL S5 & S6 (2 Hoop)			2	
Total Number of MSL Strain Gages & Recorder Channels					6	3
Total Number of Recorder Channels						36

**ATTACHMENT 9.3: DATA ACQUISITION SYSTEM DATA SHEET**

**SECTION 1 DATA GATHERING**

Test Condition: \_\_\_\_\_ Power Level (MWt) \_\_\_\_\_

Instructions:

NOTE: Initial DAS Instrument Sensor Channel locations have been recorded in Section 3. If, due to sensor or channel failures, DAS Channel inputs must be re-configured, then perform pen-and-ink changes to Section 3 and make a clarifying entry into Log 10.2, "Exceptions Index."

1. **VERIFY** that a set of data was **OBTAINED** at this Test Condition for the DAS vibration instruments.

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

2. **VERIFY** that the Strain Gage Level 1 and Level 2 Acceptance Criteria of Section 2 were **SATISFIED** or **RECONCILED** for all Test Conditions.

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

3. **VERIFY** that the Pressure Sensor Level 1 Acceptance Criteria of Section 2 were **SATISFIED** or **RECONCILED** for Test Conditions 34 thru 41.

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator



**ATTACHMENT 9.3: DATA ACQUISITION SYSTEM DATA SHEET**

**SECTION 1 DATA GATHERING**

**CAUTION**

Exert care when assessing the trend information during the execution of Step 4. The rate of increase of the magnitude of the Strain Gage and Pressure Sensor outputs from one Test Condition to another is expected to be a non-linear function of the increase in flow, either increasing exponentially or as a function of the square of the change in flow velocity.

4. **VERIFY** that the Trend in Strain Gage and Pressure Sensor outputs, when reviewed over the previous several Test Conditions, provides **reasonable assurance** that the Level 1 Acceptance Criteria of Section 2 **will not** be **EXCEEDED** when power is increased to the next Test Condition.

If reasonable assurance **cannot** be provided, then an Issue Report **shall be INITIATED** and the guidance of Section 5.1.1 **shall be followed**.

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

5. **COMPARE** Fast Fourier Transform (FFT) of Strain Gage, Pressure Sensors, and Accelerometer outputs to Dryer Design Loads, and **VERIFY** the Dryer Design Loads are not being exceeded as indicated in Section 2 below.

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

6. **SIGN** Log 10.1, "Evaluation and Completion Signoff," for this Attachment at this Test Condition.

Completed: \_\_\_\_\_  
Data Taker or SD Test Coordinator

**ATTACHMENT 9.3: DATA ACQUISITION SYSTEM DATA SHEET**

**SECTION 2 ACCEPTANCE CRITERIA**

NOTE 1: Because two Load Cases were used to create the replacement Steam Dryer flow-induced vibration design loads, Strain Gage and Pressure Sensor criteria was developed for each Load Case.

NOTE 2: The development of the Steam Dryer Instrumentation Acceptance Criteria is detailed in GE Nuclear Energy GE-NE-0000-0032-1827P, DRF Section 0000-0036-2077, Revision 0, "Quad Cities Replacement Steam Dryer Instrumentation Acceptance Criteria"

a) Steam Dryer Strain Gages

Level 1 Acceptance Criteria

Steam Dryer Strain Gages shall be ≤ the following:

Sensor Location on Dryer	SENSOR ID	Allowable Strain μ strain (peak-to-peak) SMT Loads	Allowable Strain μ strain (peak-to-peak) In-Plant Loads	Acceptance Criteria Strain μ strain (peak-to-peak)
Skirt	S-1	138	119	119
Drain Channel	S-2	---	---	446
Outer Hood	S-3	345	576	345
Outer Hood	S-4	217	343	217
Closure Plate	S-5	172	147	147
Tie Bar	S-6	32*	31*	31*
Vane Cap Curved Part	S-7	34*	91*	34*
Skirt	S-8	675	585	585
Hood	S-9	453	370	370

\* These low values indicate that the strain gauges are not optimally located. Thus, any noise contamination of the signal can give rise to inappropriate conclusions. These numbers should be used with caution.

**Bold – Sensor below normal water level**

b) Steam Dryer Strain Gages

Level 2 Acceptance Criteria

Steam Dryer Strain Gages shall be ≤ the following:

Sensor Location on Dryer	SENSOR ID	Allowable Strain μ strain (peak-to-peak) SMT Loads	Allowable Strain μ strain (peak-to-peak) In-Plant Loads	Acceptance Criteria Strain μ strain (peak-to-peak)
Skirt	S-1	114	98	98
Drain Channel	S-2	---	---	367
Outer Hood	S-3	226	377	226
Outer Hood	S-4	142	224	142
Closure Plate	S-5	142	121	121
Tie Bar	S-6	26*	25*	25*
Vane Cap Curved Part	S-7	28*	75*	28*
Skirt	S-8	557	482	482
Hood	S-9	296	242	242

\* These low values indicate that the strain gauges are not optimally located. Thus, any noise contamination of the signal can give rise to inappropriate conclusions. These numbers should be used with caution.

