BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 090009-EI
FLORIDA POWER & LIGHT COMPANY

MAY 1, 2009

IN RE: NUCLEAR POWER PLANT COST RECOVERY
FOR THE YEARS ENDING
DECEMBER 2009 AND 2010

TESTIMONY & EXHIBITS OF:

RAJIV S. KUNDALKAR

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FLORIDA POWER & LIGHT COMPANY

DIRECT TESTIMONY OF RAJIV S. KUNDALKAR

DOCKET NO. 090009-EI

May 1, 2009

Q. Please state your name and business address.

A. My name is Rajiv S. Kundalkar, and my business address is 700 Universe Boulevard, Juno Beach, FL 33408.

Q. By whom are you employed and what is your position?

A. I am employed with Florida Power & Light Company (FPL) as Vice President, Nuclear Power Uprates.

Q. Have you previously filed testimony in this docket?

A. Yes.

Q. Are you sponsoring any exhibits to this testimony?

A. Yes. Exhibit RSK-1 consists of Appendix 1, containing schedules AE-1 through AE-10, P-1 through P-10, and TOR-1 through TOR-8. Page 2 of Appendix 1 contains a table of contents listing the schedules that are sponsored by FPL witness Powers and myself, respectively. Also attached hereto are Exhibits RSK- 2 through RSK-8. Those schedules and exhibits are incorporated herein by reference.

Q. What is the purpose of your testimony?

A. My testimony presents and explains FPL's 2009 actual/estimated and 2010 projected costs for the Turkey Point and St. Lucie nuclear power plant

extended power uprate project ("the uprate" or "EPU"), to be included for recovery in FPL's Capacity Cost Recovery Clause for the period January 2010 through December 2010. Because the activities planned and expenditures budgeted for 2009 and for 2010 are so different from one another, the activities and expenditures for 2009 and those for 2010 are described separately below. My testimony also presents the True-up to Original (TOR) Projections for the uprate project for the years 2008 through 2010. Further, I will support the reasonableness of these actual/estimated and projected costs.

Q. Please summarize your testimony.

A. The EPU projects are progressing on schedule and within budget, to deliver the substantial benefits of additional nuclear generating capacity to customers from FPL's existing St. Lucie (PSL) Units 1 & 2 and Turkey Point (PTN) Units 3 & 4 nuclear power plants. As the engineering analyses and designs are finalized and construction plans are developed, FPL will optimize capacity output, outage durations and implementation resource requirements. Additionally, FPL is making adjustments to the organizational structure and certain internal processes to continue to ensure that prudent management decisions are made and expenditures are reasonable.

FPL plans to spend approximately $260 million in 2009 and approximately $375 million in 2010. FPL also plans to place certain systems associated with the project into service. The equipment in-service amounts for 2009 and 2010 are approximately $307 million. There are no changes at this time to the total

non-binding cost estimate provided in May 2008 in Docket 080009-EI. And, as demonstrated by FPL witness Sim, the uprate project continues to be cost-effective when compared to the addition of other generation alternatives. FPL's EPU activities and the reasonableness of its expenditures, as well as its internal processes and controls, are described in more detail below.

PROJECT STATUS

Q. Please provide an overview of the current status of the uprate project.

A. In 2009, FPL is in the final design phase and will begin the planning stage for implementation of the engineered modification packages. Additionally, FPL will prepare its License Amendment Requests (LARs) which are required to be submitted to and approved by the Nuclear Regulatory Commission (NRC). Certain equipment installations will also take place during outages in 2009 at St. Lucie and Turkey Point. Further, the Engineering, Construction, Procurement (EPC) vendor Bechtel has begun the process of performing constructability reviews by performing field walkdowns at each of the units for the needed equipment removal, modification or replacement.

Q. Please describe the systems associated with the uprate project that are being placed in service in 2009 and 2010.

A. FPL will place several systems associated with the Uprate Project into service during 2009 and 2010. Exhibit RSK-2 includes, among other items, the equipment being placed in-service during 2009 and 2010. Exhibit RSK-9

provides a more detailed description of those items being placed into service and why they are needed to support the EPU Project or the power uprate conditions.

PROJECT MANAGEMENT INTERNAL CONTROLS

Q. Please describe the project management internal controls that FPL has in place to ensure that the project is effectively managed.

A. As described in detail in my March 2, 2009 testimony, FPL has robust project planning, management, and execution processes in place. FPL utilizes a variety of mutually reinforcing schedules and cost controls, and draws upon the expertise provided by employees within the project team, employees within the separate Nuclear Business Operations (NBO) group, and executive management. The project team has developed a set of guidance documents and instructions specifically for the EPU project. Additionally, periodic presentations are made to executive management on the state of the project where risks, costs, and schedules are discussed.

Q. Have there been any changes in the project management system FPL is using to ensure that the 2009 actual/estimated and 2010 projected costs are reasonable?

A. Yes. Consistent with the project environment of continuous self-examination and improvement, certain adjustments have been made to the project management system and specific internal controls. Those adjustments are

reflected in (i) a revised organizational structure for the project team; (ii) additional emphasis on the single and sole source justification documentation requirements; and (iii) integration of NBO specialists at the project sites.

Q. Please describe the changes to the organizational structure.

A. Through the beginning of December 2008, the EPU Project Director and EPU Engineering Director shared oversight responsibility for both the PSL and PTN uprate projects. Both reported directly to me as Vice President of Nuclear Power Uprates. Separate PSL and PTN EPU Project Managers directed the uprate work at each plant site, and reported to the EPU Project Director, while separate PSL and PTN Project Engineers reported to the EPU Engineering Director. This framework provided appropriate oversight during this phase through 2008.

As would be expected, FPL thoughtfully considers and implements the appropriate project management structure for the various phases of the project. The organizational structure was modified in December 2008 as the project entered a new phase of execution. The 2009 management structure places senior FPL Directors experienced in project management at each site to provide an appropriate level of oversight during the modification engineering and implementation phases dedicated to the individual plant sites. These senior FPL Directors employ management resources efficiently to manage the project and minimize or mitigate identified issues and associated risks

applicable to the PSL or PTN sites. They engage the necessary level of existing plant management to accomplish project goals and objectives.

The engineering efforts are now being led by FPL Engineering Directors, one for licensing activities and one for modifications. Each of these directors has a direct report engineering manager at each site. Providing director level leadership for the engineering areas of licensing and modifications provides for early identification of issues and associated risks where appropriate levels of management can be engaged to minimize or mitigate any impact to the project schedule or cost.

FPL has also added to the organization a senior FPL Director, Operations Interface. This senior level position has responsibility for development and implementation of the start up test program in collaboration with the plant operations group. Responsibilities include operations training and simulator modifications. With the many modifications required on each unit and the increase in power to the uprate conditions, coordination with the operating staff of the units with efficient management and excellent execution is a requirement. The majority of the modifications are scheduled for implementation during refueling outages. In preparation for post-outage operation, operators require training and completed modifications need to be tested to ensure the equipment operates as designed.

Q. Please describe the improvements related to single and sole source justification documentation.

A. Several improvements have been made to the Single and Sole Source Justification (SSJ) documentation process. Responsibility for the adequacy of SSJ documentation has been consolidated into one position. Training has been provided to existing personnel responsible for having SSJs prepared, to help ensure compliance with Nuclear Policy NP-1100 and to assist with the review and understanding of SSJ documentation by a third party. The SSJ expectations have also been included in appropriate project instructions, and all new applicable personnel assigned to the EPU Project are required to review the SSJ expectations.

Q. Please describe the integration of a NBO analyst at each project site.

A. The NBO organization, as described in my March 2, 2009 testimony, provides independent oversight of the project costs, establishes and maintains project accounting code structure, and reviews and prepares monthly cost reports. In furtherance of this role, NBO has created two analyst positions, one for each site, to perform these functions at the project locations. These analysts report directly to a NBO manager located in the Juno Beach offices. Integration of the NBO organization in this manner will enhance the first-hand knowledge of the analyst personnel and enable them to perform their oversight function more efficiently.

Q. Are any internal audit activities are underway?

A. Yes. The standard annual financial audits of the EPU project is currently being conducted, which provides a review of project expenditures. FPL anticipates that the internal audit of 2008 costs will be completed this summer.

