February 26, 2014
L-2014-041

U. S. Nuclear Regulatory Commission
Attn.: Document Control Desk
Washington, D.C. 20555-0001

Re: Turkey Point Unit 3 and Unit 4
Docket Nos. 50-250 and 50-251
Florida Power and Light Company's Turkey Point Units 3 and 4, Second Six-Month Status Report in Response to March 12, 2012, Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)

References:

1. U.S. Nuclear Regulatory Commission, Order Number EA-12-049, Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, dated March 12, 2012 (ML12056A045)

2. FPL Letter, L-2013-061, Florida Power and Light Company's Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), dated February 26, 2013 (ML13072A038)

3. FPL Letter, L-2013-249, Florida Power and Light Company's, Turkey Point Units 3 and 4, First Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), dated August 21, 2013, (ML13248A311).

4. NRC Letter, Turkey Point Units 3 and 4-Interim Staff Evaluation Relating to Overall Integrated Plan in Response to Order EA-12-049 (Mitigation Strategies) (TAC Nos. MF0982 and MF0983), dated February 6, 2014, (ML14002A151).

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued Reference 1, an immediately effective Order to all licensees including Florida Power and Light Company's (FPL) Turkey Point Units 3 and 4. In Reference 2, FPL submitted an Overall Integrated Plan for the implementation of this Order. The Order required Licensee's to provide periodic status reports for the Overall Integrated Plan.

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FPL submitted the first six-month update to the Overall Integrated Plan on August 21, 2013 (Reference 3). On February 6, 2014, the NRC Staff provided the interim staff evaluation and audit report including open and confirmatory items (Reference 4).

The purpose of this letter is to provide the second six-month status report pursuant to Section IV, Condition C.2, of Reference 1, that delineates progress made in implementing the requirements of Reference 1.

The enclosure to this letter provides an update of milestone accomplishments, confirmatory items and open items, including any changes to the compliance method, schedule, or need for relief and the basis, if any.

Should you have any questions regarding this submittal, please contact Mr. Robert J. Tomonto, Turkey Point Licensing Manager, at 305-246-7327.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on February 26, 2014

This letter contains no new Regulatory Commitments and no revisions to existing Regulatory Commitments.

Sincerely,

Michael Kiley
Site Vice President
Turkey Point Nuclear Plant

Enclosure

cc: USNRC Regional Administrator, Region II
USNRC Project Manager, Turkey Point Nuclear Plant
USNRC Senior Resident Inspector, Turkey Point Nuclear Plant

L-2014-041

Enclosure

Florida Power and Light Company's

Turkey Point Units 3 and 4

Second Six Month Status Report for the Implementation of Order EA-12-049 Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events

1 Introduction

Florida Power and Light Company's (FPL) Turkey Point developed an Overall Integrated Plan (OIP) (Reference 1 in Section 8), documenting the diverse and flexible strategies (FLEX), in response to Reference 2. This enclosure provides an update of milestone accomplishments since submittal of the Overall Integrated Plan including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any.

2 Milestone Accomplishments

Since the last 6 month update, ordering of long lead equipment has been completed. Significant progress has been made in performing the analysis supporting flex strategies and each are on track for completion by June 2014. Detailed design for mechanical and electrical tie-in modifications is near completion for the lead unit. Additionally, the contract for the storage building has been awarded and the design phase has commenced. Finally, the contract for low leakage reactor coolant pump seals has been awarded.

3 Milestone Schedule Status

The following provides an update to Attachment 3 of the Overall Integrated Plan (Reference 1). It provides the activity status of each item, and whether the expected completion date has changed. The dates are planning dates subject to change as design and implementation details are developed.

The following milestone target completion dates have been adjusted or added:

- Develop Strategies (Playbook) with RRC with a target completion date of November 2013 has been adjusted to January 2015.

  BASIS: The extension of the completion date reflects schedule adjustments for the second grouping of plants with fall 2015 outages. This date reflects the final completed playbook. A draft of the play book will be developed in late 2014.

The revised milestone target completion dates do not impact the order implementation date.

New Milestones:

There are no new milestone dates

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Submit 60 Day Status Report	Oct 2012	**Complete**	N/A
Submit Overall Integrated Plan	Feb 2013	**Complete**	N/A
Submit 6 Month Updates:			
Update 1	Aug 2013	**Complete**	N/A
Update 2	Feb 2014	**Complete**	N/A

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Update 3	Aug 2014	Not Started	N/A
Update 4	Feb 2015	Not Started	N/A
Update 5	Aug 2015	Not Started	N/A
Update 6	Feb 2016	Not Started	N/A
Update 7	Aug 2016	Not Started	N/A
Walk-through or Demonstrations:			
Complete Analyses Supporting FLEX Strategies	Jun-2014	Started	N/A
Complete Final Time Constraint Validations	Nov-2014	Not Started	N/A
Complete Staffing Analysis (Phase 2)	Jan-2015	Not Started	N/A
Complete Final Walkthrough Validation	Feb-2015	Not Started	N/A
Modifications:			
Issue Modification Packages for Unit 3	Jun-2014	Started	N/A
Unit 3 Implementation Complete	Nov-2015	Not Started	N/A
Issue Modification Packages for Unit 4	Jun-2015	Not Started	N/A
Unit 4 Implementation Complete	May-2016	Not Started	N/A
Storage:			
FLEX Storage Building Completed	Mar-2015	Started	N/A
FLEX Equipment:			
Order Equipment (procurement phase 1)*	Jun-2014	Complete	N/A
Receive Equipment (procurement phase 1)*	Dec-2014	Not Started	N/A
Order Equipment (procurement phases 2/3)*	Dec-2014	Not Started	N/A
Receive Equipment (procurement phase 2)*	June-2015	Not Started	N/A
Receive Equipment (procurement phase 3)*	June-2015	Not Started	N/A
Develop Strategies (Playbook) with RRC	Nov-2013	Started	Jan-2015
Procedures:			
Issue Operations Procedure Changes including FSGs	Sep-2014	Started	N/A
Create Maintenance Procedures	Dec-2014	Not Started	N/A

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Training:			
Operations Procedure Changes Training Material Complete	Sep-2014	Started	N/A
Develop Training Plan	Oct-2014	Started	N/A
Training Complete	Feb-2015	Not Started	N/A

*Note phase refers to the procurement sequence of equipment to be ordered, not the FLEX Phases as described in NEI 12-06.