**Bold – Sensor below normal water level**

Level 1 Acceptance Criteria

When reactor power level is above 2511 MWt AND the Steam Dryer Strain Gages are > the following:

Sensor Location on Dryer	SENSOR ID	Allowable Strain $\mu$ strain (peak-to-peak) SMT Loads	Allowable Strain $\mu$ strain (peak-to-peak) In-Plant Loads	Acceptance Criteria Strain $\mu$ strain (peak-to-peak)
Skirt	S-1	69	59.5	59.5
Drain Channel	S-2	---	---	223
Outer Hood	S-3	172.5	288	172.5
Outer Hood	S-4	108.5	171.5	108.5
Closure Plate	S-5	86	73.5	73.5
Tie Bar	S-6	16*	15.5*	15.5*
Vane Cap Curved Part	S-7	17*	45.5*	17*
Skirt	S-8	337.5	292.5	292.5
Hood	S-9	226.5	185	185

\* These low values indicate that the strain gauges are not optimally located. Thus, any noise contamination of the signal can give rise to inappropriate conclusions. These numbers should be used with caution.

**Bold – Sensor below normal water level**

then the following Steam Dryer Pressure Sensor Frequencies shall be within + 20% of the design load frequencies calculated for each Load Case, and shall be no more than 30% higher than the design load amplitudes calculated for one of the Load Cases.

Sensor ID	Pressure Sensor Dryer Location
P-3	Outer Hood Bank F, ~ 65" Down from Top of Bank, Toward 0 ° Face
P-12	Outer Hood Bank F, ~ 65" Down from Top of Bank, Toward 180 ° Face
P-20	Bank A, ~ 65" Down from Top of Bank, Centered Laterally, Toward 0 ° face
P-21	Bank A, ~ 65" Down from Top of Bank, Centered Laterally, Toward 180 ° face
P-24	On Skirt, 270 ° Face, Dry, Mid-Level Mounted ~ 50 " Below Ring
P-27	Bank D Hood, 17" down from Top of Hood, Centered Between Tie Bars 3 & 4

The acceptance criteria is contained in, C.D.I. Technical Memorandum No. 05-17, Pretest Predictions for New Dryer Loads for Quad Cities, Continuum Dynamics, Inc. This document contains Power Spectral Density (PSD) versus frequency predictions for each of the pressure sensors that are listed above. The dryer instrumentation data analyst is to compare the dryer pressure instrument data processed by the LMS data acquisition software to the pre-test predictions for the acceptance criteria listed above.

d) Minimum Number of Strain Gages and Accelerometers

At least 2 of the 4 Strain Gages S3, S4, S5, and S9 shall remain functional. If less, than this criteria, then accelerometer data shall be used as a substitute. The accelerometer criteria below will be used as the acceptance criteria. If the accelerometers meet their acceptance criteria, then this acceptance criterion will be considered met. For the minimum number of accelerometers, at least 2 accelerometers of the 4 accelerometers A-1, A-2, A-3, and A-4 (the 4 that are above the water level) must be functional. If the minimum instrumentation level criterion is not met, then the unit must be held at the level of the last acceptable instrument readings and corporate engineering will be consulted for the method to perform future power ascensions and at the same time be assured of acceptable dryer performance. This method would entail the use of Finite Element Analysis at several power plateaus. This procedure will be modified to control the power ascension.

Dryer Accelerometer Sensors

The structural response (stress and acceleration) time histories are calculated at every element using a finite element model (FEM) and a given input forcing function. These stress time histories are then scanned to determine the maximum calculated stress over all elements for the time period of the forcing function. A normalizing factor, equal to the maximum Level Criteria (16,500 psi for the strain gages in "a" above) divided by the calculated maximum stress, is then determined. The calculated maximum acceleration value at the accelerometer location over the entire time period of the forcing function is then multiplied by the normalizing factor to arrive at the accelerometer acceptance criteria.

Level 1 Acceptance Criteria

Steam Dryer Accelerometers to meet (a) above:

This criterion shall apply **only** if the minimum number of functional steam dryer strain gages is not available. Steam Dryer Accelerometers shall be  $\leq$  the following:

Sensor Location on Dryer	SENSOR ID	Acceleration (G) SMT Loads	Acceleration (G) In-Plant Loads	Acceptance Criteria Acceleration G (peak-to-peak)
Tie Bar 5 End at Hood Bank A Top Corner	A-1	20	16	16
Tie Bar 5 End at Hood Bank F Top Corner	A-2	16	4	4
Tie Bar 1 End at (Hood Bank F Top Corner)	A-3	29	14	14
Tie Bar 1 End at (Hood Bank A Top Corner)	A-4	18	7	7
Skirt Bottom at 90 deg	A-5	--	--	43
Skirt Bottom at 270 deg	A-6	--	--	43



Level 2 Acceptance Criteria

Steam Dryer Accelerometers to meet (b) above:

Steam Dryer Accelerometers **shall be**  $\leq$  the following:

This criterion shall apply **only** if the minimum number of functional steam dryer strain gages is not available. Steam Dryer Accelerometers **shall be**  $\leq$  the following:

Sensor Location on Dryer	SENSOR ID	Acceleration (G) SMT Loads	Acceleration (G) In-Plant Loads	Acceptance Criteria Acceleration G (peak-to-peak)
Tie Bar 5 End at Hood Bank A Top Corner	A-1	17	13	13
Tie Bar 5 End at Hood Bank F Top Corner	A-2	13	3	3
Tie Bar 1 End at (Hood Bank F Top Corner)	A-3	24	11	11
Tie Bar 1 End at (Hood Bank A Top Corner)	A-4	15	6	6
Skirt Bottom at 90 deg	A-5	--	--	35
Skirt Bottom at 270 deg	A-6	--	--	35

