Florida Power
CORPORATION
Crystal River Unit 3
Docket No. 50-302

February 14, 1996
3F0296-08

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Subject: Crystal River Unit 3 Refueling Outage 10 (10R)

Dear Sir:

Florida Power Corporation (FPC) will shutdown Crystal River Unit 3 (CR-3) for refueling and other outage related activities this spring. The shutdown is scheduled for February 29, 1996. The shutdown duration is 47 days which will place the unit back on line on April 14, 1996. This letter provides a brief discussion of outage activities that are of mutual interest.

The outage plan has been prepared and will be implemented with safety of the reactor and personnel of foremost concern. The schedule has been independently evaluated to ensure adherence to shutdown safety requirements from a defense in-depth approach. The evaluation identified several questions about the plan which have been satisfactorily answered and presented to the Plant Review Committee (PRC) for acceptance. During certain work activities such as diesel fuel oil storage tank cleaning and engineered safeguards electrical bus outages, contingency plans are in place should the initial plan require adjustments.

Also included in this letter are the outage goals and other data. The following are the major activities that are planned to be performed. They are not addressed in any particular order.

Reactor Refueling

The reactor unit will be refueled by conducting a total core off load. The reactor vessel will be empty for approximately ten (10) days, during which time inspections and work will be performed that cannot be accomplished with fuel in the vessel. Ultrasonic testing and video inspections will be conducted on the fuel assemblies while in the spent fuel pool to ensure fuel reliability and

IE26

integrity. All eight (8) of the Axial Power Shaping Rods (APSR) will be replaced. The present APSRs will reach their effective absorption life by the end of fuel cycle ten (10). The new APSRs have a long life design that should preclude a need for future replacement. Plans are to replace up to sixteen (16) control rod drive mechanism (CRDM) thermal barriers. This will correct adverse trends in rod drop times associated with type-A CRDMs. The refueling and defueled work window is the critical path for the outage.

Once Through Steam Generator (OTSG)

The inspection scope of both "A" and "B" OTSGs will meet or exceed Technical Specifications and "Generic Letter 95-03, Circumferential Cracking of Steam Generator Tubes" requirements. Specifically, the following items will be completed: 25% of all tubes in both OTSGs will be inspected by bobbin coil eddy current test (ECT); 20% of all sleeves will be inspected with the "plus point" ECT probe; Generic Letter 95-03, inspections by the motorized rotating pancake coil (MRPC) ECT; morphology characterization of ECT indications at tube support plates with the MRPC; sampling by ECT of rolled Inconel-600 plugs in the hot leg tube sheet; and tube end repair of damaged tube ends in "B" OTSG hot leg tube sheet. This is not an all-inclusive description of the scope as some other inspections and activities may be performed.

Main Turbine

Both low pressure turbines will be replaced in total which includes both rotors and all inner cylinders. Extraction steam expansion joints will also be replaced. The new turbine requires bearing lift oil at a higher capacity be supplied to all four rotor bearings so the bearing lift oil system will be modified. Replacement of the turbines will eliminate concerns with additional blade cracking indications observed and corrected in earlier outages. The main lube oil purifiers will be replaced. The new purifiers will maintain higher quality oil, have better separation ability, and should reduce post-maintenance oil system cleanup time.

A review of turbine plans, as a result of the January 1996 main condenser tube leak, was conducted. The original plan will be implemented. Contingency plans are being prepared to support high pressure turbine work if needed, but are not anticipated to be required at this time. Replacement of the low pressure turbine should increase output about 13.5 megawatts. The time duration of the turbine work places this project near critical path of the outage.

Reactor Coolant Pump Motor

Reactor coolant pump 1A motor will be replaced with a new enhanced designed motor. It has an upgraded lube oil system, maximized welded joints, reduced number of lube oil components; and improved stator and rotor laminations, bars and collector rings. Installation of this motor will allow assessment of motor conditions and programmatic refurbishment (if needed) of reactor coolant pump motors during power operation without impacting refueling outage schedules.

Decay Heat Removal System Motor Operated Valves

Decay heat removal system motor operated valves DHV-5 and DHV-6 (decay heat removal isolation valves to the core flood tank lines) will have the motor pinion and worm gears replaced. This will improve the thrust margin identified by MOVATS tests.

Engineered Safeguards 4160/480 Transformers

Engineered safeguards transformer "A" 4160/480 volts will be replaced. Due to the storage time this transformer experienced prior to being installed in 1989, it is near the end of life expectancy.

Hot and Cold Leg Temperature Element Thermowells

All (8 total) cold leg and hot leg temperature element thermowells will be modified. Permanently welded thermowells will be installed. This eliminates the threaded fitting, gasket, and nut arrangement that has been the source of leakage and other problems in the past.