4 Changes to Compliance Method

4.1 Changes to Modifications

Modifications Nos. 2, Install Isolation Valve and Hose Connections on previously capped connection off AFW Suction Header Lines for Each Condensate Storage Tank (CST).

The previous 6 month update report (Reference 3) included a sketch showing two new hose connection points to the Condensate Storage Tank (CST) for use during Phase 2 (Modification Nos. 2 and 4). Modification No. 2 identified adding a hose connection and valve at the CST overfill drain line as an alternate fill connection. Due to constructability and operational concerns, the hose connection for the alternative fill location will be moved to the manway on top of the CST. Modification No. 4 which is the primary means to refill the tanks has not changed. A revised modification No. 2 conceptual sketch has been provided in Attachment 1. This change will not affect the strategy or ability to maintain core cooling and heat removal by equipment credited during Phase 2.

Modification No. 5, Install isolation valve and hose connections at the Steam Generator Wet Layup (SGWLU) spectacle flanges for each individual SG.

The Overall Integrated Plan submittal (Reference 1, Attachment 4) included a sketch showing a new valve and hose connection at the SG wet layup spectacle flange (Modification No. 5). The configuration of this connection has been changed to reduce deployment time for connecting the steam generator FLEX pump. Two permanent tees with isolation valves and hose connections will be added to the common AFW discharge header on the 18 ft elevation of the turbine building. This change reduces the hose connections from six to two and eliminates having to deploy hoses from the 18 ft elevation of the turbine building up to the Feedwater (FW) platform on the 42 ft elevation. A revised modification No. 5 conceptual sketch has been provided in Attachment 2. The new connection points are within robust structures and the change will not affect the strategy or the ability to maintain core cooling and heat removal by equipment credited during Phase 2.

Modification No. 6, Install isolation valve and hose connections in Refueling Water Storage Tank (RWST) Manhole covers.

The Overall Integrated Plan submittal (Reference 1, Attachment 4) included a sketch showing a new hose connection point to the Refueling Water Storage Tank (RWST) manway cover for use during Phase 2 (Modification No. 6). Makeup to the RWST would only be required during modes 5 and 6. Adding makeup water directly to the RWST would require additional portable equipment for boron mixing. Therefore, a new permanent hose connection will be provided at the primary makeup water supply line to the boric acid blender. This will allow normal boron mixing using well water supplied by a hose from the SG FLEX pump and boric acid from boric acid storage tanks (BAST) utilizing the boric acid transfer pumps. Makeup to the BAST will be provided by supplying well water from the SG FLEX pump to the boron batching tank. Discharge from the boric acid blender goes directly to the charging pump suction line for makeup to the RCS. As a backup, blended flow could be provided to the RWST if needed. The hose to the primary water connection from the SG FLEX pump will also supply cooling water to the existing hose connections on the Charging Pump oil coolers. A revised modification No. 6 conceptual sketch has been provided in Attachment 3. The new connection points are within robust structures, and the systems to be used for tie-in and delivery are seismically analyzed safety related systems or will be shown to be robust. This change will not affect the strategy since the charging pumps are already credited to provide reactor coolant system inventory makeup during Phase 2.

Modification No.7 Install hose connection to Intake Cooling Water line

The previous 6 month update report (Reference 3) included a sketch showing two new hose connection points to the Intake Cooling Water (ICW) strainers along with a temporary hose adapter to supply both CCW heat exchangers during Phase 3. After more detailed design efforts, the temporary adapter will be provided with two hose connection instead of one to ensure adequate flow capacity. A revised modification No. 7 conceptual sketch has been provided in Attachment 4. This change will not affect the strategy or ability to maintain core cooling and heat removal by equipment credited during Phase 3.

Modification No. 12, FLEX Shallow Wells for Potable Water

The Overall Integrated Plan submittal (Reference 1, Attachment 4) described adding shallow wells to provide a minimum of 600 gpm (Modification No. 12). FPL indicated in the first 6 month update report for Turkey Point (Reference 3) that deep wells would be installed for chemistry reasons instead of shallow wells. As a result of more detailed design activities for the deep wells, it is planned to install a single well to backup the "non-robust" water makeup sources should they not be available. Adequate artesian well pressure will exist at the well head to deliver 600 gpm eliminating the need for well pumps (see Section 4.2 for well pump discussion). The artesian well is a passive alternate ultimate heat sink source.

The well itself will be qualified seismically and the well head will be enclosed within a robust structure rated for all Turkey Point external hazards. Primary and alternate hose connections will be provided within the robust well structure. Since the single well will meet NEI section 3.2.1.3 and 3.2.2 guidance, FPL will install a single deep well.

4.2 Changes to Strategies

4.2.1 Current Strategy for Use of Well Pumps

OIP Section: Provide a sequence of events and identify any time constraint required for success including the technical basis for the time constraint, T+8 (hours) - Portable Diesel Generators Available to Power Well Pumps, Page 6 of 101

"The portable diesel generators will be used to power wells pumps, which are credited by hour 9 and required to be making up to the CST at hour 12"

OIP Section: Intermediate Term (Phase 2) Coping Strategy, (Modes 1 through 4, and Mode 5 with Steam Generators Available – Non-Hurricane Scenario) and (Modes 1 through 4, and Mode 5 with Steam Generators Available – Hurricane Scenario), page 21 and 22 of 101

"The new well pumps will be used to refill the surviving CST(s) for the duration of the phase 2 coping time."

"The capacity of the well pumps and SG FLEX pumps will be 300 gpm per unit which was based on the recommendations of WCAP-17601-P (Ref. 4)."

"The SG FLEX pump requires a higher discharge pressure than the well pump due to operating pressure of the steam generators."