**ATTACHMENT 9.3: DATA ACQUISITION SYSTEM DATA SHEET**

**SECTION 3 DAS INSTRUMENTATION LOCATIONS**

**SECTION 3A MAIN STEAM LINE STRAIN GAGE LOCATIONS**

Location	MSL A	MSL B	MSL C	MSL D	Bridge	DAS
	GE Sensor Number				Inputs	Channel
RPV Nozzle near grating El. 651' (Vertical Pipe)	MSL S1 & S3 (2 Hoop)				2	
RPV Nozzle near grating El. 651' (Vertical Pipe)	MSL S2 & S4 (2 Hoop)				2	
RPV Nozzle near grating El. 651' (Vertical Pipe)		MSL S7 & S9 (2 Hoop)			2	
RPV Nozzle near grating El. 651' (Vertical Pipe)		MSL S8 & S10 (2 Hoop)			2	
RPV Nozzle near grating El. 651' (Vertical Pipe)			MSL S31 & S33 (2 Hoop)		2	
RPV Nozzle near grating El. 651' (Vertical Pipe)			MSL S32 & S34 (2 Hoop)		2	
RPV Nozzle near grating El. 651' (Vertical Pipe)				MSL S37 & S39 (2 Hoop)	2	
RPV Nozzle near grating El. 651' (Vertical Pipe)				MSL S38 & S40 (2 Hoop)	2	

<b>ATTACHMENT 9.3: DATA ACQUISITION SYSTEM DATA SHEET</b>						
<b>SECTION 3 DAS INSTRUMENTATION LOCATIONS</b>						
<b>SECTION 3A MAIN STEAM LINE STRAIN GAGE LOCATIONS</b>						
Location	MSL A	MSL B	MSL C	MSL D	Bridge	DAS
	GE Sensor Number				Inputs	Channel
Before SRV/RV below snubber at El. 621' (Vertical Pipe)	MSL S5 & S5A (2 Hoop)				2	
Before SRV/RV below snubber at El. 621' (Vertical Pipe)	MSL S6 & S6A (2 Hoop)				2	
Before SRV/RV below snubber at El. 621' (Vertical Pipe)		MSL S11 & S11A (2 Hoop)			2	
Before SRV/RV below snubber at El. 621' (Vertical Pipe)		MSL S12 & S12A (2 Hoop)			2	
Before SRV/RV below snubber at El. 621' (Vertical Pipe)			MSL S35 & S35A (2 Hoop)		2	
Before SRV/RV below snubber at El. 621' (Vertical Pipe)			MSL S36 & S36A (2 Hoop)		2	
Before SRV/RV below snubber at El. 621' (Vertical Pipe)				MSL S41 & S41A (2 Hoop)	2	
Before SRV/RV below snubber at El. 621' (Vertical Pipe)				MSL S42 & S42A (2 Hoop)	2	
After SRV/SV below grating El. 614' (Vertical Pipe)	MSL S43 & S44 (2 Hoop)				2	
After SRV/SV below grating El. 614' (Vertical Pipe)		MSL S17 & S18 (2 Hoop)			2	
After SRV/SV below grating El. 614' (Vertical Pipe)			MSL S45 & S46 (2 Hoop)		2	

**ATTACHMENT 9.3: DATA ACQUISITION SYSTEM DATA SHEET**

**SECTION 3 DAS INSTRUMENTATION LOCATIONS**

**SECTION 3A MAIN STEAM LINE STRAIN GAGE LOCATIONS**

Location	MSL A	MSL B	MSL C	MSL D	Bridge	DAS
	GE Sensor Number				Inputs	Channel
After SRV/SV below grating El. 614' (Vertical Pipe)				MSL S47 & S48 (2 Hoop)	2	
Between 1st SRV and HPCI outlet (Horizontal Pipe)			MSL S13 & S14 (2 Hoop)		2	
HPCI 10" branch pipe (Vertical Pipe)			MSL S15 & S16 (2 Hoop)		2	
Before inboard MSIV (~ 20 ft)(Horizontal Pipe)			MSL S19 & S20 (2 Hoop)		2	
After outboard MSIV, ~ El. 600', 5' above horizontal (Vertical Pipe)			MSL S21 & S22 (2 Hoop)		2	
30" D header (Horizontal Pipe)			MSL S23 & S24 (2 Hoop)		2	
30" D header (Horizontal Pipe)			MSL S25 & S26 (2 Hoop)		2	
18" D Ring (Horizontal Pipe)			MSL S27 & S28 (2 Hoop)		2	
Riser to Turbine - before TCV/TSV (Vertical Pipe)			MSL S29 & S30 (2 Hoop)		2	
Total Number of MSL Strain Gages & DAS Channels					56	28

**ATTACHMENT 9.3: DATA ACQUISITION SYSTEM DATA SHEET**

**SECTION 3 DAS INSTRUMENTATION LOCATIONS**

**SECTION 3B STEAM DRYER STRAIN GAGE LOCATIONS**

<b>Location</b>	<b>GE Sensor Number</b>	<b>Bridge Inputs</b>	<b>DAS Channel</b>
Steam Dryer	S1	1	
Steam Dryer	S2	1	
Steam Dryer	S3	1	
Steam Dryer	S4	1	
Steam Dryer	S5	1	
Steam Dryer	S6	1	
Steam Dryer	S7	1	
Steam Dryer	S8	1	
Steam Dryer	S9	1	
Total Number of Steam Dryer Strain Gages & DAS Channels		9	9