2009 ACTUAL/ESTIMATED CONSTRUCTION ACTIVITIES AND COSTS

Q. Please summarize the construction activity planned for 2009.

A. In 2009, FPL will be in the final design and planning stage for implementation of the engineered modification packages for outages scheduled for 2010. Additionally, FPL will continue preparation of its LARs for submittal to the NRC. Certain equipment installations will also take place during outages at Turkey Point and one item will be transferred to plant in service. Specifically, the primary activities to be accomplished in 2009 are as follows:

- Complete the engineering analyses, prepare the four (3) LARs (one for PSL1, one for PSL2, and two for PTN 3&4), and submit the PSL1 LAR to the NRC in the 4th quarter of 2009;
- Quality monitoring of the components that will be fabricated and manufactured;
- Install turbine testing pressure taps needed to furnish design information for the new turbine rotors during the PTN3 outage (March 2009) and during the PTN4 outage (October 2009);
- Complete and place into service the PSL2 Gantry Crane modifications needed to support the EPU project;

- Perform minor construction and conduct field walkdowns for engineering modification packages; and
- Prepare engineering modification packages to support the PSL1 April 2010 outage, PSL2 November 2010 outage, PTN3 September 2010 outage and the PTN4 March 2011 outage. The modifications to be implemented during the respective outages are listed on Exhibit RSK-2.

Q. Please describe how FPL developed its 2009 Actual/Estimated costs.

A. The actual costs were determined from January through March 2009 using the vendor invoices that have been paid or accrued. The estimated costs for the remainder of 2009 were developed using actuals for engineering and project management and forecasting them through the end of the year 2009 and adding long lead material milestone or scheduled payments and any planned procurements.

Q. What types of costs does FPL plan to incur for the Uprate Project in 2009?

A. Schedule AE-6 of Appendix 1 breaks the 2009 actual/estimated costs down into the following categories: License Application $58,997,472; Engineering and Design $10,665,567; Permitting $102,430; Project Management $20,247,828; Power Block Engineering, Procurement, etc. $167,795,201; and Non-power Block Engineering, Procurement, etc. $90,150.

Q. Please describe the activities in the License Application category.

A. For the period ending December 31, 2009, License Application costs are estimated to be $58,997,472 as shown on Line 3 of Schedule AE-6 of

Appendix 1. These license application costs consist primarily of payments to vendors for the preparation of four NRC LARs, one for PSL1, one for PSL2, and two for PTN 3&4 (Alternate Source Term LAR and Extended Power Uprate LAR). These are scheduled for submittal by the 4th quarter of 2009, 1st quarter of 2010 and 2nd quarter of 2010 respectively. Evaluation of the license application process has resulted in FPL adjusting its internal milestones for the PSL2 and PTN submittal dates. FPL has moved its planned PSL2 LAR submittal date from the 4th quarter of 2009 to the 1st quarter of 2010, to enable more efficient utilization of Westinghouse, Shaw, and internal resources in 2009 without impacting cost or the project implementation schedule. Additionally, recent NRC feedback based on a newly implemented NRC process is resulting in a schedule adjustment for the submittal of the PTN EPU LAR, moving its planned submittal from the 4th quarter 2009 to the 2nd quarter of 2010, because it now must follow NRC approval of the PTN Alternate Source Term LAR. In 2009, the PTN LAR engineering and analysis work will be completed and the PTN LAR will be prepared, as previously planned. These adjustments do not impact the overall project implementation schedule or costs.

Q. Please describe the activities in the Engineering and Design category.

A. For the period ending December 31, 2009, Engineering & Design costs are estimated to be $10,665,567 as shown on Line 4 of Schedule AE-6 of Appendix 1. The amounts consist primarily of FPL's engineering and design

work in support of the NRC LARs and review and approval of the engineered modification packages prepared for the PSL and PTN sites.

Q. Please describe the activities in the Permitting category.

A. For the period ending December 31, 2009, Permitting costs are estimated to be $102,430 as shown on Line 5 of Schedule AE-6 of Appendix 1. These amounts consist primarily of the Conditions of Certification (CoC) requirements resulting from the Site Certification Application approval for PSL and PTN. For the Turkey Point units, this requires FPL, the South Florida Water Management District (SFWMD), Miami Dade County, and the Florida Department of Environmental Protection (FDEP) to have an agreed-upon plan for the conditions of certification. Activity required for the St. Lucie units is anticipated to be minimal.

Q. Please describe the activities in the Project Management category and how those activities to help ensure that the Uprate Project is completed on a reasonable schedule and at a reasonable cost.

A. For the period ending December 31, 2009, Project Management costs are estimated to be $20,247,828 as shown on Line 6 of Schedule AE-6 of Appendix 1. This category includes the FPL and contractor management personnel at each of the sites and those in the Jupiter West and Juno Beach Offices. These personnel are required to ensure the uprate project is managed in an efficient and cost-effective manner.

Q. Please describe the activities in the Power Block Engineering, Procurement etc. category.

A. For the period ending December 31, 2009, Power Block Engineering and Procurement costs are estimated to be $167,795,201 as shown on Line 9 of Schedule AE-6 of Appendix 1. This amount consists primarily of engineering design packages for the implementation of scheduled work shown on Exhibit RSK-2. This work includes preparation of the modification packages which provides comprehensive direction for the removal, replacement and/or modification of components, equipment, systems or structures as needed to support the uprate condition and performing field walkdowns by FPL's EPC vendor.

Some needed modifications can be performed when the units are operating, reducing outage duration times. FPL is evaluating the risk to the continued operation of the unit and if determined to be an acceptable risk, the modifications will be performed. Two such modifications are those to the PSL 1 and 2 Gantry Cranes. The needed modifications to these cranes will be performed while the respective units are operating. PSL2 gantry crane modifications will be completed in 2009 and PSL 1 in 2010. The in-service dates for these cranes will be when they are completed in the respective years.

Procurement costs include the purchase of long lead equipment items and progress payments to manufacturing vendors. FPL plans to purchase feedwater pumps and motors, condensate pump motor rewinds, and isolated phase bus duct systems for the PSL uprates. For PTN, FPL plans to purchase

feed pumps and motors, condensate pumps and motors, the spent fuel cooling system, turbine plant closed cooling water heater exchangers, and various system valves. Progress payments will be made for other components, such as main turbine and generator components, feedwater heaters, moisture separators reheaters, and flow measurement devices for both PSL and PTN, and main condensers for PTN. Exhibit RSK-3 shows the Leading Edge Flow Measurement (LEFM), also referred to an Ultrasonic Flow Measurement System (UFM), which will be installed in PSL1. Exhibit RSK-4 shows the hydrostatic test being performed on the UFM, which was witnessed by FPL Quality Assurance.

Additionally, engineering, permitting and construction of a fabrication and warehouse facility that will be located in the protected area of the Turkey Point Site will begin in 2009 and finish in 2010. The fabrication area will be used to pre-fabricate piping and valves that are needed to complete modifications in the PTN Units 3 and 4. Pre-fabrication of piping and valves reduces the outage time because work can be performed prior to the outage as well as in parallel instead of in series with field activities during the outage. The warehouse will be used to store delivered materials for the EPU project prior to installation and to provide an area for the training and qualification of craft labor which will include pipe fitting and welding. This is necessary to ensure PTN has the needed qualified craft labor support to perform the many tasks needed to remove, install or modify plant equipment. As an example,

there are several hundred small and large bore piping welds that are necessary for the installation of just one set of the many feedwater heaters that will be replaced during the project. It is necessary to qualify welders to ensure the quality of the welding. Additionally, some of the small bore piping can be prefabricated in the shop area which will improve component installation efficiency and outage durations.

Q. Please describe the activities in the Non-Power Block Engineering, Procurement etc. category.

A. For the period ending December 31, 2009, Non-Power Block Engineering costs are estimated to be $90,150 as shown on Line 10 of Schedule AE-6 of Appendix 1. This amount is required primarily for training and simulator modifications.

Q. Please describe the activities in the Transmission category.

A. For the period ending December 31, 2009, Transmission costs are estimated to be $1,028,124 as shown on Line 33 of Schedule AE-6 of Appendix 1. This amount is required primarily for the following:

PTN 3 and 4: FPL must begin installing phase conductor spacers on the Unit 3 and Unit 4 string busses and upgrade the Over Head Ground Wire (OHGW) between the 230 kV system switchyard and each Generator Step Up (GSU) transformer. This is being done during unit outages in 2009 in order to reduce the amount of time that transmission construction equipment competes for

limited space with plant construction equipment in the power block areas during the subsequent unit outages.