OIP Section: Safety Function: Maintain Core Cooling & Heat Removal PWR Portable Equipment Phase 2, Key Reactor Parameters, page 24 of 101

Portable equipment instrumentation
- Pressure and flow for well pumps

OIP Section: Safety Function: Maintain RCS Inventory Control PWR Portable Equipment Phase 2, Key Reactor Parameters, page 35 of 101

Portable equipment instrumentation
- Pressure, flow, and fuel for well pumps and FLEX RCS pumps

OIP Section: Attachment 1 - Sequence of Events Timeline Sequence of Events Timeline, page 71 of 101

Action item	Elapsed Time	Action	Time Constraint Y/N	Remarks / Applicability
8	9 hours	Well pumps powered and providing water to surviving CST	Y	Needed to makeup before CST(s) deplete With subsequent dryout of steam generators

OIP Section: Attachment 4 Modifications and Sketches

Change to Well Pump Strategy

Each of these sections refers to having permanently installed electric shallow well pumps with flow and pressure indications. The well pumps would then be powered by portable diesel generators in phase 2. FPL indicated in the first 6 month update report for Turkey Point (Reference 3) that deep well would be installed for chemistry reasons instead of shallow wells. As a result of more detailed design activities for the deep wells, it has been determined that adequate artesian well pressure will exist at the well head to eliminate the well pumps. Calculations and similar test data from onsite wells show adequate pressure will be provided by the artesian well at the required 600 gpm flowrate to meet the NPSH requirements for the SG portable FLEX pump. The suction of the FLEX portable Steam Generator pump will connect to the well head and supply makeup to a Condensate Storage Tank (CST) or directly inject to the S/Gs if the Turbine Driven AFW pumps are not available. The revise strategy eliminates some portable equipment which simplifies and reduces deployment durations.

4.2.2 Current Strategy for Containment Pressure Control

OIP Section: Provide a sequence of events and identify any time constraint required for success including the technical basis for the time constraint, T+12 (hours) - Re-powering Containment Spray Pumps, Page 8 of 101

"Containment pressure and temperature could exceed design limits, especially in Modes 5 and 6. This is because the RCS would be open to the containment atmosphere and cooling would be established through feed from an RWST and boil-off through one of the designated openings in the system. Accordingly, the containment spray pumps are repowered at hour 12 to cool the containment if needed. T+12 was considered to be adequate to prevent exceeding design temperature and pressure. A confirmatory analysis is needed and is being tracked as pending action 1, listed in Attachment 3."

Change to Containment Pressure Control

FPL will utilize venting of Containment to control pressure in modes 5 and 6. Prior to venting the RCS or removing all SG as a heat sink, an adequately sized vent path will be maintained open or have capability of being opened from outside containment. A confirmatory analysis is needed to determine the vent path size and is being tracked as pending action 1, listed in Attachment 3 of the OIP. In modes 1 through 4, significantly less energy will be released to Containment compared with a vented RCS. In addition, Turkey Point will be installing low leakage seals which will further reduce the energy release to Containment. The maximum pressure developed over the phase 2 120 hr period when in modes 1 through 4 is not expected to exceed the Containment design pressure. A confirmatory analysis is needed to determine the vent path size and is being tracked as pending action 1, listed in Attachment 3 of the OIP.

4.2.3 Current Strategy for RCS Boration

OIP Section: Provide a sequence of events and identify any time constraint required for success including the technical basis for the time constraint, T+24 (hours) - Re-power Boric Acid Transfer Pumps and Charging Pumps, page 8 of 101

"To provide for long term cooling, makeup and boration, the boric acid transfer pumps and charging pumps are repowered from a portable diesel generator. Based on the cooling strategy using AFW/SG FLEX pumps, installation of low leakage RCP seals, and injection of the accumulators, this was not considered to be time critical."

OIP Section: Safety Function: Maintain RCS Inventory Control PWR Portable Equipment Phase 3, page 33 of 101.

"For RCS injection in phase 3, boron mixing equipment will be brought in. The water will be processed by offsite water purification and demineralizing plant provided by the RRC prior to boric acid batching and subsequent injection into the RCS."

Change to Boration Strategy

The Charging pumps are utilized for makeup and boration but not long term core cooling. In modes 1 through 4 core cooling is provided by the SGs. In modes 5 and 6 boiling within the core provides core cooling. FPL will provide a permanent hose connection to the Primary Water Makeup line to the boric acid blender (See Modification 6 above). A hose will be run from the discharge of the SG FLEX pump to the new hose connection providing the ability to blend boric acid from the BASTs. Boric acid mixing will be accomplished with well water supplied to the boric acid batch tank from the SG FLEX pump. During phase 2 in modes 1 through 4, boration is achieved with just the BAST, boric acid transfer pumps, and the charging pumps. In modes 5 and 6, boration is achieved with BAST and SG FLEX pump supplying well water to the primary water line. In phase 2 modes 5 and 6 and in phase 3 the SG FLEX pump is only supplying one units SG or no longer required to provide make-up to the SG since decay heat will be removed using the RHR system power from the 4 KV FLEX Diesel Generator. Therefore, adequate excess capacity is available to provide primary water makeup for blending boric acid.

Once phase 3 is entered and the RHR system is put into service, RCS boiling stops and inventory losses from the RCS is through normal system leakage. Therefore, RCS makeup needs are significantly reduced during phase 3. Given the expected chemistry from the onsite deep well, the SG feed pumps can provided long term RCS makeup. In addition, after 72 hours additional resources would be available to provide demineralized water to the site.

However, other tanks with demineralized water are available onsite to provide feed and bleed to the RCS. The CST and RWST are qualified for tornado winds. Under ELAP conditions no other external event need be considered concurrent with a tornado. The current licensing basis for the Primary Water Storage tanks (PWST), Demineralized Water Storage Tank (DWST) and the Unit 5 Demineralized Water Storage Tank does not include qualification for tornado winds or missiles. They are qualified for hurricane wind speeds. The design basis tornado missile protection for Turkey Point includes redundancy and

separation between SSCs. The PWSTs are located adjacent to the RWSTs and are separated by approximately 130 ft. The common nuclear DWST is located on the West side of the Unit 3 and 4 Containment and is separated from the RWSTs by over 400 ft. The Unit 5fossil DWST is over 500 ft west of the RWSTs and over 1,200 ft north of the RWSTs. Given the intervening structures and separation between the RWST and the DWST and PWST tanks, reasonable assurance exist that at least one would be available as a source of water during phase 3 for long term RCS makeup.