**ATTACHMENT 9.3: DATA ACQUISITION SYSTEM DATA SHEET**

**SECTION 3 DAS INSTRUMENTATION LOCATIONS**

**SECTION 3C STEAM DRYER ACCELEROMETER LOCATIONS**

Location	GE Sensor Number	Galvanic Separator Inputs	DAS Channel
Steam Dryer	A1	1	
Steam Dryer	A2	1	
Steam Dryer	A3	1	
Steam Dryer	A4	1	
Steam Dryer	A5	1	
Steam Dryer	A6	1	
Total Number of Steam Dryer Accelerometers & DAS Channels		6	6

**ATTACHMENT 9.3: DATA ACQUISITION SYSTEM DATA SHEET**

**SECTION 3D STEAM DRYER PRESSURE TRANSDUCER LOCATIONS**

Location	GE Sensor Number	Galvanic Separator Inputs	DAS Channel
Steam Dryer	P1	1	
Steam Dryer	P2	1	
Steam Dryer	P3	1	

**ATTACHMENT 9.3: DATA ACQUISITION SYSTEM DATA SHEET**

**SECTION 3D STEAM DRYER PRESSURE TRANSDUCER LOCATIONS**

<b>Location</b>	<b>GE Sensor Number</b>	<b>Galvanic Separator Inputs</b>	<b>DAS Channel</b>
Steam Dryer	P4	1	
Steam Dryer	P5	1	
Steam Dryer	P6	1	
Steam Dryer	P7	1	
Steam Dryer	P8	1	
Steam Dryer	P9	1	
Steam Dryer	P10	1	
Steam Dryer	P11	1	
Steam Dryer	P12	1	
Steam Dryer	P13	1	
Steam Dryer	P14	1	
Steam Dryer	P15	1	
Steam Dryer	P16	1	
Steam Dryer	P17	1	
Steam Dryer	P18	1	
Steam Dryer	P19	1	
Steam Dryer	P20	1	
Steam Dryer	P21	1	
Steam Dryer	P22	1	
Steam Dryer	P23	1	
Steam Dryer	P24	1	

**ATTACHMENT 9.3: DATA ACQUISITION SYSTEM DATA SHEET**

**SECTION 3D STEAM DRYER PRESSURE TRANSDUCER LOCATIONS**

<b>Location</b>	<b>GE Sensor Number</b>	<b>Galvanic Separator Inputs</b>	<b>DAS Channel</b>
Steam Dryer	P25	1	
Steam Dryer	P26	1	
Steam Dryer	P27	1	
Total Number of Steam Dryer Pressure Transducers & DAS Channels		27	27
Total Number of DAS Channels			78



**ATTACHMENT 9.4: EQUIPMENT VIBRATION MONITORING UTILIZING HAND HELD M&TE**

Record M&TE ID Number: \_\_\_\_\_

Test Condition: \_\_\_\_\_ Power Level (MWt) \_\_\_\_\_

Instructions:

1. **REQUEST and VERIFY** that a set of vibration data was **OBTAINED** at this Test Condition for the following small-bore lines:
  - Feedwater Discharge Drain Lines 2-3213A, B, C-3/4" and 2-3218A, B, C-3/4"
  - Feedwater Suction Relief Valve Lines 2-34132A, B, C-1 1/2"
  - Feedwater Suction Isolation Bypass Lines 2-3417A, B, C-1"
  - Feedwater Reg Station Vent/Drain Lines 2-3216-3/4", 2-3217-3/4", 2-3225A, B-3/4", and 2-32104-3/4"
  - HPCI LLRT Line 2-2369-3/4" (on top of torus)

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

2. **VERIFY** that the Acceptance Criteria of NES-MS-03.04, "Small Bore Piping Design for High cycle Fatigue," were **SATISFIED or RECONCILED** for these lines.

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

**ATTACHMENT 9.4: EQUIPMENT VIBRATION MONITORING UTILIZING HAND HELD M&TE**

**NOTE:** Vibration checks will be performed, at both pre-EPU and post-EPU power levels, of the 2202-5 Instrument Rack, the Pressure Controllers mounted on the rack, and the Process Sensing Lines connecting to the Pressure Controllers.

3. **REQUEST and VERIFY** that a set of vibration data was **OBTAINED** at this Test Condition for:
- 2202-5 instrument rack (Reactor Building, el 623'-0", K-12)
  - Pressure Controllers 2-0203-3A, B, C, D, E (mounted on 2202-5 rack)
  - Sensing Lines 2-02109AK-1/2"-A, 2-02109AL-1/2"-A, 2-02109AM-1/2"-A, 2-02109AN-1/2"-A, and 2-02109AP-1/2"-A (connected to the Pressure Controllers)
4. **If** these instrument measurements were taken at Test Condition 33 (2511 MWt), **then VERIFY** below as baseline data.