PSL Units 1 and 2: FPL must install phase conductor spacers on the St. Lucie – Midway #2 230 kV line. This requires clearances which will be obtained during the Spring 2009 PSL Unit 2 outage. Doing so will facilitate the ability to obtain transmission line and substation equipment clearances during the scheduled 2010, 2011, and 2012 unit outages to meet the required completion dates for the increase of the PSL Units 1 and 2 ratings. Additionally, a transformer thermal loading design study for the spare GSU transformer at the St. Lucie Nuclear Plant is being conducted to determine the requirements to increase the GSU transformer's rating. Each of these items (except the thermal loading design study) will be transferred to plant in service in 2010.

Q. Please describe the 2009 actual/estimated recoverable O&M costs.

A. Actual/Estimated recoverable O&M costs for the EPU project in 2009 total $568,000. Projected recoverable O&M consists of purchased software which is classified as O&M expense in accordance with FPL Accounting Guidelines, and purchased computer hardware and office furniture/ equipment that does not meet the criteria for capitalization under FPL Accounting Guidelines.

Q. Are the 2009 actual/estimated costs presented in your testimony reasonable and "separate and apart" from other nuclear plant expenditures?

A. Yes, the 2009 actual/estimated costs presented are reasonable and "separate and apart" from other nuclear plant expenditures. With respect to the LAR work, the project team continues to monitor very closely the nuclear design vendors, the tasks they are assigned, the quality of the product they produce and the costs associated with producing the necessary reports for the NRC LARs. FPL is also closely monitoring the progress of, and payments made to, the major Original Equipment Manufacturer (OEM), Siemens. Siemens was contracted to engineer and design the High Pressure and Low Pressure main turbines for the St. Lucie units, the High Pressure main turbines for the Turkey Point Units, and the main generator rotors and the rewinding of the main generator stators for all units. This vendor is on schedule for the manufacture of these large long lead components. This contract was entered into and approved as reasonable in 2008.

FPL's extensive use of competitive bidding also supports the reasonableness of its expenditures. The majority of major equipment procurements (other than the OEM contract described above) were competitively bid and awarded to Thermal Engineering International, Incorporated. This work includes engineering and manufacture of the moisture separators and feedwater heaters for all units and the main condensers for Turkey Point. The EPC vendor contract was also competitively bid and awarded to the Bechtel Corporation. This vendor began mobilizing its management and engineering staff at both sites and at Jupiter West in December 2008. They have begun the process of

construction walkdowns, planning and developing an implementation schedule for the modification packages that will be used to remove, install or modify the structures, systems or components that are needed for the power uprate. In sum, careful vendor oversight, use of competitive bidding when appropriate, and the application of the robust internal schedule and cost controls and internal management processes, all demonstrate that FPL's actual/estimated 2009 expenditures are reasonable.

Additionally, the construction costs and associated carrying charges and recoverable O&M expenses for which FPL is requesting recovery through this proceeding were caused only by activities necessary for the uprate projects, and would not have been incurred otherwise. As explained in my testimony submitted in this docket on March 2, 2009, FPL's identification of the major components that must be modified or replaced to enable the units to function properly and reliably in the uprated condition is based on engineering analyses. A review of historical site planning documents and the License Renewal Action Items compiled in conjunction with the NRC's approval of FPL's requested license renewals confirmed that the uprate costs were "separate and apart" from other planned nuclear activities and expenditures.

2010 PROJECTED CONSTRUCTION ACTIVITY AND COSTS

Q. Please summarize the construction activity projected for 2010.

A. In 2010, implementation of the engineered modification packages will begin. Specifically, the primary activities projected for 2010 are as follows:

- Implement the EPU modifications for St. Lucie Unit 1 during the April 2010 outage, for St. Lucie Unit 2 during the November 2010 outage, and for Turkey Point Unit 3 during the September 2010 outage. The current schedule of modifications to be implemented during the respective outages are listed on Exhibit RSK-2;
- Complete and place into service systems (as identified on RSK-9) needed to support the EPU project;
- Prepare engineering modification packages to support the St. Lucie Unit 1 October 2011 outage and Turkey Point Unit 4 March 2011 outage.

Q. Please describe how FPL developed its 2010 Projected costs.

A. The 2010 projected costs were developed from the vendor contracts that have scheduled payments and estimates for the modification package engineering and implementation being performed by the EPC vendor for the outages that are scheduled for 2010 and beyond.

Q. What types of costs does FPL project to incur for the Uprate Project in 2010?

A. Schedule P-6 of Appendix 1 breaks the 2010 projected costs down into the following categories: License Application $13,997,070; Engineering and

Design $12,356,079; Permitting $0; Project Management $36,286,869; and Power Block Engineering, Procurement, etc. $308,782,995.

Q. Please describe the activities in the License Application category.

A. For the period ending December 31, 2010, License Application costs are projected to be $13,997,070 as shown on Line 3 of Schedule P-6 of Appendix 1. These amounts consist primarily of vendor payments necessary for responding to NRC Requests for Additional Information (RAIs) on the LAR submittals made to the NRC.

Q. Please describe the activities in the Engineering and Design category.

A. For the period ending December 31, 2010, Engineering & Design costs are projected to be $12,356,070 as shown on Line 4 of Schedule P-6 of Appendix 1. The amounts consist primarily of FPL engineering activities in support of responding to NRC RAIs on the LAR submittal and the review and approval of engineered modification packages.

Q. Please describe the activities in the Project Management category and how those activities to help ensure that the Uprate Project is completed on a reasonable schedule and at a reasonable cost.

A. For the period ending December 31, 2010, Project Management costs are projected to be $36,286,869 as shown on Line 6 of Schedule P-6 of Appendix 1. This category includes the project management costs associated with the oversight and management of the EPU engineering of modification packages, implementation of modifications for the planned outages occurring in 2010 and the future outages in 2011 and 2012, and implementation of the

Conditions of Certification as a result of the Site Certification Application approval at Turkey Point. These personnel are required to ensure the uprate project is managed in an efficient and cost-effective manner.

Q. Please describe the 2010 activities in the Power Block Engineering, Procurement etc. category.

A. For the period ending December 31, 2010, Power Block Engineering and Procurement costs are projected to be $308,782,995 as shown on Line 9 of Schedule P-6 of Appendix 1. This amount consists of milestone payments made to manufacturers of long lead materials and payments made to the EPC vendor for the vast work associated with the implementation of the engineered modification packages in the 2010 outages and for the preparation of engineering modification packages for planned outage implementation in 2011 and 2012. Attached to my testimony as exhibits are pictures of examples of some of the large components that have to be replaced. Exhibit RSK-5 is a picture of a High Pressure (HP) Turbine being removed and Exhibit RSK-6 shows the new HP Turbine rotor being installed. This installation will take place at PSL Unit 2 in 2010. One can see the tight tolerances and the need for control of these large, heavy components. Exhibit RSK-7 shows the early stages of the removal of a Moisture Separator Reheater (MSR) tube sheet, which was removed onto temporary rollers to facilitate the removal, and Exhibit RSK-8 is a picture of the MSR tube sheet that will be installed into the shell of the MSR shown in Exhibit RSK-7.

Q. Please describe the 2010 activities in the Transmission category.

A. For the period ending December 31, 2010, Transmission costs are projected to be $20,191,235 as shown on Line 33 of Schedule P-6 of Appendix 1. This amount is required primarily for the following:

PTN Units 3 and 4: FPL must upgrade eight disconnect switches, which requires clearances only available during a fossil or nuclear unit outage, and is scheduled during the Fall 2010 PTN Unit 3 outage and the 2010 Turkey Point fossil unit outage. Additionally, the installation of 5 ohm series phase inductors with shunt capacitors must begin in 2010 in order to meet the schedule to be in service by the end of the Spring 2011 PTN Unit 4 outage. Finally, relay panels are to be installed at Flagami Substation and the upgrade of the OHGW between the 230 kV system switchyard and each GSU transformer will be completed during the Fall 2010 PTN 3 outage. Each of these items, except the eight upgraded disconnect switches, are planned to be transferred to plant in service in 2010.