4.2.4 Current Strategy for Makeup to RCS in Modes 5 and 6

OIP Section: Provide a sequence of events and identify any time constraint required for success including the technical basis for the time constraint, Discharge of Accumulator Tanks in Mode 6 and Mode 5, without Steam Generators Available, Page 9 of 101

"Sufficient volume is available in the accumulators or RWST for makeup and cooling prior to core un-covery. Calculations will be completed to provide a definitive time for an action to open manual valves to inject the tanks or initiate gravity flow from the RWST's. This is being tracked as pending action 7 in Attachment 3. Based on preliminary calculations, these are not expected to be a time critical actions."

Change to Strategy for Makeup to RCS in Modes 5 and 6

Given the small volume available from the Accumulator's and the maintenance that is typically done on accumulator valves and instrumentation during refueling outages, they will not be credited as a makeup source during modes 5 and 6 with RCS vented. The RWST has adequate volume to provide makeup during modes 5 and 6 for at least 70 hrs. Makeup from the boric acid system and Charging pumps can be provided after the RWST is depleted. If the accumulators are available, they will be identified as potential makeup source in FSG procedures.

4.2.5 Current Strategy for FLEX Building

OIP Section: Identify how strategies will be deployed in all modes, Page 9 of 101

"The chosen location for the FLEX Storage Building will be in the protected area. The building elevation will be well above the surrounding land features with no significant barriers, foliage or overhead lines impeding access to the proposed staging areas."

OIP Section: Safety Function: Maintain Core Cooling & Heat Removal PWR Portable Equipment Phase 2, Storage / Protection of Equipment: Describe storage / protection plan or schedule to determine storage requirements.

Seismic, Flooding, Severe Storms : Temporary strategic locations will be used until building construction completion.

High Temperatures: Storage of FLEX equipment in the FLEX Equipment Storage Building (FESB) will include ventilation to maintain temperatures within the manufacturer's recommendations.

Change to Strategy for FLEX Building

The FLEX building floor elevation will be at elevation 17.7 ft NAVD88. The revised still water flood height determined in the Flood Hazards Re-evaluation Report (FHRR) provided in Reference 7 is 17.3 ft NAVD88. The east side of the plant is subject to wave run-up of an additional 1.8 ft or an elevation of 19.1 NAVD88. The doors to the FLEX storage building will be located on the west side of the building where they will not be subject to direct wave impact. Doors at the 17.7 ft elevation will be provided with water resistant seals to reduce any potential for water entry into the building. All equipment stored within the FLEX building will be stored in a manner that will prevent damaged during a seismic event. The construction schedule will be complete prior to delivery of any FLEX portable equipment eliminating the need for temporary storage location. Due to concerns with thermal aging of equipment stored within the FLEX building, the FLEX storage areas will be air conditioned. FPL commits to follow the EPRI Maintenance/PM guidelines for FLEX equipment.

The existing guidance in NEI 12-06 section 10.1 indicates that at least N+1 sets of portable on-site equipment stored in diverse locations or in structures designed to reasonable protect from applicable. The FLEX building will provide a robust structure for all portable FLEX equipment including spares. NEI 12-06 Section 3.2.2 indicates that cables and hoses should also have spares (N+1). The hoses and cables utilized for deployment of FLEX strategies will have adequate design margin, be stored in a conditioned environment and appropriately tested and inspected. Hoses and cables are passive devices and unlikely to fail given the design and maintenance practices employed. Multiple strategies utilize hoses and/or cables. It is not reasonable to assume all would become damaged or be defective when deployed in different plant locations or removed from the storage building. Therefore, FPL does not plan on storing a complete N +1 set of spare hoses and cables for all strategies within the FLEX storage building. FPL will maintain a spare quantity of hoses and cables that will allow replacement of the longest individual run for any of the strategies. This approach meets the N+1 for a single hose or cable deployment.

4.2.6 Current Strategy for Providing Make-up to RCS

OIP Section: Safety Function: Maintain Core Cooling & Heat Removal PWR Installed Equipment Phase 1, (Mode 6 and Mode 5 without Steam Generators Available) page 17 and 18 of 101.

"Actions to allow gravity feed from the RWST, or manual opening of the accumulator isolation valves as an alternative if available, will be the strategies credited for phase 1 for RCS inventory makeup. Such actions should be completed as soon as possible after the ELAP and LUHS event to provide RCS makeup. Once the RCS FLEX pump is available, it will be used to control flow such that adequate coolant level is maintained in the RCS."

OIP Section: Safety Function: Maintain Core Cooling & Heat Removal PWR Portable Equipment Phase 2, *Modes 5 and 6 without Steam Generators Available,* page 22 of 101.

"The primary method for making up for the boil off from the RCS in Modes 5 and 6 is repowering the Charging pump from the FLEX DG to supply water from the surviving

RWST. The alternate method is to use the RCS FLEX pump to inject water from the RWST to the RCS."

OIP Section: Safety Function: Maintain Core Cooling & Heat Removal PWR Portable Equipment Phase 2, *Modes 1 and 5 with Steam Generators Available,* page 33 of 101.

"The method of injecting this water into the RCS would either be to repower a Charging pump and Boric Acid Transfer pump from the FLEX DG or to connect the RCS FLEX pump to allow pumping of RWST water into the RCS. Operation of the Charging pump must be done at full speed because cooling to the hydraulic coupling oil cooler from CCW is not available (Ref.21). Suction for the RCS FLEX pump would come from a connection in the RWST manway and its discharge would be to the drain lines off each Charging pump's discharge."