Makeup Pumps Vents and Drains

Due to the configuration of the piping from the Borated Water Storage Tank (BWST) to the suction of the Makeup Pumps (MUP), an enhancement is needed to remove entrapped gases during fill and vent operations. A vent and drain valve will be installed between the BWST and the first isolation valve, MUV-58 and MUV-73 respectively, in each suction line to the MUPs.

Makeup Tank Isolation Valve

The Makeup Tank (MUT) isolation valve (MUV-64) is presently mechanically blocked open with its actuator disabled. The existing air piston actuator will be replaced with a manual chain operator. Position indication will be installed to provide status light indication of valve position both locally and on the main control board. This will enable the MUT to be manually isolated if needed.

Incore Nuclear Instrumentation

Twenty-three (23) incore detectors will be replaced with new elements that have a service life of one additional fuel cycle more than the present ones. Also the new elements produce a higher output for greater accuracy.

Turbine Trip Logic

An electrical auto stop oil trip pressure switch signal seal-in circuit that provides a redundant trip signal to the turbine will be installed. The seal-in feature will require separate manual action to relatch the turbine if the device is actuated. This will preclude a single device failure from preventing an overspeed such as the Salem event.

Cable Separation Criteria

Much work was accomplished during Refuel 9 and on-line to verify and ensure the design criteria are met. More work is scheduled in this outage in several panels. The project will be completed this outage.

Reactor Building Purge Valves

The reactor building purge valves have hard stops installed to stop the butterfly valve discs in the correct position by preventing over travel. A newly designed type of hard stop will replace the existing ones. This will prevent the potential for "ride up" slippage. This will enhance the performance of these purge valves to seat correctly to prevent seat leak by.

Inservice Inspection and Testing

The ten year inspection of the reactor vessel will be conducted during the defueled "no mode" time frame. The inspection will be performed using a robotic ultrasonic inspection tool called "URSULA." When the core support assembly is removed for reactor vessel inspection, the bolting on the support assembly will be inspected. Both pressurizer code safety valves, the pressurizer power operated relief valve (PORV), and the PORV motor operated block valve will be replaced. Eight of the main steam code safety valves will be tested in place and the remaining 8 will be removed and refurbished. Other refueling interval inspection and testing programs such as snubbers, type B and C leak rate tests, erosion-corrosion of piping, and boron corrosion degradation will be performed. All second ten year interval balance of plant inspections and tests will be completed.

Thermal Sleeve Replacement

The thermal sleeves associated with makeup and high pressure injection check valves (MUV-36 and 42) will be replaced to prevent cracking problems experienced in the past. Replacement of these two sleeves will complete the replacement of all four thermal sleeves in this system. The other two had previously been replaced.

Emergency Diesel Fuel Oil Storage Tank

Both the "A" and "B" emergency diesel fuel oil storage tanks will be cleaned this outage. The tanks are drained and cleaned on a ten year frequency. The activity will take place during the reactor defueled window. While the "B" tank is out of service the fuel oil transfer pump (DFP-1B) foot valve will be repaired. One tank at a time will be removed from service, drained, cleaned, refilled, and tested.

Emergency Diesel Generators

The "A" Emergency Diesel Generator (EDG) will undergo its refueling frequency inspection plus replacement of the generator end bearing, replacement of the right angle fan drive gearbox, and replacement of the blower end cam shaft. EDG "B" will undergo the more extensive five year frequency inspection. Additional activities for "B" include items such as fuel injection maintenance, turbo charger inspection, engine coolant hydro test, bearing checks, and governor replacement.

Switchyard Work

Both the 230 kv switchyard and 500 kv switchyard will have outage-related work conducted. Examples are repair of transformer oil leaks, relay replacement, replacement of insulator stacks, and change out of cables. The work is planned and scheduled under strict controls for protection of off-site power supplies.

Outage Goal and Data

During 10R, ninety (90) modifications are scheduled. Some are minor ones, some are to complete modifications which have been previously started, and a few are major such as the turbine replacement. Included in this count are 45 maintenance related, 16 to eliminate temporary leak repairs, and 29 plant improvements.

Included in the schedule are a total of approximately 67 items related to commitments. Examples of the sources of the commitments are problem reports, licensee event reports, and INPO Significant Event Reports.

It is noteworthy to point out that for 70% of the outage duration, the reactor coolant system will either be filled and vented or the level will be at the refueling level of 158 feet plant datum. Attachment "A" is an outage milestone graph depicting major events compared to outage day.