PSL Units 1 and 2: FPL must perform work that requires line clearances which can only be obtained when at least one PSL unit is off line. This includes: (i) the installation of phase conductor spacers on the St. Lucie – Midway #1 & #3 230kV lines; (ii) the installation of fiber optic OHGW on the St. Lucie – Midway #2 & #3 230kV lines; (iii) the installation of 18 new 3000 amp switches in the St. Lucie 230kV Switchyard along with associated connectors and installation of fiber optic relay panels; (iv) the installation of

11 new 3000 amp switches in the Midway 230kV Switchyard along with associated connectors and installation of fiber optic relay panels. All this work will be coordinated and is scheduled for the Spring 2010 outage on PSL Unit 1 and the Fall 2010 outage on PSL Unit 2. FPL must also upgrade the coolers and low side bushings of the existing PSL Unit #1B GSU transformer, after it has been removed during the Spring 2010 PSL Unit 1 outage, in order for it to become the new PSL spare GSU transformer for the uprated units. Each of these items are planned to be transferred to plant in service in 2010.

Q. Please describe the 2010 projected recoverable O&M costs.

A. Projected recoverable O&M costs consist of the items described for 2009 plus two additional items. First, the Nuclear amount of $2,059,376 shown on Line 13 of Schedule P-4 of Appendix I includes an estimate of write-offs of inventory that will be rendered obsolete by the EPU modifications implemented in 2010. Second, transmission O&M recoverable costs are estimated to be $150,000 as shown on Line 14 of Schedule P-4 of Appendix 1. This amount consists of work to uprate non-capital facilities within the St. Lucie and Midway switchyards associated with increasing the amperage ratings of the switchyards to 3000 amps. These activities are classified as O&M expense in accordance with FPL Accounting Guidelines.

Q. Are the 2010 cost projections presented in your testimony reasonable and "separate and apart" from other nuclear plant expenditures?

A. Yes, The 2010 costs projections presented are reasonable and "separate and apart" from other nuclear plant expenditures. In 2010, approximately half of

FPL's expenditures are projected to represent payments on the competitively bid EPC contract and payments for the competitively bid procurement of long lead items. The reasonableness of such costs is strongly supported by the competitive bidding process. With continued diligence and attention to detail in the budgeting process, and through experienced personnel's application of the robust internal schedule and cost controls and use of internal management processes, FPL is confident that its projected 2010 expenditures are reasonable.

Additionally, the projected construction costs and associated carrying charges and recoverable O&M expenses for which FPL is requesting recovery through this proceeding are only for activities that are necessary for the uprate projects, and would not have been incurred otherwise. As explained in my testimony submitted in this docket on March 2, 2009, FPL's identification of the major components that must be modified or replaced to enable the units to function properly and reliably in the uprated condition is based on engineering analyses. A review of historical site planning documents and the License Renewal Action Items compiled in conjunction with the NRC's approval of FPL's requested license renewals confirmed that the uprate costs were "separate and apart" from other planned nuclear activities and expenditures.

TRUE-UP TO ORIGINAL PROJECT COST AND LONG-TERM FEASIBILITY

Q. Have you prepared an update to the original uprate project costs?

A. Yes. Appendix 1 includes the TOR schedules that compare the current projections to FPL's originally filed St. Lucie and Turkey Point Project costs. The TOR schedules provide information on the project costs through the end of 2010. At this time, FPL has not identified any need to revise the total non-binding cost estimate provided last May in Docket 080009-EI. As would be expected, the Company continues to evaluate the costs associated with this project. As activities such as final engineering analyses and design, associated NRC requirements and reviews, and construction planning are more clearly defined, the Company will make any necessary revisions to the original cost estimate. The TOR schedules provide the best information currently available for the cost recovery period through 2010.

Q. What are the most current EPU economic analysis results?

A. As discussed by FPL witness Sim, the most current feasibility analysis affirms the cost effectiveness and benefits associated with the uprate project, using the same approach applied in the Need Determination proceeding for the project. The nuclear uprates project is still projected to be a cost-effective generation addition for FPL's customers.

Q. Does this conclude your testimony?

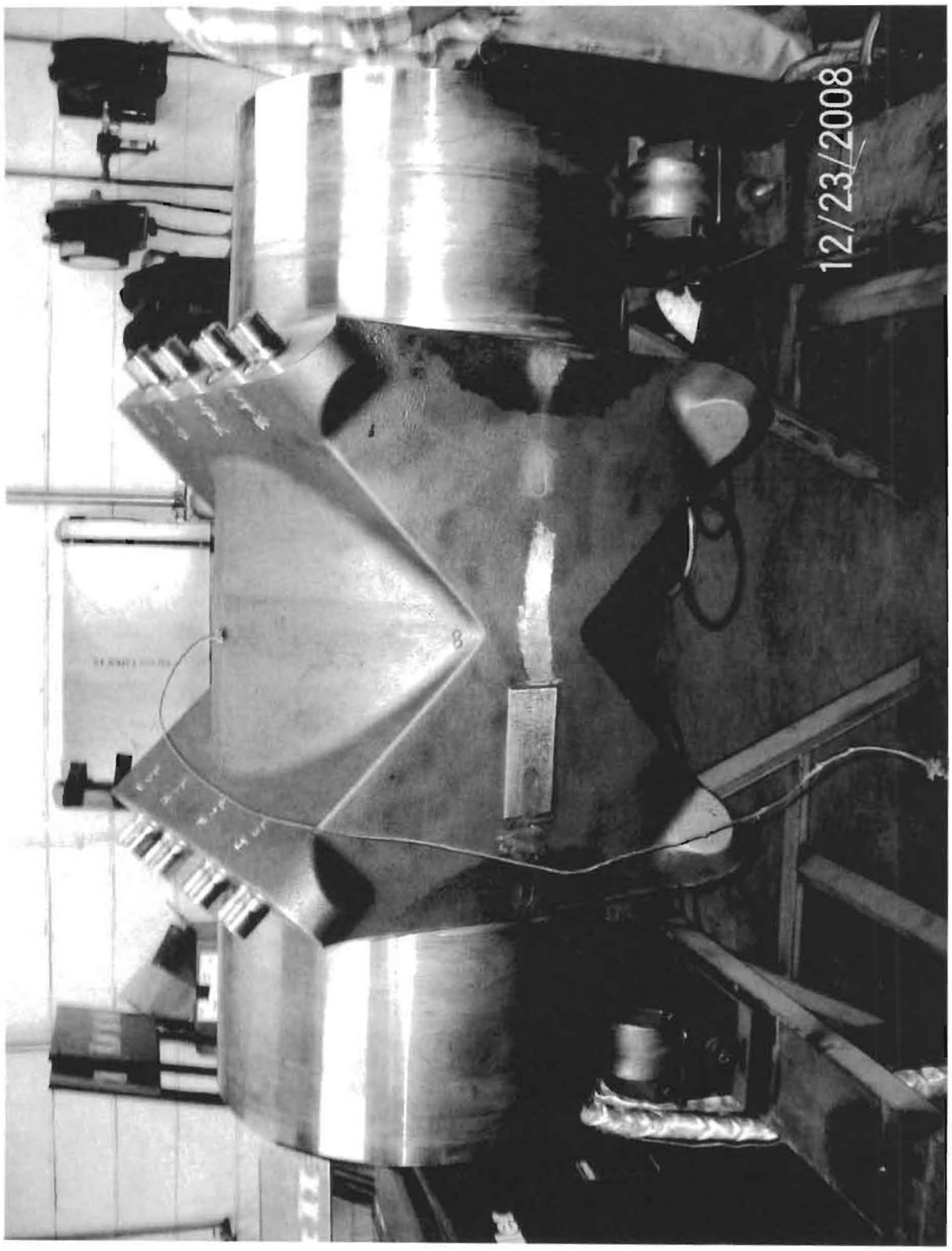
A. Yes.

Appendix I is in a separate book.