Change to Strategy for Providing Make-up to RCS

FPL will use the permanently installed charging pumps powered by the portable FLEX Diesel Generator as both the primary and alternate makeup methods to the RCS except when RCS is vented and gravity feed from the RWST is used as the primary method and a chargnging pump is the alternate. The RCS FLEX pump has been eliminated (See modification 6 in Section 4.1). In addition, a cooling water source will be provided from the SG FLEX pump to the existing permanently installed hose connection on the Charging pump oil cooler. This will allow more flexibility in operating the charging pumps.

4.2.7 Current Strategy for RCS Makeup and Sub criticality using Accumulators

OIP Section: Safety Function: Maintain Core Cooling & Heat Removal PWR Portable Equipment Phase 2, Modes 5 and 6 without Steam Generators Available, page 22 of 101

"The NPOs will depressurize the steam generators via the SDTAs to a pressure of approximately 170 psig (Ref. 12)."

OIP Section: Safety Function: Maintain RCS Inventory Control PWR Portable Equipment Phase 2, Modes 1 through 5 with Steam Generators Available, page 33 of 101

For RCS inventory control and long term sub-criticality in phase 2, the credited action will be to cooldown and depressurize the RCS for injection of boron and coolant inventory from the accumulators. This will be done after make-up has been established to the CST's. Depressurizing the RCS to inject the accumulators occurs when the steam generators are depressurized to 170 psig per EOP-ECA-0.0 (Ref. 12). The heat removed by depressurizing the steam generators also cools and depressurizes the RCS. The primary method for accomplishing RCS makeup in phase 2 is the use of the accumulators to make up for losses from the RCP Low Leakage Seals and for contraction of the primary due to cooldown. Alternate strategies involve the use of Boric Acid Storage Tank (BAST) or RWST inventories

through installed Charging and Boric Acid Transfer pumps or onsite portable RCS FLEX pump.

Following injection of sufficient accumulator volume, the accumulators are isolated to avoid nitrogen injection into the RCS. Per (Ref. 12), accumulator isolation must occur prior to depressurizing below 80 psig."

OIP Section: Safety Functions Support PWR Portable Equipment Phase 1 and 2, Key Parameters, pages 58 and 62 of 101

Key Parameters

- Steam generator water level (narrow range)
- Steam generator pressure
- Reactor coolant system pressure (wide range)
- Reactor coolant system pressurizer level
- Reactor coolant system hot and cold leg temperatures
- Containment pressure
- Spent fuel pool level
- Containment temperature
- Core exit thermocouples
- Reactor vessel level
- Neutron flux
- DC bus voltage
- AFW pump flow
- CST level
- RWST Level
- Accumulator pressure

Change to Strategy for RCS Makeup and Sub criticality using Accumulators

The final minimum SG pressure for injecting the accumulators will be calculated using the methodology from PWROG Core Cooling Position Paper RevPA-PSC-0965. Results of the calculation will be reported in a future 6 month update. In addition, FPL will add accumulator level indication a Key Parameter. OIP Attachment 6, Figure 1 Instrumentation list has been updated and included in Attachment 5. Spent fuel level indication will not be powered from the FLEX diesel generator but will have its own internal battery.

5 Need for Relief/Relaxation and Basis for the Relief/Relaxation

FPL expects to comply with order EA-12-049 by the required implementation date and no relief/relaxation is required at this time.

6 Pending Actions from Overall Integrated Plan and NRC Interim Staff Evaluation Open Items

The following tables provide a summary of the open items documented in the Overall Integrated Plan or the draft Safety Evaluation (SE) and the status of each item. Completion dates for the Overall Integrated Plan pending actions remain unaffected.

No.	Overall Integrated Plan Open Item (Pending Actions)	Target Completion Date	Status
1	Perform a revised analysis of the containment structure once the detailed performance parameters for the shutdown seals are obtained and using more realistic heat input parameters.	Jun 2014	Analysis started using MAAP computer code (See note 1 and 3)
2	A hydraulic analysis will be performed to determine the minimum requirements of the portable FLEX pumps and connection point sizes. The outputs of this analysis will include a minimum flow and discharge pressure for each pump.	Jun 2014	Started (See note 3)
3	A hydraulic analysis will be performed to support the ability to heat up from Mode 5 to a condition where the AFW pumps are removing decay heat via the SGs.	Jun 2014	Not Started
4	Heat loads will be removed via the SFP Cooling heat exchangers, RHR heat exchangers, and Containment Coolers. Analysis will be required to determine the minimum requirements for UHS RRC pump.	Jun 2014	Not started
5	Analysis will be required to determine fuel requirements of FLEX equipment. This analysis will determine requirements and capabilities of onsite FLEX portable pumps and diesel generators for Phase 2.	Jun 2014	Started (See note 3)

No.	Overall Integrated Plan Open Item (Pending Actions)	Target Completion Date	Status
6	A determination of the "drop off" location from the RRC is pending. Once selected, the path to the site will be reviewed.	Oct 2014	Started (See note 3)
7	An analysis will be performed to establish the timeline for SI or RWST injection for Modes 5 & 6	Jun 2014	Started
8	Complete a final assessment of haul paths and staging areas to confirm access including review for soil liquefaction	Sept 2014	Not Started
9	The generic WCAP guidance recommends that a site-specific evaluation be performed once the seal design is completed to validate that the cooldown and depressurization time is supported.	Jun 2014	Started, (See note 2and 3)

Notes

1. The MAAP computer model for Turkey Point was developed by an FPL vendor under their 10CFR50 Appendix B software control program. After delivery to FPL, the model has been controlled under the FPL 10CFR50 Appendix B software control program.
2. FPL has entered into a contract with FLOWSERVE Inc to purchase NX seals. Preliminary test data has been sent to FPL with final test data expected by March 2014. Request for proposals have been sent to respect vendors to perform the RCS cooldown analysis using draft test data.
3. This action has been identified as an NRC confirmatory action and will be removed from the pending action table in the next 6 month update.