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

**If** these measurements were taken at EPU conditions (greater than 2511 MWt) **then VERIFY** either

- Vibration has **not** increased **more than 10 %** over the baseline, **or**
- an IR was **INITIATED** to send a Pressure Controller to PowerLabs for investigation into any vibration-related degradation.

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

5. **SIGN** Log 10.1, "Evaluation and Completion Signoff," for this Attachment at this Test Condition.

Completed: \_\_\_\_\_  
Data Taker or SD Test Coordinator

**ATTACHMENT 9.5  
CORE PERFORMANCE MONITORING DATA SHEET**

Instructions:

- VERIFY** that a set of Core Performance data was **OBTAINED** at this Test Condition, that the Computer Printout was **LOGGED** onto Log 10.3, and that the data was **LOGGED** onto Attachment 9.5 in the appropriate Test Condition line.

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

- VERIFY** that the Acceptance Criteria were **SATISFIED**.

NOTE 1 The limit for the MELLLA criteria shall be a value below the MELLLA upper boundary or maximum thermal power line.

NOTE 2: All Acceptance Criteria are Level 1; there are no Level 2 Acceptance Criteria

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

- SIGN** Log 10.1, "Evaluation and Completion Signoff," for this Attachment at this Test Condition.

Completed: \_\_\_\_\_  
Data Taker or SD Test Coordinator

	Core Flow	CMFLCPR	CMAPRAT	CMFLPD	MELLLA
Level 1 Limit Core Maximum Value	< 105.8 Mlb/hr	< 1.0	< 1.0	< 1.0	Within Limits
Power Level (MWt / %) Test Condition	Record Value	Record Value	Record Value	Record Value	Initial if Within Limits

**ATTACHMENT 9.5**  
**CORE PERFORMANCE MONITORING DATA SHEET**

	Core Flow	CMFLCPR	CMAPRAT	CMFLPD	MELLLA
<b>Level 1 Limit Core Maximum Value</b>	<b>&lt; 105.8 Mlb/hr</b>	<b>&lt; 1.0</b>	<b>&lt; 1.0</b>	<b>&lt; 1.0</b>	<b>Within Limits</b>
<b>Power Level (MWt / %) Test Condition</b>	<b>Record Value</b>	<b>Record Value</b>	<b>Record Value</b>	<b>Record Value</b>	<b>Initial if Within Limits</b>
<b>426 MWt / 14.4 % TC 2</b>					
<b>517 MWt / 17.5 % TC 3</b>					
<b>1033 MWt / 34.9 % TC 4</b>					
<b>1640 MWt / 55.5 % TC 5</b>					
<b>1476 MWt / 49.9 % TC 6</b>					
<b>1542 MWt / 52.1% TC 7</b>					
<b>1607 MWt / 54.3 % TC 8</b>					
<b>1672MWt / 56.5 % TC 9</b>					
<b>1736MWt / 58.8 % TC 10</b>					
<b>1790 MWt / 60.5 % TC 11</b>					
<b>1846 MWt / 62.4 % TC 12</b>					
<b>1903 MWt / 64.3 % TC 13</b>					

**ATTACHMENT 9.5**  
**CORE PERFORMANCE MONITORING DATA SHEET**

	Core Flow	CMFLCPR	CMAPRAT	CMFLPD	MELLLA
<b>Level 1 Limit Core Maximum Value</b>	<b>&lt; 105.8 Mlb/hr</b>	<b>&lt; 1.0</b>	<b>&lt; 1.0</b>	<b>&lt; 1.0</b>	<b>Within Limits</b>
<b>Power Level (MWt / %) Test Condition</b>	<b>Record Value</b>	<b>Record Value</b>	<b>Record Value</b>	<b>Record Value</b>	<b>Initial if Within Limits</b>
1959 MWt / 66.2 % TC 14					
2016 MWt / 68.2 % TC 15					
2072 MWt / 70.1 % TC 16					
2128 MWt / 72.0 % TC 17					
2180 MWt / 73.4 % TC 18					
2228 MWt / 75.3 % TC 19					
1790 MWt / 60.5 % TC 20					
1846 MWt / 62.4 % TC 21					
1903 MWt / 64.5 % TC 22					
1959 MWt / 66.2 % TC 23					
2016 MWt / 68.2 % TC 24					
2072 MWt / 70.1 % TC 25					

**ATTACHMENT 9.5**  
**CORE PERFORMANCE MONITORING DATA SHEET**

	Core Flow	CMFLCPR	CMAPRAT	CMFLPD	MELLLA
<b>Level 1 Limit Core Maximum Value</b>	<b>&lt; 105.8 Mlb/hr</b>	<b>&lt; 1.0</b>	<b>&lt; 1.0</b>	<b>&lt; 1.0</b>	<b>Within Limits</b>
<b>Power Level (MWt / %) Test Condition</b>	<b>Record Value</b>	<b>Record Value</b>	<b>Record Value</b>	<b>Record Value</b>	<b>Initial if Within Limits</b>
2128 MWt / 72.0 % TC 26					
2185 MWt / 73.9 % TC 27					
2241 MWt / 75.8 % TC 28					
2297 MWt / 77.7 % TC 29					
2354 MWt / 79.6 % TC 30					
2416 MWt / 81.7 % TC 31					
2479 MWt / 83.4 % TC 32					
2511 MWt / 84.9 % TC 33					
2574 MWt / 87.0 % TC 34					
2637 MWt / 89.2 % TC 35					
2699 MWt / 91.3 % TC 36					
2762 MWt / 93.4 % TC 37					