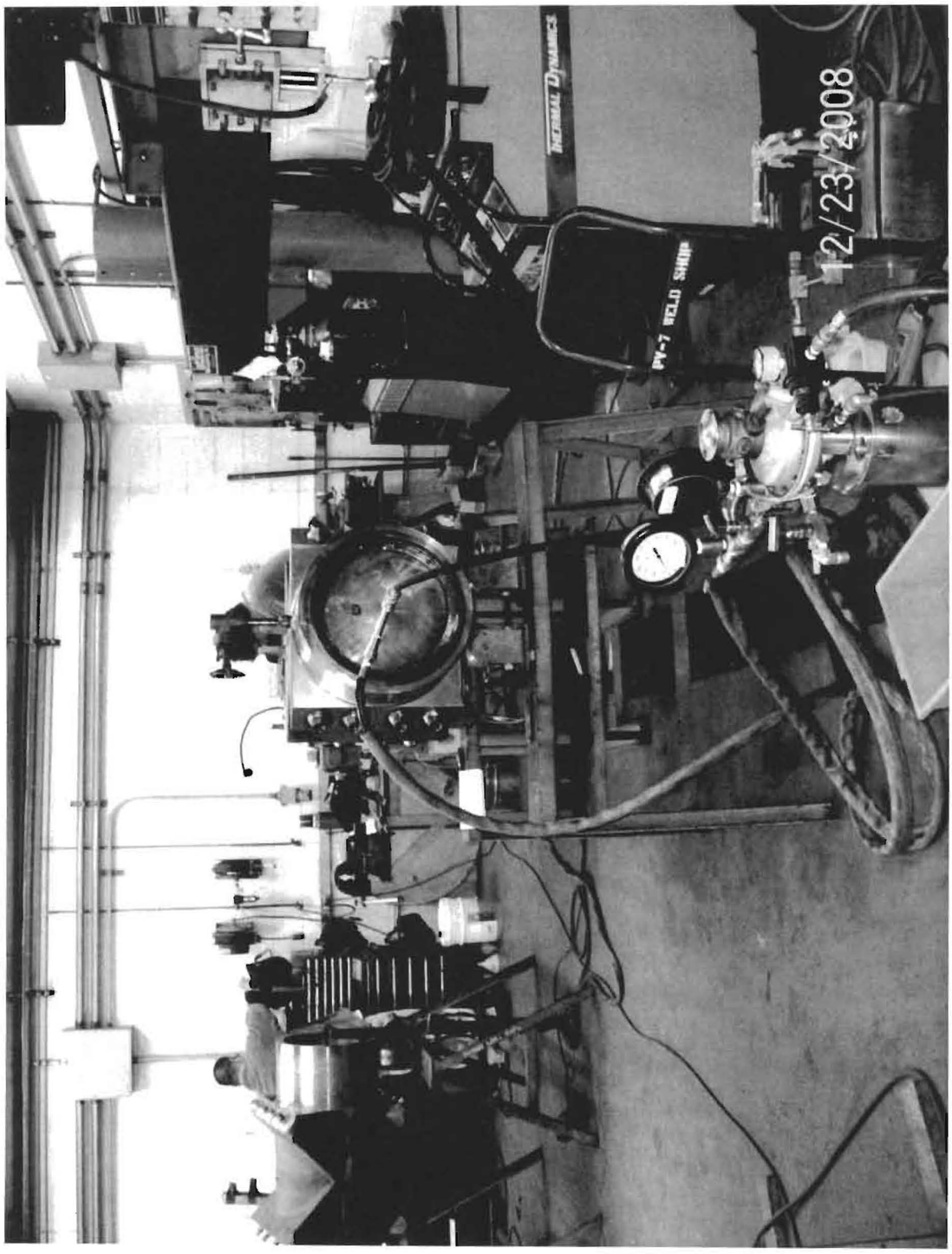
Item No.	EPU Activities
	ST. LUCIE NUCLEAR POWER STATION
	St Lucie Unit 2 Outage - Spring 2009
1	TURBINE TESTING PRESSURE TAPS
2	MAIN GEN EXCITER
	St Lucie Unit 1 Outage - Spring 2010
3	ISO PHASE BUS DUCT COOLING
4	CT's AND BUSHINGS
5	MAIN GEN STATOR
6	MAIN GEN H2 COOLERS
7	GENERATOR H2 SEAL OIL PRESSURE INCREASE
8	COND. PMP 6.9KV SWGR CUBICLE ADDITION
9	MAIN GENERATOR ROTOR
10	FEEDWATER HEATER REPLACEMENT(#5)
11	TURBINE TESTING PRESSURE TAPS
12	CIRCULATING WATER PUMP REFURBISHMENT
13	CONDENSER AIR REMOVAL MOD / REFURB
14	TCW HEAT EXCHANGERS
15	MAIN GEN EXCITER
	St Lucie Unit 2 Outage - Fall 2010
16	LP TURBINE ROTOR
17	MSR REPLACEMENT
18	COND. PMP 6.9KV SWGR CUBICLE ADDITION
19	FEEDWATER HEATER REPLACEMENT(#5)
20	CIRCULATING WATER PUMP REFURBISHMENT
21	TCW HEAT EXCHANGERS
	On-Line 2009
22	SIMULATOR MODIFICATIONS
23	TG GANTRY CRANE
24	MAIN GEN EXCITER
	On-Line 2010
25	SIMULATOR MODIFICATIONS
26	TG GANTRY CRANE

Item No.	EPU Activities
	TURKEY POINT NUCLEAR POWER STATION
	Turkey Point Unit 3 Outage - Spring 2009
1	TURBINE TESTING PRESSURE TAPS
	Turkey Point Unit 3 Outage - Fall 2010
2	ECF REMOVAL
3	ELECTRICAL BUS MARGIN UPGRADES
4	CTs AND BUSHINGS
5	MAIN GEN H2 COOLERS
6	EXCITER COOLERS
7	MAIN GENERATOR ROTOR
8	FEEDWATER REGULATING VALVES UPGRADE (EC12053/12054)
9	FEEDWATER ISOLATION VALVES ADDITION (EC11954/12052)
10	HEATER DRAIN VALVES
11	FEEDWATER HEATERS (ALL)
12	LP FEEDWATER HEATERS(1 & 2)
13	LP FEEDWATER HEATERS (3,4,& 5)
14	HP FEEDWATER HEATERS (6)
15	FEEDWATER HEATER DRAIN PIPING UPGRADE (EC12057/12058)
16	FEEDWATER HEATER DRAINS DIGITAL UPGRADES
17	PRESSURIZER SAFETY VALVE LOOP SEAL
18	MAIN CONDENSER REPLACEMENT
19	ICW TPCW COOLING UPGRADE
20	CONTAINTMENT COOLING MODS
21	FAC IDENTIFIED PIPING REPLACEMENT
22	SUMP PH CONTROL
23	HVAC UNIT FOR "C" BUS ELEC. OUT BLDG.
	Turkey Point Unit 4 Outage - Fall 2009
24	TURBINE TESTING PRESSURE TAPS
25	SUMP PH CONTROL

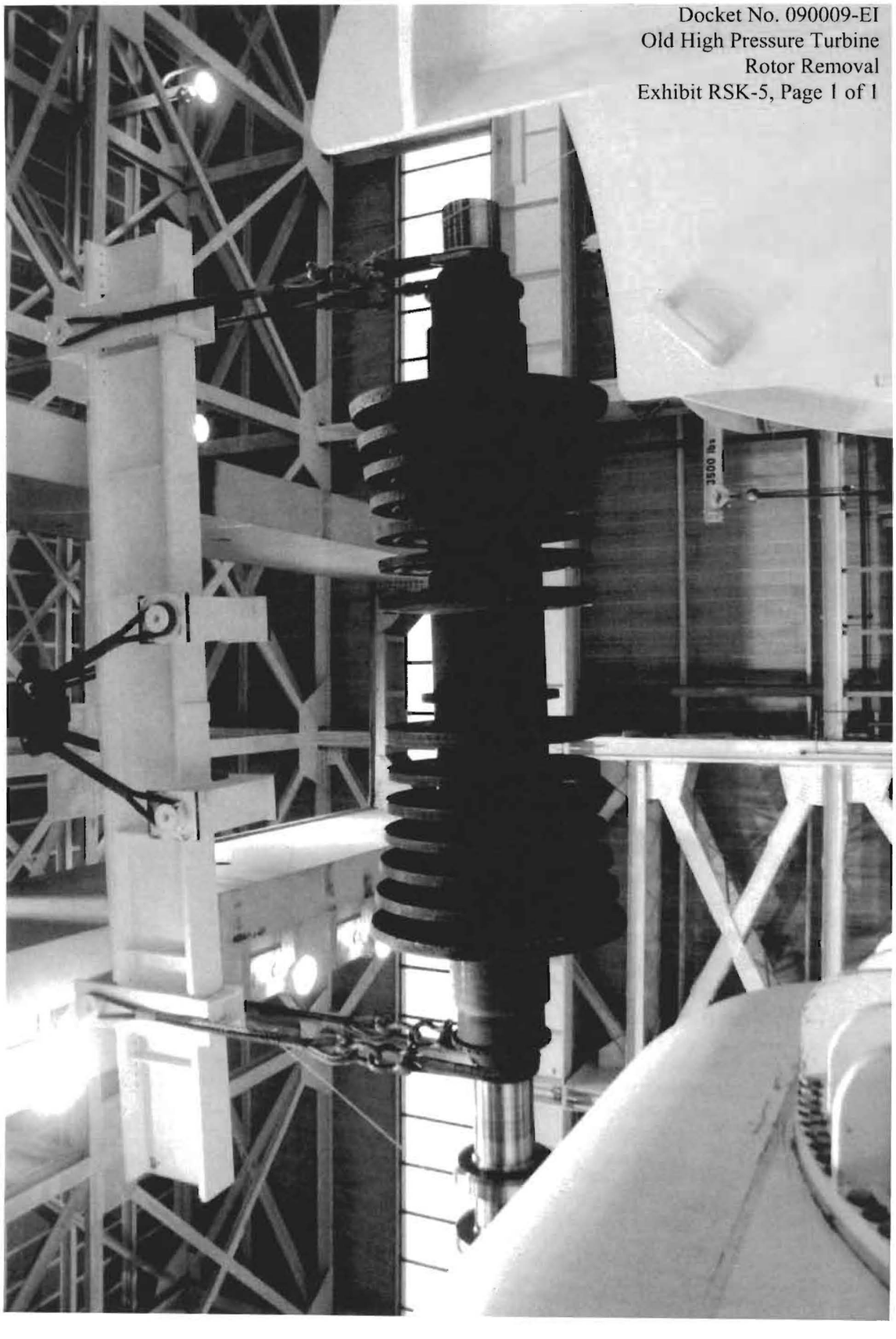
Docket No. 090009-EI
Ultrasonic Flow Metering
Hydrostatic Pressure Testing of the System
Exhibit RSK-3, Page 1 of 1