NRC Interim Staff Evaluation Open Item*	Status
3.2.1.8.A- Core Sub-Criticality - Confirm that Turkey Point will apply the generic resolution for boron mixing under natural circulation conditions potentially involving two-phase flow, in accordance with the PWROG position paper, dated August 15, 2013, and subject to the conditions provided in the NRC endorsement letter dated January 8, 2014. Alternatively, justify the boric acid mixing assumptions that will ensure adequate shutdown margin exists through all 3 phases of an ELAP event.	FPL will follow the Westinghouse guidance for ensuring adequate boron mixing when borating the RCS (Reference 4). The NRC acceptance of the Westinghouse guidance required additional considerations when using the guidance (Reference 5). FPL will implement the additional NRC considerations as follows: The reactivity calculation and RCS cooldown analysis will include conditions with no reactor coolant

	system leakage and with the highest applicable leakage rate for the reactor coolant pump seals and unidentified reactor coolant system leakage. Adequate borated makeup will be provided such that the loop flow rate in two phase natural circulation does not decrease below the loop flow rate corresponding to single-phase natural circulation. Credit for increases in the reactor coolant system boron concentration will be delayed for a minimum of one hour to account for the mixing of the borated primary makeup following the addition of the targeted quantity of boric acid to the reactor coolant system.
3.2.1.9. A- The Turkey Point RCS inventory coping strategy involves an alternate approach that relies on repowering one of three installed charging pumps in each unit from multiple power connection points using one of the two 100% capacity, portable 480 VAC FLEX diesel generators. Verify that these installed pumps will be capable of performing their mitigating strategies function following an undefined ELAP event, in contrast to using a portable FLEX pump.	See Attachment 6
3.2.4.7.A- The licensee relies on separation and redundancy of the RWSTs to show that at least one will survive a high wind event with wind-driven missiles. Verify that the RWSTs are sufficiently robust and that sufficient separation exists between the tanks to support the determination that at least one tank will be available as a water source following a high wind event, as credited in the Turkey Point mitigating strategies.	See Attachment 7

7 Potential Draft Safety Evaluation Impacts

See FPL response to open items in Section 8.

8 Interim Staff Evaluation Confirmatory Items

Confirmatory Item 3.1.1.3.A:

Confirm that the large internal flooding sources that are not seismically robust will not impact the implementation of the mitigating strategies during an ELAP event.

Response:

In Progress-This will be included in the next 6 month update

Confirmatory Item 3.1.1.4.A:

Off-Site Resources -Confirm the location of the local staging area for the RRC equipment, and that access routes to the site, the method of transportation, and the drop off area have been properly evaluated for all applicable hazards.

Response:

In Progress-This is scheduled for completion October 2014.

Confirmatory Item 3.2.1.A:

Confirm recalculation of the boration requirements for the Phase 2 RCS cooldown to provide additional margin and flexibility for the boration activity.

Response:

In Progress-This calculation is with FPL for review. Once the calculation is approved, the final results will be included in next 6 month update.

Confirmatory Item 3.2.1.B:

Confirm the analysis used to validate the RCS cooldown and depressurization timeline once the RCP low-leakage seal design is completed.

Response:

In Progress-This is scheduled for completion June 2014. Request for proposals is in progress.

Confirmatory Item 3.2.1.1.A:

Reliance on the NOTRUMP code for the ELAP analysis of Westinghouse plants is limited to the flow conditions before reflux condensation initiates. This includes specifying an acceptable definition for reflux condensation cooling. Confirm that Turkey Point has properly applied these conditions for the ELAP analysis.

Response:

The code and methodology for performing the RCS cooldown analysis has not been selected. If NOTRUMP code is used, these issues will be addressed as applicable.

Confirmatory Item 3.2.1.1.B:

Confirm recalculation of the SG pressure setpoint to prevent injection of nitrogen from the accumulators using the guidance in the PWROG position paper.

Response:

In Progress-As part of the FSG procedure for controlling the RCS cooldown, a setpoint calculation will be developed using the PWROG position paper methodology. The milestone for completing FSG procedures is September 2014.

Confirmatory Item 3.2.1.2.A:

Confirm that the RCP seal leakage rate of one gpm/seal for the FlowServe safe shutdown/low leakage seals used in the ELAP analysis is adequately justified, including the computer code/methodology and assumptions used, and the supporting test data applied, when the site specific evaluation is performed.

Response:

In Progress-FLOWSERVE will transmit the certified test report by end of February and leakage data will be included in the planned plant specific analysis scheduled for completion June 2014. Request for proposals is in progress.

Confirmatory Item 3.2.1.5.A:

Confirm that the instrumentation used to measure the listed parameters and the associated setpoints, credited in the ELAP analysis for automatic actuations and indications required for the operator to take appropriate actions, is reliable and accurate in the containment harsh conditions resulting from an ELAP event.

Response:

In Progress- All of the essential instruments located in Containment listed in the updated OIP list (see Attachment 5) are environmental qualified (EQ) per 10CFR50.49 criteria for accident conditions except:

Safety Injection Accumulator Level Transmitters

Reactor Vessel Level Instruments

Core Exit Thermocouples

The non-EQ qualified instruments been evaluated for providing post-accident indication and all have been found acceptable as Regulatory Guide 1.97 category A type I variables except for containment pressure transmitters which are type B category 1. Based on the initial Containment heatup analysis under ELAP conditions described in the OIP, EQ accident conditions bound the ELAP containment conditions. However, an updated analysis will be performed once the RCP seal leak rate is confirmed scheduled for completion June 2014. Once the final containment environment is defined, all instruments will be evaluated for operation under ELAP conditions. The results of the evaluation will be reported in the next 6 month update.

Confirmatory Item 3.2.1.6.A:

Confirm that the revised Modular Accident Analysis Program containment analysis supports the revised strategy for maintaining containment (reliance on containment venting instead of containment spray), and also confirm that the Sequence of Events timeline is properly revised and any impacts of the changes are appropriately addressed.

Response:

In Progress-The re-analysis of for Containment will be performed once the RCP seal leak rate is confirmed which is scheduled for completion June 2014. Once the analysis is completed, the time line will be updated and reported in the next 6 month update.