**ATTACHMENT 9.5**  
**CORE PERFORMANCE MONITORING DATA SHEET**

	Core Flow	CMFLCPR	CMAPRAT	CMFLPD	MELLA
<b>Level 1 Limit Core Maximum Value</b>	<b>&lt; 105.8 Mlb/hr</b>	<b>&lt; 1.0</b>	<b>&lt; 1.0</b>	<b>&lt; 1.0</b>	<b>Within Limits</b>
<b>Power Level (MWt / %) Test Condition</b>	<b>Record Value</b>	<b>Record Value</b>	<b>Record Value</b>	<b>Record Value</b>	<b>Initial if Within Limits</b>
<b>2825 MWt / 95.6 % TC 38</b>					
<b>2888 MWt / 97.7 % TC 39</b>					
<b>2917 MWt / 98.6 % TC 40</b>					
<b>2945 MWt / 99.6 % TC 41</b>					

**ATTACHMENT 9.6  
TURBINE VALVE TESTING**

**Instructions:**

1. **LOG** Test Condition, Power Level, Throttle Pressure, and ID of Valves to be tested.
2. **PERFORM** Testing utilizing procedures referenced in the Main Body of the Test Procedure. **MONITOR** alarms and/or **RECORD** the peak value of the following parameters, and **VERIFY** within Limits.

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

2. **VERIFY** that the Acceptance Criteria were **SATISFIED** or **DETERMINE** Turbine Valve Testing is **no** longer appropriate for the next higher power level.

Verified Acceptance Criteria Satisfied: \_\_\_\_\_  
Data Taker or SD Test Coordinator

or

Further Testing is **not** Appropriate: \_\_\_\_\_  
Data Taker or SD Test Coordinator

**Data Acquisition:**

**NOTE:** Throttle Pressure should be  $\geq$  910 psig to stroke MSVs

	VALUE				LIMIT
	MSV #___	ISV #___	CV #___	BPV #___	
Reactor Power:	___	___	___	___	APRM Hi Alarm (902-5 A-6) not received
Reactor Pressure:	___	___	___	___	Rx Hi Press Alarm (902-5 H-5) not received
Bypass Valve Open:	___	___	___	___	BPV Open Alarm (902-7 G-3) not received
MSL Flow	___	___	___	___	MSL Flow < 3.69 Mlb/hr. Use DFWLCS or 902-5 panel indicator.
MSL Low Pressure	___	NA	___	NA	No relay chatter, 2-595-103A, B, C, D



**ATTACHMENT 9.6**  
**TURBINE VALVE TESTING**

**Acceptance Criteria:**

Level 1

There are no Level 1 Criteria for Turbine Valve Testing.

Level 2

- a) Peak neutron flux (as measured by APRM's) must be at least 7.5% below the scram trip setting. Peak vessel pressure must remain at least 10 psi below the high-pressure scram setting.
- b) Peak steam flow in each line must remain 10% below the high flow isolation trip setting.
- c) Bypass valves should not open during performance of turbine valve stroking.

**When** it has been decided based on these criteria and overall plant response that the turbine valve test stroking is no longer appropriate for the next higher power level, **then** the remaining steps of the Temporary Procedure for Turbine Valve Testing shall be marked "NA."

## ATTACHMENT 9.7

### STEAM DRYER MOISTURE CARRYOVER DATA SHEET

#### Instructions:

NOTE 1 Carryover is measured by an analysis of the amount of Sodium, Na-24 found in the Condenser Hotwell via a Condensate Pump Discharge sample in relation to the total amount of Na-24 found in a Reactor Water sample.

NOTE 2: Industry experience has shown a lower than expected carryover value could result in a non-conservative calculation for core thermal power (CTP). Monitoring carryover at various power plateau and communicating the results will assure compliance as power is increased toward maximum thermal power.

1. **LOG** Test Condition and Power Level.
2. **PERFORM** Steam Dryer Moisture Carryover Testing.
3. **NOTIFY** Site Nuclear Engineering of Results for Potential Adverse Affects on CTP calculation.

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

**ATTACHMENT 9.7**  
**STEAM DRYER MOISTURE CARRYOVER DATA SHEET**

Data Acquisition					
Test Condition MWth / % LPU	TC 19 2228 / 75.3	TC 33 2511 / 84.9	TC 37 2762 / 93.4	TC 41 2954 / 99.6	Acceptance Criteria
Test Condition / Rx Power (TC# / MWt)					NA
Actual Carryover - %					< 0.1 %
Notify Site Nuclear Engineering					NA
Initials / Date					NA

**Acceptance Criteria:**

Level 1

Second confirmed Moisture Carryover sample > 0.1%

MSL moisture content shall not be in excess of the Steam Dryer Performance specified in GENE 26A6266, Rev. 0, "Steam Dryer Design Specification," dated December 3, 2004.

- The Steam Dryer shall limit moisture carryover to  $\leq 0.1\%$  at the RPV MSL nozzles.

If unexplained Moisture Carryover is > 0.1%, then the Station Duty Team shall be **CONTACTED** for resolution and the power ascension halted. If a sample confirmation taken 24 hours after the first sample is still > 0.1% and sample contamination is ruled out and if reasonable assurance of dryer structural integrity cannot be confirmed, then **POSITIVE ACTIONS** will be taken to further reduce reactor power up to and including reactor shutdown.