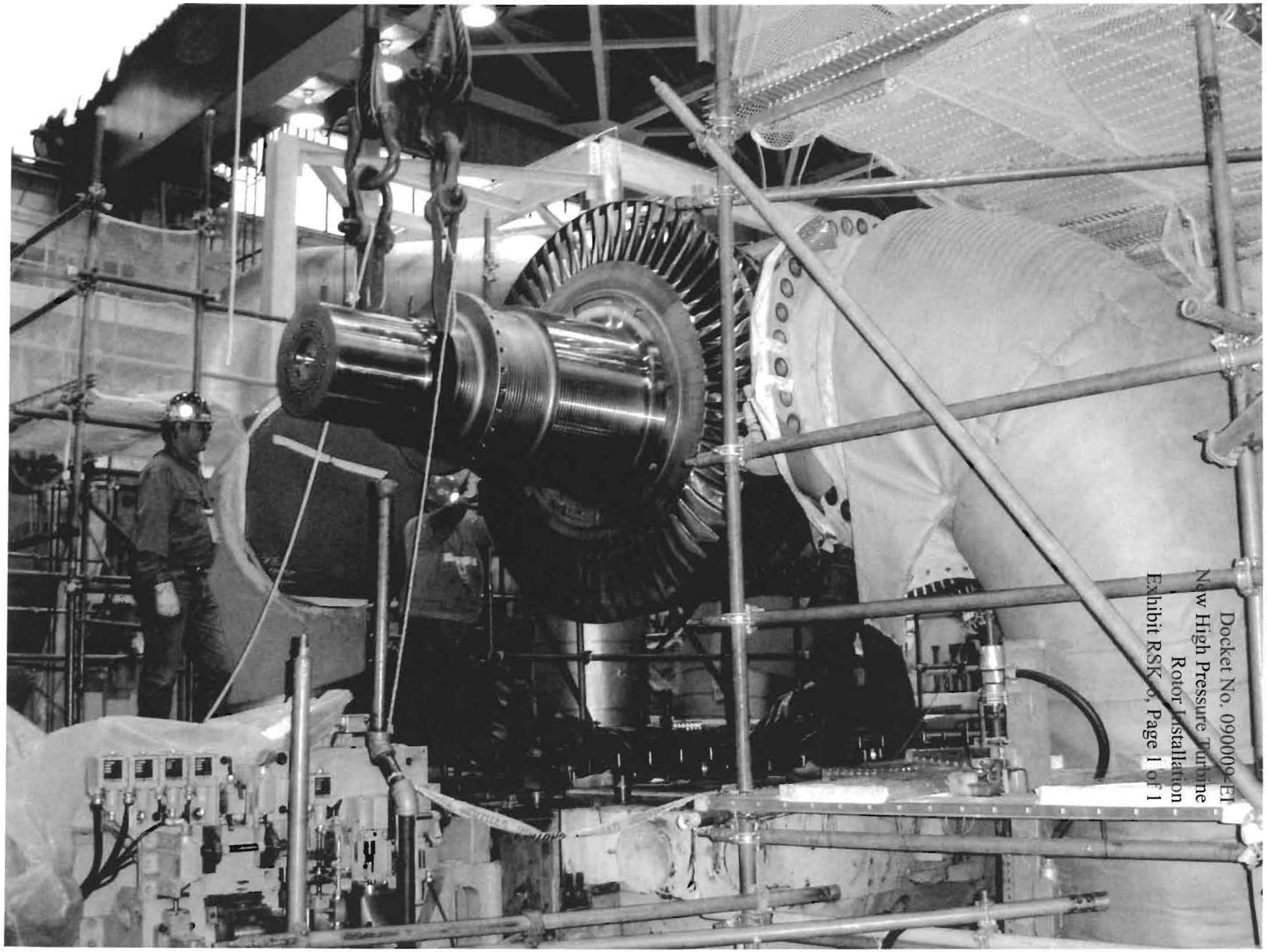


Docket No. 090009-EI
Ultrasonic Flow Metering
Hydrostatic Pressure Testing of the System
Exhibit RSK-4, Page 1 of 1