Outage Goals

Duration:	≤ 47 Days
Radiation Dose:	≤ 188 Man-Rem by TLD
Physician Attended Injuries:	≤ 7
Events (as defined in the Event Free Operations program):	0
Dry Active Waste:	≤ 3120 Cubic Feet
Personnel Skin Contaminations:	≤ 220

Other Outage Data

Manhours Scheduled:	253,498
Total Activities in Outage:	6314
Work Requests in Outage:	1686

Sincerely,

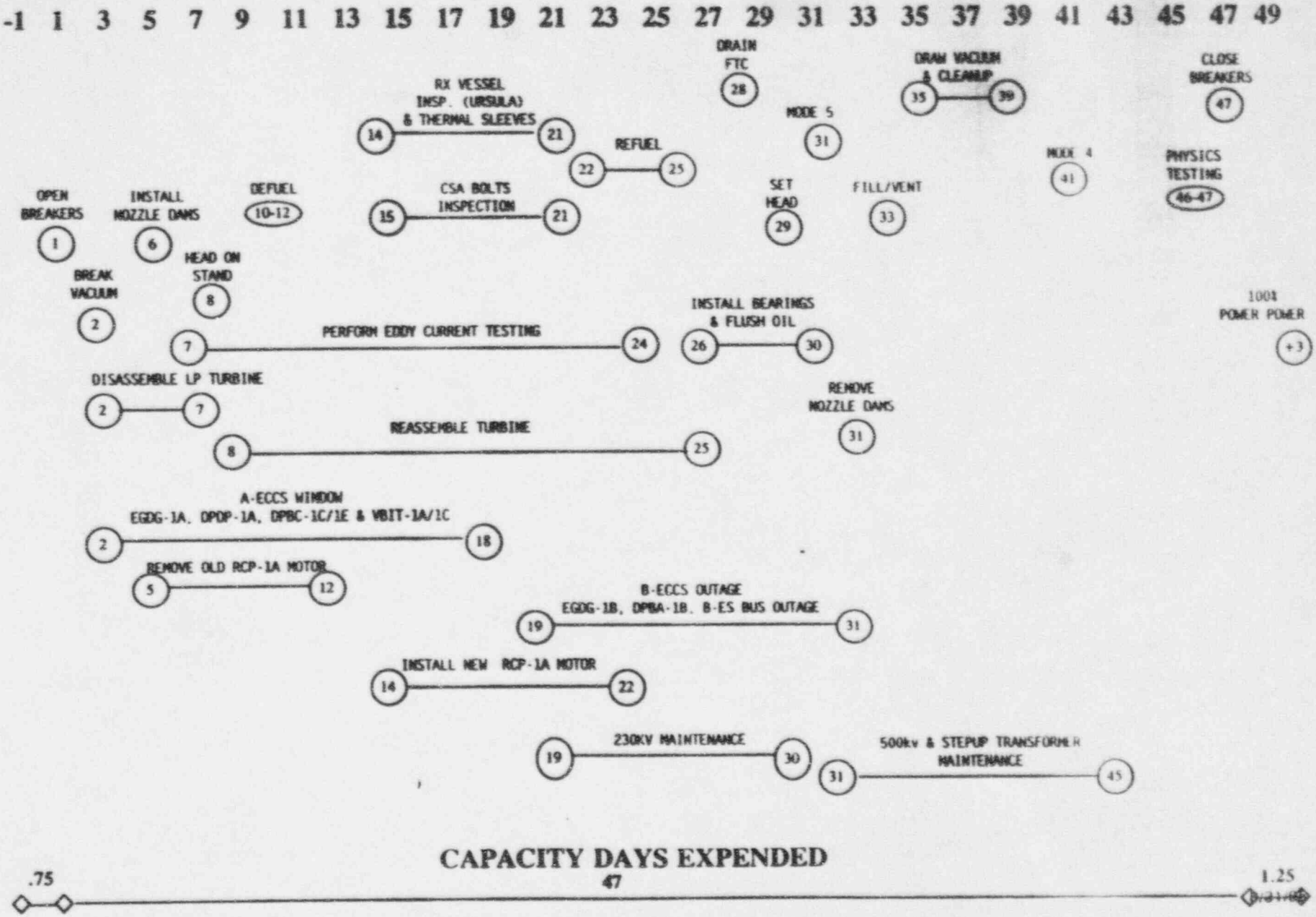
P. M. Beard, Jr.
Senior Vice President
Nuclear Operations

ROE:PMB/lf

Attachment

xc: Director, Division of Reactor Projects (2)
Regional Administrator, Region II
Senior Resident Inspector
NRR Project Manager

REFUEL 10 SCHEDULE



CAPACITY DAYS EXPENDED

47

.75 — 1.25

Attachment "A"