Level 2

There are no Level 2 Criteria for Steam Dryer Moisture Carryover.

**ATTACHMENT 9.8:            SYSTEM AND EQUIPMENT PERFORMANCE DATA COVER SHEET**

**SECTION 1            DATA GATHERING**

**Test Condition:** \_\_\_\_\_

**Power Level (MWt)** \_\_\_\_\_

**Instructions:**

1. **VERIFY** that a set of System and Equipment data was **OBTAINED** at this Test Condition

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

2. **VERIFY** that the Acceptance Limits of Section 2 were **SATISFIED** or **RECONCILED**.

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

3. **SIGN** Log 10.1, "Evaluation and Completion Signoff," for this Attachment at this Test Condition.

Completed: \_\_\_\_\_  
Data Taker or SD Test Coordinator

**ATTACHMENT 9.8:        SYSTEM AND EQUIPMENT PERFORMANCE DATA COVER  
   SHEET**

**SECTION 2            ACCEPTANCE CRITERIA / LIMITS**

Level 1

There are no Level 1 Criteria

Level 2

There are no Level 1 Criteria

Acceptance Limits

The Acceptance Limits are contained in the attached Excel spreadsheet.

**ATTACHMENT 9.9 MANUALLY LOGGED CONTROL ROOM  
AND PLANT READINGS**

**SECTION 1: INSTRUCTIONS**

1. **LOG** Test Condition and Power Level.

**NOTE:** The Condensate Pump Room Temperature entry to be logged shall be obtained by averaging the readings from a hand-held pyrometer obtained over a five-point grid comprised of the four corners of the room plus the center.

2. **VERIFY** that a set of Manually Logged data was **OBTAINED** at this Test Condition.

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

2. **VERIFY** that the Acceptance Limits of Section 2 were **SATISFIED** or **RECONCILED**.

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

3. **SIGN** Log 10.1, "Evaluation and Completion Signoff," for this Attachment at this Test Condition.

**ATTACHMENT 9.9 MANUALLY LOGGED CONTROL ROOM  
AND PLANT READINGS**

**SECTION 2: DATA ACQUISITION**

<b>Test Condition Target MWth / % LPU</b>	<b>TC 19 2228 / 75.3</b>	<b>TC 33 1033 / 34.9</b>	<b>TC 35 2511 / 84.9</b>	<b>TC 37 2762 / 93.4</b>	<b>TC 39 2888 / 97.7</b>	<b>TC 41 2945 / 99.6</b>	<b>Acpt Limits</b>
Test Condition / Actual Rx Power (TC# / MWt)							NA
Turbine Shell Expansion (TR-2-5640-61, Pt 1, on 902-7 panel)							NA
Turbine Differential Expansion - Rotor Long (TR-2-5640-61, Pt 2, on 902-7 panel)							≤ 430 mils
Turbine Rotor Expansion - Rotor Long (TR-2-5640-61, Pt 3, on 902-7 panel)							NA
MG Set Cabinets Discharge Temperature (TI-2-5701-1, local panel 2252-23X, EI 678' 10," H-12)							≤ 135°F
Exhaust Air Temperature RFPM "A," "B," & "C" (A/B/C) (TIs on local panel 2252-25X, EI 615' 6," H-6)							≤ 130°F
Turb Bldg Exh Temp (TI-2-5740-29, 912-5 panel)							≤ 120°F
Main Turbine Exhaust Temp. (local panel 2252-22X, EI 626' 6," D-12)							≤ 120°F
Condensate Pump Room Temperature							≤ 120°F
Initials / Date							NA

**ATTACHMENT 9.9 MANUALLY LOGGED CONTROL ROOM**

**AND PLANT READINGS**

**SECTION 3: ACCEPTANCE CRITERIA**

**Acceptance Criteria:**

Level 1

There are no Level 1 Criteria

Level 2

There are no Level 1 Criteria

Acceptance Limits

Acceptance Limits are contained in the Sheet 2 data sheet above.



**ATTACHMENT 9.10:**

**REACTOR PARAMETERS DATA SHEET**

**SECTION 1**

**DATA GATHERING**

**Test Condition:** \_\_\_\_\_

**Power Level (MWt)** \_\_\_\_\_

**Instructions:**

1. **VERIFY** that a set of data was **OBTAINED** at this Test Condition for Reactor Pressure, Reactor Level, Feedwater Flows, Main Steam Line Flows, Steam Flow versus Feedwater Flow Mismatch, 25-Point Moving Average for Steam Flow Deviation, and 25-Point Moving Average for Steam Flow.

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

2. **VERIFY** that the Acceptance Criteria of Section 2 were **SATISFIED** or **RECONCILED**.

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

3. **SIGN** Log 10.1, "Evaluation and Completion Signoff," for this Attachment at this Test Condition.

Completed: \_\_\_\_\_  
Data Taker or SD Test Coordinator

**ATTACHMENT 9.10:**

**REACTOR PARAMETERS DATA SHEET**

**SECTION 2**

**ACCEPTANCE CRITERIA**

**Acceptance Criteria:**

Level 1

There are no Level 1 Criteria for Reactor Parameters data.