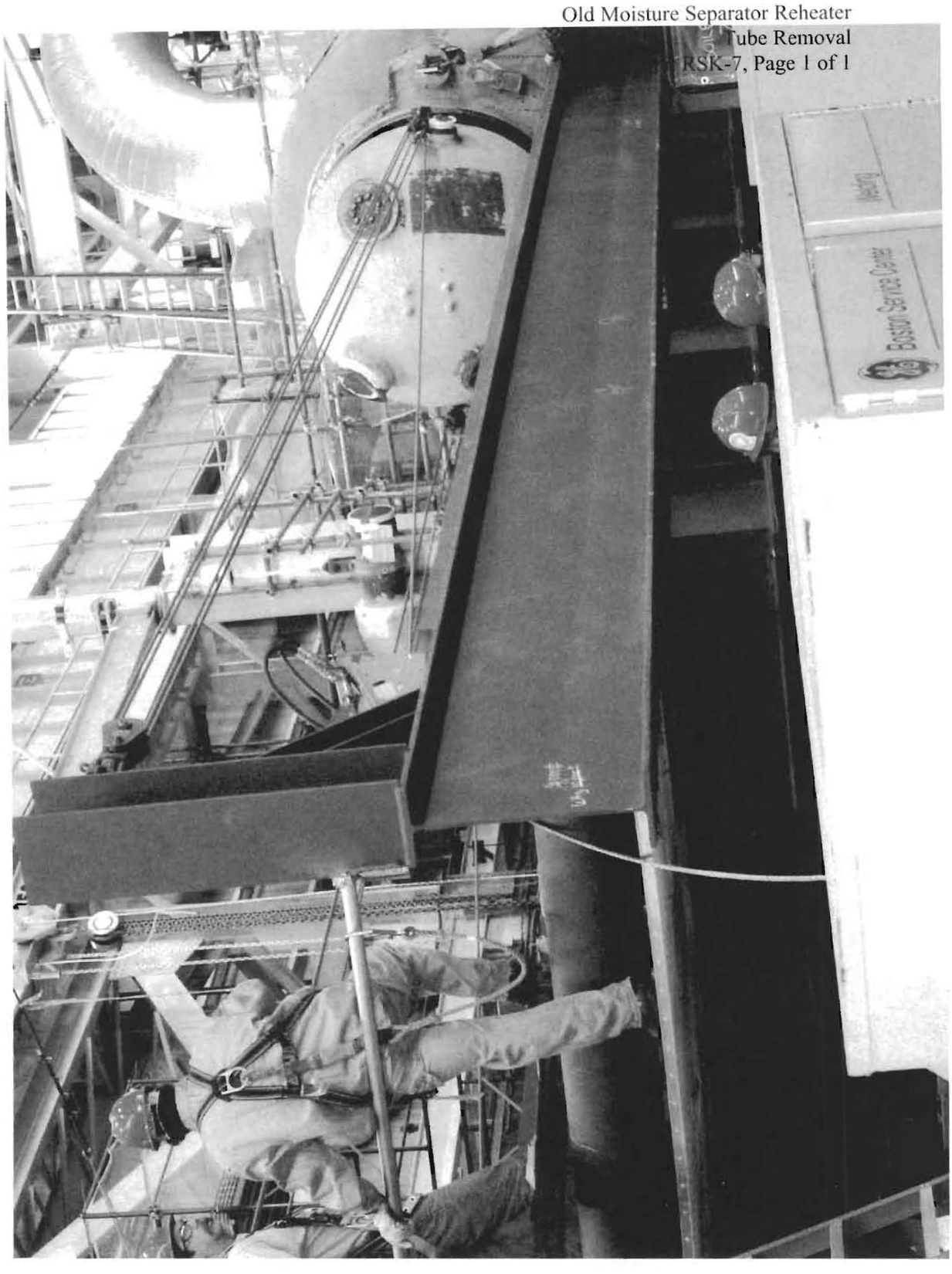


Docket No. 090009-EI
Old High Pressure Turbine
Rotor Removal
Exhibit RSK-5, Page 1 of 1

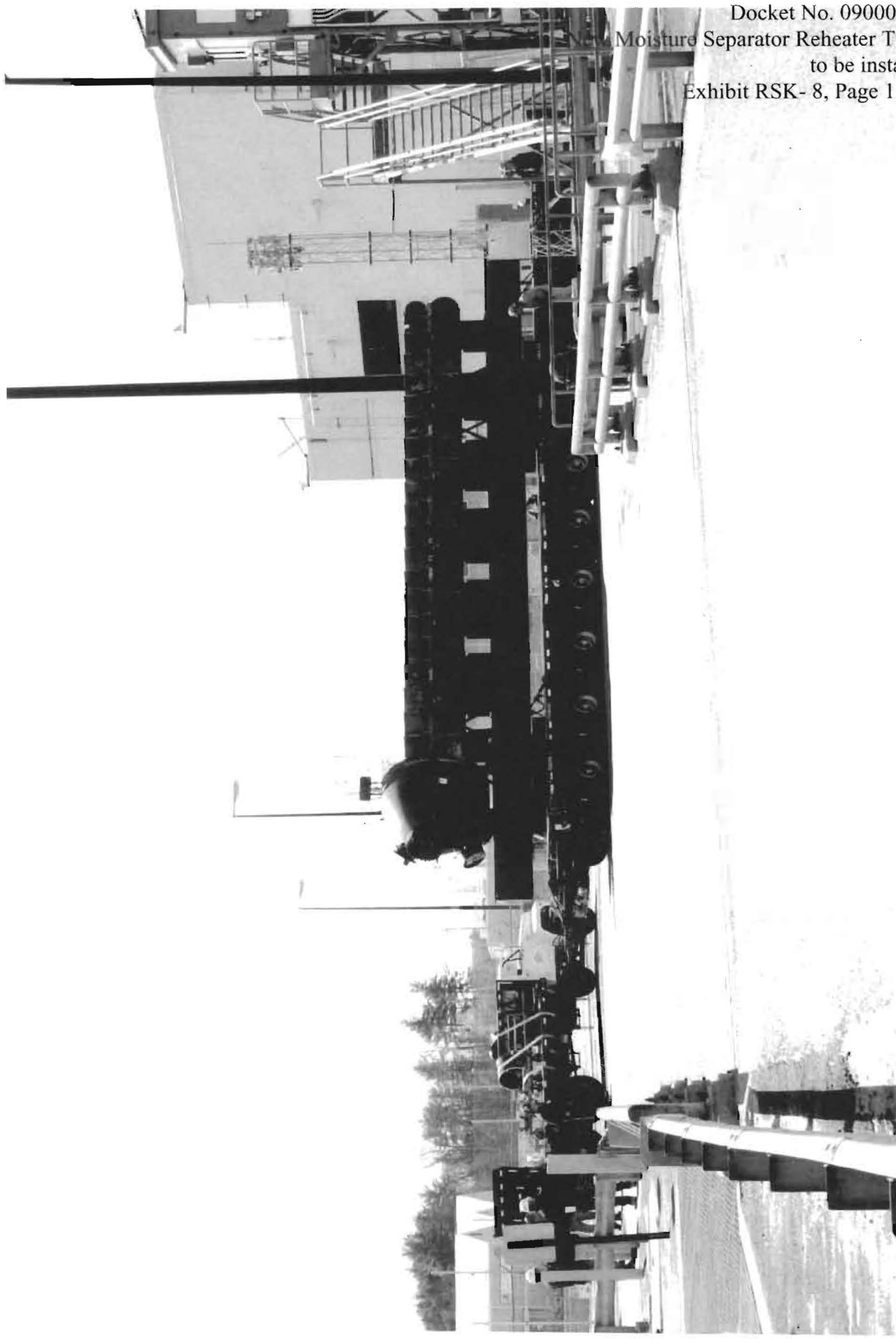




Docket No. 090009-EI
New High Pressure Turbine
Rotor Installation
Exhibit RSK-6, Page 1 of 1


Boston Service Center

Docket No. 090009-EI
New Moisture Separator Reheater Tubes
to be installed
Exhibit RSK- 8, Page 1 of 1



EPU PLANT IN SERVICE 2009-2010

2009
ST. LUCIE UNIT 2
TURBINE GANTRY CRANE Crane modifications are required to lift and move major equipment needed to operate in the uprate conditions, main turbines, main generator rotor, moisture separator reheaters, feedwater heaters, associated pumps, piping and valves.
2010
ST. LUCIE UNIT 1 - SPRING 2010 OUTAGE
TURBINE TESTING PRESSURE TAPS These test taps are being installed to measure pressure and flows to establish a baseline during current normal operations. The information obtained will be used in the design of the turbines and associated equipment, valves and piping which will be needed to support the power uprate conditions.
ISOLATED PHASE BUS DUCT COOLING The Isolated Phase Bus (IPB) duct connects the main generator output to the low voltage windings of the Main Transformer (MT) and the high voltage windings of the Unit Auxiliary Transformer (UAT). The main portion of the IPB is forced cooled and runs from the generator terminals to the MT. The main bus is connected to the UAT via the self cooled tap bus. This scope includes cooling system modifications to increase the blower fan rating and increase cooling water flow through its heat exchanger.
CURRENT TRANSFORMER'S AND BUSHINGS Larger electrical Current Transformers (CT's) and Bushings are needed support the increased main generator electrical output in the power uprate conditions.
MAIN GENERATOR STATOR Rewind the main generator stator to increase the electrical output of the main generator.
MAIN GENERATOR HYDROGEN COOLERS Hydrogen is used to cool the main generator. The increased electrical output requires a larger hydrogen cooling system to operate the main generator in the power uprate conditions.
GENERATOR HYDROGEN SEAL OIL PRESSURE INCREASE The hydrogen seal oil system is one of the boundaries for the hydrogen that is used to cool the main generator and requires modifications to support the cooling of the main generator in the power uprate conditions.