Confirmatory Item 3.2.1.9.B:

Confirm completion of the licensee's final engineering designs and supporting analyses for portable equipment that directly performs a FLEX mitigation strategy.

Response:

In Progress-This is scheduled for completion June 2014. Analysis has started and is on schedule.

Confirmatory Item 3.2.4.1.A:
Confirm that that the charging pumps have adequate cooling following an ELAP event (i.e., through intermittent operation, or by providing cooling to the fluid drive heat exchanger).

Response:

In Progress- As part of modification 6 design package, the required flow will be determined. The hydraulic analysis for portable FLEX equipment will verify that the portable SG FLEX has adequate capacity to supply the oil coolers. This is scheduled for completion June 2014.

Confirmatory Item 3.2.4.4.A:

The NRC staff has reviewed the licensee communications assessment (ADAMS Accession Nos. ML 12300A425 and ML 13064A359) and has determined that the assessment is reasonable (ADAMS Accession No. ML13149A382). Confirm that upgrades to the site's communications systems have been completed.

Response:

In Progress-The design package for providing backup power to the phone system along with other communication upgrades described in ML 12300A425 and ML 13064A359 have started and are on schedule to meet the June 2014 modification milestone.

Confirmatory Item 3.2.4.9.A:

Confirm completion of the refueling plan for portable FLEX equipment and sizing of the refueling trailer.

Response:

In Progress- This is schedule for completion June 2014. Analysis has started and is on schedule.

Confirmatory Item 3.4.A:

Confirm that NEI 12-06, Section 12.2 guidelines 2 through 10 regarding offsite resources have been adequately addressed.

Response:

In Progress- FPL has signed a contract for support from the Strategic Alliance for FLEX Emergency Response (SAFER) Regional Response Center (RRC) run by AREVA. As part of the contact a procedure will be developed to address NEI 12-06 Section 12.2 requirements. FPL has started development of the procedure which is on track for meeting the January 2015 milestone.