Level 2

Level 2 Acceptance Criteria are not met if any of the following occur:

- a) Narrow Range Reactor water level: unexplained or anomalous individual channel change of > 3 inches in comparison to other channels. In addition, the narrow range reactor water level indicators must agree to within 3 inches of each other.
- b) Reactor Pressure: unexplained or anomalous step change of > 2 psig not caused by operator action.
- c) MSL Flows (A-D): unexplained or anomalous change of > 0.15 Mlbm/hr not caused by operator action.
- d) Steam-Feed Flow Mismatch: unexplained or anomalous > 0.2 Mlbm/hr change in steam feed flow not caused by operator action
- e) 25-point Moving Average for Steam Flow Deviation and Steam Flow: any deviation from normal trend.

**ATTACHMENT 9.11: PRESSURE TRANSDUCER & TURBINE CONTROL VALVE  
POSITION DATA SHEET**

**SECTION 1 DATA GATHERING**

**Test Condition:** \_\_\_\_\_ **Power Level (MWt)** \_\_\_\_\_

**Instructions:**

**NOTE:** Initial Pressure Transducer & Turbine Control Valve Position Instrument Channel locations have been recorded in Section 3. If, due to sensor or channel failures, Channel inputs must be re-configured, then perform pen-and-ink changes to Section 3 and make a clarifying entry into Log 10.2, "Exceptions Index."

1. For all specified Test Conditions, **VERIFY** that a set of data was **OBTAINED** at this Test Condition for the EPU vibration instruments.

Verified: \_\_\_\_\_  
Data Taker or SD Test Coordinator

3. **SIGN** Log 10.1, "Evaluation and Completion Signoff," for this Attachment at this Test Condition.

Completed: \_\_\_\_\_  
Data Taker or SD Test Coordinator

**ATTACHMENT 9.11: PRESSURE TRANSDUCER & TURBINE CONTROL VALVE  
POSITION DATA SHEET**

**SECTION 2 ACCEPTANCE CRITERIA**

Level 1

Level 1 Criteria have not been established for the Pressure Transducer or Turbine Control Valve Position information gathered by this data sheet. This data is being gathered to support future analysis, and will be used to help identify the source of any induced flow vibration.

Level 2

Level 2 Criteria have not been established for the Pressure Transducer or Turbine Control Valve Position information gathered by this data sheet. This data is being gathered to support future analysis, and will be used to help identify the source of any induced flow vibration.

**ATTACHMENT 9.11: PRESSURE TRANSDUCER & TURBINE CONTROL VALVE  
POSITION DATA SHEET**

**SECTION 3 INSTRUMENT CHANNEL LOCATIONS**

Parameter Monitored	Recorder Channel
Upper 400 Inch Reactor Water Level LT reference leg	
(+ ) 48 Inch "A" RFP & Turbine Trip LITS reference leg	
(+ ) 48 Inch "B" RFP & Turbine Trip LITS reference leg	
"A" Main Steam Line Venturi Upstream Tap	
"B" Main Steam Line Venturi Upstream Tap	
"C" Main Steam Line Venturi Upstream Tap	
"D" Main Steam Line Venturi Upstream Tap	
Turbine Control Valve # 1 Position indication	
Turbine Control Valve # 2 Position indication	
Turbine Control Valve # 3 Position indication	
Turbine Control Valve # 4 Position indication	

## LOG 10.1: EVALUATION AND COMPLETION SIGNOFF

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### Data Sheet Instructions:

- 1) The top rows are the Power Level Plateaus / Test Conditions where testing is to be performed.
  - 2) The left-hand column is the attachment section of the test.
  - 3) If a box is shaded, then that particular test is not required at that power level.
  - 4) **EVALUATE** the particular attachment test or data collection.
    - a) **VERIFY** all required data has been collected.
    - b) **VERIFY** all acceptance criteria have been met or **RECONCILED**.
  - 5) If all test requirements of the attachment has been met, then **INITIAL** and **DATE** the specific box.
  - 6) If there are any Exceptions to the Acceptance Criteria specified in an attachment, then **ENTER** the exception number from Log 10.2, "Exceptions Index," into the appropriate box for that attachment and **COMPLETE** the Log 10.2 entry.
  - 7) **After** any Exceptions have been satisfactorily resolved, then **INITIAL** and **DATE** the specific box.
  - 8) **After** completing all the boxes in a column, then **INITIAL** and **DATE** the bottom box in that column.
  - 9) The completion of the bottom box for a particular Test Condition signifies that all Attachments being tracked by Log 10.1 for that Test Condition have been satisfactorily completed to allow proceeding to the next Test Condition.
-











**LOG 10.1: EVALUATION AND COMPLETION SIGNOFF**

Core Thermal Power (MWt)	2825 95.6 %	2888 97.7 %	2917 98.6 %	2945 99.6 %					
Attach.	TC 38	TC 39	TC 40	TC 41					
Att. 9.2 EPU									
Att. 9.3 DAS									
Att. 9.4 Equip Vib.									
Att. 9.5 Core Perf.									
Att. 9.6 Turb Vlv Testing									
Att. 9.7 Moist Carryovr									
Att. 9.8 Eq. Perf.									
Att. 9.9 Manual. Log.									
Att. 9.10 Reactor. Parmtrs									
Att. 9.11 Press & TCV									
Verified Int/Date									