CONDENSATE PUMP 6.9KV SWITCHGEAR CUBICLE ADDITION There are three condensate pumps. Two are required for 100% power operation to pump the condensed steam, water, through the feedwater heaters and provide suction pressure for the main feedwater pumps. The extended power uprate is moving the electrical supply to the third condensate pump to a different power distribution supply to ensure adequate operational margin in the power uprate conditions.
MAIN GENERATOR ROTOR The main Generator Rotor is being replaced with one that has a larger electrical output capacity to support operation in the power uprate conditions.
FEEDWATER HEATER (#5) REPLACEMENT The St. Lucie thermal cycle includes feedwater heating. Each feedwater heater stage consists of two similar feedwater heaters making up two trains. Based on our evaluation, the 5th point (HP 1-5A/B) heaters would be operating at pressures that do not provide the recommended 10% margin above design pressure. This scope is to replace the heaters, including new relief valves and vent stacks, to meet the power uprate conditions.
CIRCULATING WATER PUMP REFURBISHMENT There are four (4) circulating water pumps that provide cooling water to the main condenser where the exhaust steam from the main turbine is condensed. These pumps are being refurbished to condense the increased amounts of steam in the power uprate conditions.
CONDENSER AIR REMOVAL MODIFICATION / REFURBISH The condenser air removal system keeps the shell side of the main condenser at a negative pressure to increase the efficiency of the main turbine. This area is where the main turbine exhaust steam is condensed. This system modifications are required operate efficiently in the power uprate conditions.
TURBINE COOLING WATER HEAT EXCHANGERS The Turbine Cooling Water (TCW) system is a closed cooling water system consisting of two pumps (1A/1B), two heat exchangers (1A/1B), a surge tank, and associated piping and components. During Normal plant operation, two pumps and two heat exchanges are operated. The system is designed to remove heat from power cycle equipment, including the main generator during normal operation and normal shutdown This scope includes providing additional heat removal capacity for the TCW system by replacing the existing TCW heat exchangers (1A/1B) in order to remove the additional heat generated in the power uprate conditions.
MAIN GENERATOR EXCITER Install modified Exciter for higher electrical output of the Main Generator needed for the power uprate conditions.

ST. LUCIE UNIT 1- FALL 2010
TURBINE GANTRY CRANE Crane modifications are required to lift and move major equipment needed to operate in the uprate conditions, main turbines, main generator rotor, moisture separator reheaters, feedwater heaters, associated pumps, piping and valves.
TURKEY POINT UNIT 3 - FALL 2010 OUTAGE
EMERGENCY CONTAINMENT FILTER REMOVAL The Emergency Containment Filter (ECF) needs to be removed to support the Alternate Source Term (AST) License Amendment Request (LAR) to be submitted to the NRC for review and approval. Turkey Point will need to license Alternate Source Term for post accident control room habitability to support the power uprate conditions. As such, the emergency containment filters are no longer credited and will be removed from the containment.
ELECTRICAL BUS MARGIN UPGRADES A non-safety related 4160 V bus in each unit is identified as the "C" bus. This switchgear supplies power to the non-safety related motors and the 480 V load centers. Unit operation at 2651 MWt uprate power level will result in increased power requirements on several of the 4160 V and 480 V motor drives. Since the 4160 V system provides power directly or indirectly to each of the affected loads, changes will add additional loading to the existing system equipment and components. The C-Bus 4160 V switchgear for both units is installed within a NEMA 4X stainless steel enclosure and requires additional heat ventilating capability due to the increased electrical load. This scope is to install a cooling system for each unit's C-Bus 4160 V switchgear.
CURRENT TRANSFORMER'S AND BUSHINGS Larger electrical Current Transformers (CT's) and Bushings are needed support the increased main generator electrical output in the power uprate conditions.
MAIN GENERATOR HYDROGEN COOLERS Hydrogen is used to cool the main generator. The increased electrical output requires a larger hydrogen cooling system to operate the main generator in the power uprate conditions.
EXCITER COOLERS The exciter air coolers will have higher heat loads after the uprate, based on increased unit outputs. Additional cooling is needed to remove the additional heat. This modification adds additional cooling to the generator exciter cooling system required in the power uprate conditions.
MAIN GENERATOR ROTOR The main Generator Rotor is being replaced with one that has a larger electrical output capacity to support operation in the power uprate conditions.

FEEDWATER REGULATING VALVES (FRV) UPGRADE The three main feedwater regulating valves are installed to maintain proper flow to the steam generators. This requires new valve trim and air actuators to allow the FRV to pass additional full power uprate condition feedwater flow.
FEEDWATER ISOLATION VALVES ADDITION With higher uprated feedwater flow rates to the steam generators, the mass and energy release increases inside containment for a steam line break accident. In order to satisfy the containment analysis, fast closing feedwater isolation valves (valves and actuators) need to be installed to limit the mass and energy release to the containment in the power uprate conditions. This scope includes the installation of fast closing isolation valves on the feedwater lines as close to the containment as possible, but outside the containment wall.
HEATER DRAIN VALVES Normal and emergency heater drain valves from the feedwater heaters drain water from the feedwater heaters. Drain valves require replacement due to increased flow rates in the uprated conditions.
FEEDWATER HEATERS The Turkey Point thermal cycle includes six stages of feedwater heating. Each feedwater heater stage consists of two similar feedwater heaters making up two trains. This scope includes the replacement of Feedwater Heaters necessary to accommodate increased flows and pressures in the power uprate conditions.
FEEDWATER HEATER DRAIN PIPING UPGRADE Increasing the size of the heater drain valves to pass more water requires increased piping sizes to from the heaters to the condenser in support of the power uprate conditions.
FEEDWATER HEATER DRAINS DIGITAL UPGRADES In the power uprate conditions the components the feedwater components see increased flow and pressures which require more responsive controls. The responsiveness of the existing analog system is too slow to accommodate the uprate conditions. A more responsive digital control system is needed to accommodate increased flow and pressures in the power uprate conditions.
PRESSURIZER SAFETY VALVE LOOP SEAL Reactor power is increased for the power uprate condition. To maintain the Reactor Coolant System (RCS) pressure within allowable limits during required transient condition, the Pressurizer loop seal will be removed and the safety valves relocated to the top of the Pressurizer dome. This includes replacing the valves with modified trims and modifying the piping and supports.
MAIN CONDENSER REPLACEMENT The main condenser consists of two air tight shell below each of the low-pressure turbines, with each shell containing two tube bundles. Each tube bundle has its own inlet and outlet waterboxes directing circulating water to provide cooling to the respective tube bundles. Each tube bundle has a condenser tube cleaning system that circulates sponge rubber balls to scrub the tube surfaces free of deposits and improve performance. The main condenser is being replaced to support increased steam flow condensing requirements in the power uprate conditions. Replacing the condenser will also improves

the electrical output at the power uprated conditions.
INTAKE COOLING WATER (ICW) TURBINE PLANT COOLING WATER (TPCW) COOLING UPGRADE The heat absorbed by the TPCW system is rejected to the ICW system which, in turn, rejects heat to the power plant discharge canals. The power uprate conditions will increase the heat rejection to the TPCW system as a result of the increased heat loads on the various turbine plant coolers, such as the main generator. Upgrades to the system components are needed to remove additional heat.
CONTAINTMENT COOLING MODIFICATIONS The containment is cooled by the containment cooling water system. In the power uprate conditions the containment heat load will increase and the tube material of the heat exchangers requires replacement for Alternate Source Term (AST) requirements.
PIPING REPLACEMENT Several sections of existing piping are under sized for the increased flow in the power uprate conditions and require replacement.
SUMP PH CONTROL This is needed to satisfy the Alternate Source Term (AST) Licensing Amendment Request (LAR) to be submitted to the NRC for review and approval.
HEATING VENTILATION AIR CONDITIONING (HVAC) UNIT FOR "C" BUS ELECTRICAL OUT BUILDING A non-safety related 4160 V bus in each unit is identified as the "C" bus. This switchgear supplies power to the non-safety related motors and the 480 V load centers. Unit operation at 2651 MWt uprate power level will result in increased power requirements on several of the 4160 V and 480 V motor drives. Since the 4160 V system provides power directly or indirectly to each of the affected loads, changes will add additional loading to the existing system equipment and components. The C-Bus 4160 V switchgear for both units is installed within a NEMA 4X stainless steel enclosure and requires additional heat ventilating capability due to the increased electrical load. This scope is to install a cooling system for each unit's C-Bus 4160 V switchgear.
TRANSMISSION AND DISTRIBUTION
At PTN Units 3 & 4, FPL must install phase conductor spacers on the string busses and upgrade the OHGW between the 230 kV system switchyard and each GSU transformer; install 5 ohm series phase inductors with shunt capacitors; and install relay panels at the Flagami Substation. At PSL Units 1 & 2, FPL must install phase conductor spacers on the St. Lucie – Midway #2 230 kV line; install phase conductor spacers on the St. Lucie – Midway #1 & #3 230kV lines; install fiber optic overhead ground wire on the St. Lucie – Midway #2 & #3 230kV lines; install 18 new 3000 amp switches in the St. Lucie 230kV Switchyard along with associated connectors and fiber optic relay panels; install 11 new 3000 amp switches in the Midway 230kV Switchyard along with associated connectors and fiber optic relay panels; and upgrade the coolers and low side bushings of the existing PSL Unit #1B GSU transformer.