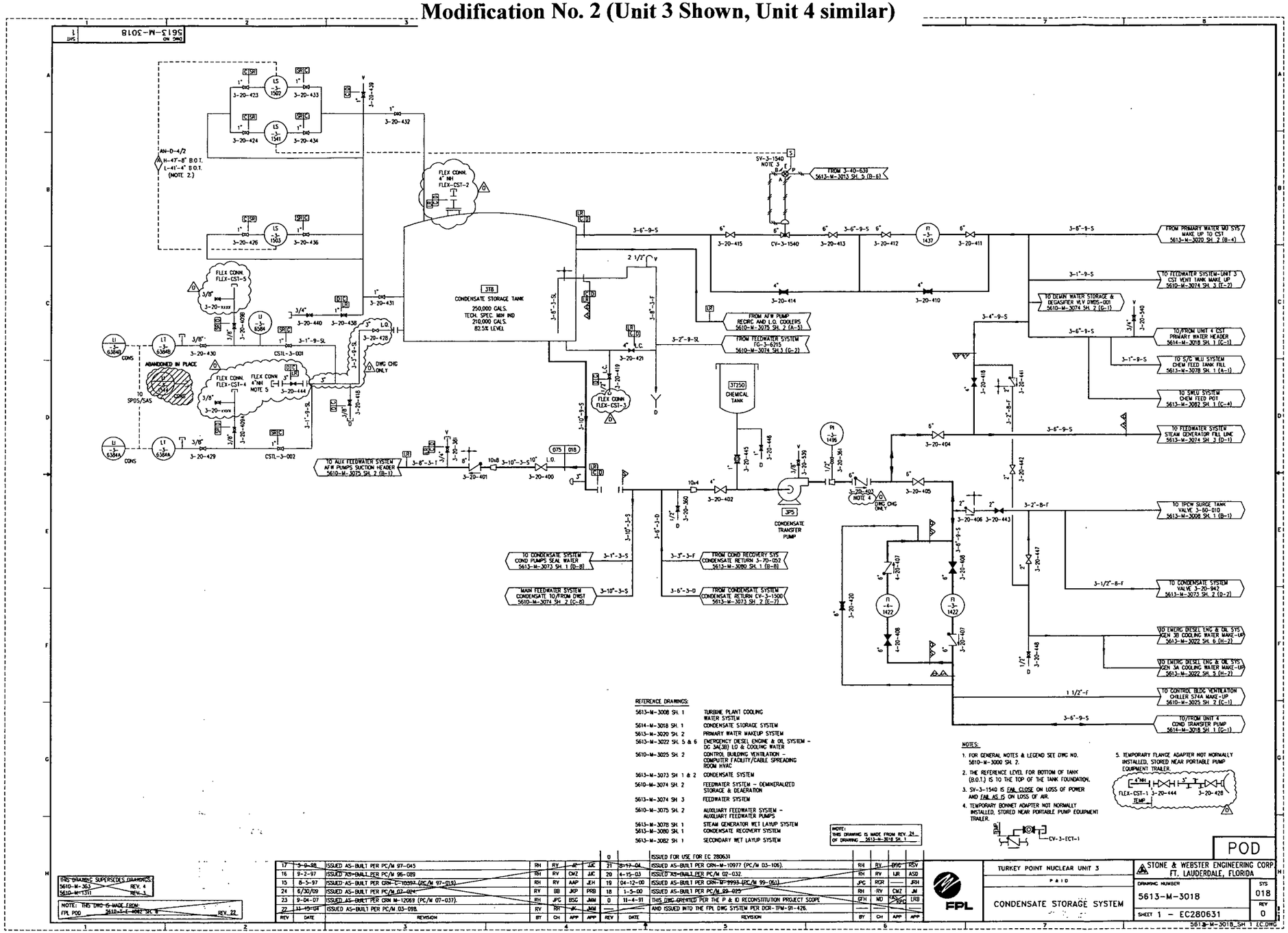
9 Enclosure References

1. L-2013-061, Florida Power and Light Company's Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," dated February 26, 2013, ADAMS Accession No. ML13072A038
2. NRC Order Number EA-12-049, "Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012, ADAMS Accession No. ML12056A045
3. L-2013-249, Florida Power and Light Company's, Turkey Point Units 3 and 4, First Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049) , dated August 21, 2013, ADAMS Accession No.ML13248A311
4. Westinghouse Letter, LTR-FSE-13-46, Rev. 0, Westinghouse Response to NRC Generic Request for Additional Information (RAI) on Boron Mixing in Support of the Pressurized Water Reactor Owners Group (PWROG), Dated August 15, 2013, Proprietary ADAMS Accession No ML13235A135
5. NRC Letter from Jack Davis, Director, Mitigating Strategies Directorate Office of Nuclear Reactor Regulation to Mr. Jack Stringfellow, Pressurized Water Reactors Owners Group, dated January 8, 2014, ADAMS Accession No. ML13276A183
6. NRC Letter, Turkey Point, Units 3 And 4 -Interim Staff Evaluation Relating To Overall Integrated Plan In Response To Order Ea-12-049 (Mitigation Strategies) (TAC NOS. MF0982 AND MF0983), dated February 6. 2014, ADAMS Accession No. ML14002A160
7. FPL Letter, L-2013-087, Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Flood Hazard Reevaluation of Recommendation 2.1, dated March 11, 2013, ADAMS Accession No. ML13095A196

10 Attachments

1. Revised OIP Modification No. 2 Figure
2. Revised OIP Modification No. 5 Figure
3. Revised OIP Modification No. 6 Figure
4. Revised OIP Modification No. 7 Figure
5. Revised OIP Attachment 6, Instrumentation and Credited Equipment
6. IER Open Item 3.2.1.9.A Response RCS Inventory makeup Strategy
7. IER Open Item 3.2.4.7.A- RWST separation and redundancy

OIP Attachment 4
Conceptual Sketches and Modification
Modification No. 2 (Unit 3 Shown, Unit 4 similar)



REFERENCE DRAWINGS:

5613-M-3008 SH. 1	TURBINE PLANT COOLING WATER SYSTEM
5614-M-3018 SH. 1	CONDENSATE STORAGE SYSTEM
5613-M-3020 SH. 2	PRIMARY WATER MAKEUP SYSTEM
5613-M-3022 SH. 5 & 6	EMERGENCY DIESEL ENGINE & OIL SYSTEM - DG 3A(3B) LO & COOLING WATER
5610-M-3025 SH. 2	CONTROL BUILDING VENTILATION - COMPUTER FACILITY/CABLE SPREADING ROOM HVAC
5613-M-3073 SH 1 & 2	CONDENSATE SYSTEM
5610-M-3074 SH. 2	FEEDWATER SYSTEM - DEMINERALIZED STORAGE & DEAERATION
5613-M-3074 SH. 3	FEEDWATER SYSTEM
5610-M-3075 SH. 2	AUXILIARY FEEDWATER SYSTEM - AUXILIARY FEEDWATER PUMPS
5613-M-3078 SH. 1	STEAM GENERATOR WET LAYUP SYSTEM
5613-M-3080 SH. 1	CONDENSATE RECOVERY SYSTEM
5613-M-3082 SH. 1	SECONDARY WET LAYUP SYSTEM

NOTE: THIS DRAWING IS MADE FROM REV. 24 OF DRAWING 5613-M-3018 SH. 1

NOTES:

1. FOR GENERAL NOTES & LEGEND SEE DWG NO. 5610-M-3000 SH. 2.
2. THE REFERENCE LEVEL FOR BOTTOM OF TANK (B.O.T.) IS TO THE TOP OF THE TANK FOUNDATION.
3. SV-3-1540 IS FAIL CLOSE ON LOSS OF POWER AND FAIL AS IS ON LOSS OF AIR.
4. TEMPORARY BONNET ADAPTER NOT NORMALLY INSTALLED, STORED NEAR PORTABLE PUMP EQUIPMENT TRAILER.
5. TEMPORARY FLANGE ADAPTER NOT NORMALLY INSTALLED, STORED NEAR PORTABLE PUMP EQUIPMENT TRAILER.

THIS DRAWING SUPERSEDES DRAWINGS:
5610-M-363 REV. 4
5610-M-1311 REV. 1

NOTE: THIS DWG IS MADE FROM:
FPL POD 5610-3-E-0002 SH. 8 REV. 22

REV	DATE	REVISION	BY	CH	APP	APP
17	3-9-98	ISSUED AS-BUILT PER PC/M 97-045	RH	RV	JE	JJC
16	9-2-97	ISSUED AS-BUILT PER PC/M 96-089	RH	RV	CWZ	JJC
15	8-5-97	ISSUED AS-BUILT PER CRN-C-10397 (PC/M 97-018)	RH	RV	AAP	JEH
24	6/30/09	ISSUED AS-BUILT PER PC/M 07-024	RV	BB	JKP	PRB
23	9-04-07	ISSUED AS-BUILT PER CRN M-12069 (PC/M 07-037).	RH	JPG	BSG	JMM
22	11-15-04	ISSUED AS-BUILT PER PC/M 03-098.	RV	RH	JK	JMM
0		ISSUED FOR USE FOR EC 280631				
21	8-17-04	ISSUED AS-BUILT PER CRN-M-10977 (PC/M 03-106).	RH	RV	GSC	RSV
20	4-15-03	ISSUED AS-BUILT PER PC/M 02-032.	RH	RV	LJR	ASD
19	04-12-00	ISSUED AS-BUILT PER CRN-M-9993 (PC/M 99-061)	JPG	RCR	—	JRH
18	1-5-00	ISSUED AS-BUILT PER PC/M 99-025	RH	RV	CWZ	JM
0	11-4-91	THIS DWG CREATED PER THE P & ID RECONSTITUTION PROJECT SCOPE AND ISSUED INTO THE FPL DWG SYSTEM PER DCR-TPM-91-426.	GFH	MD	ASD	LRB
REV	DATE	REVISION	BY	CH	APP	APP

FPL

TURKEY POINT NUCLEAR UNIT 3

P & I D

CONDENSATE STORAGE SYSTEM

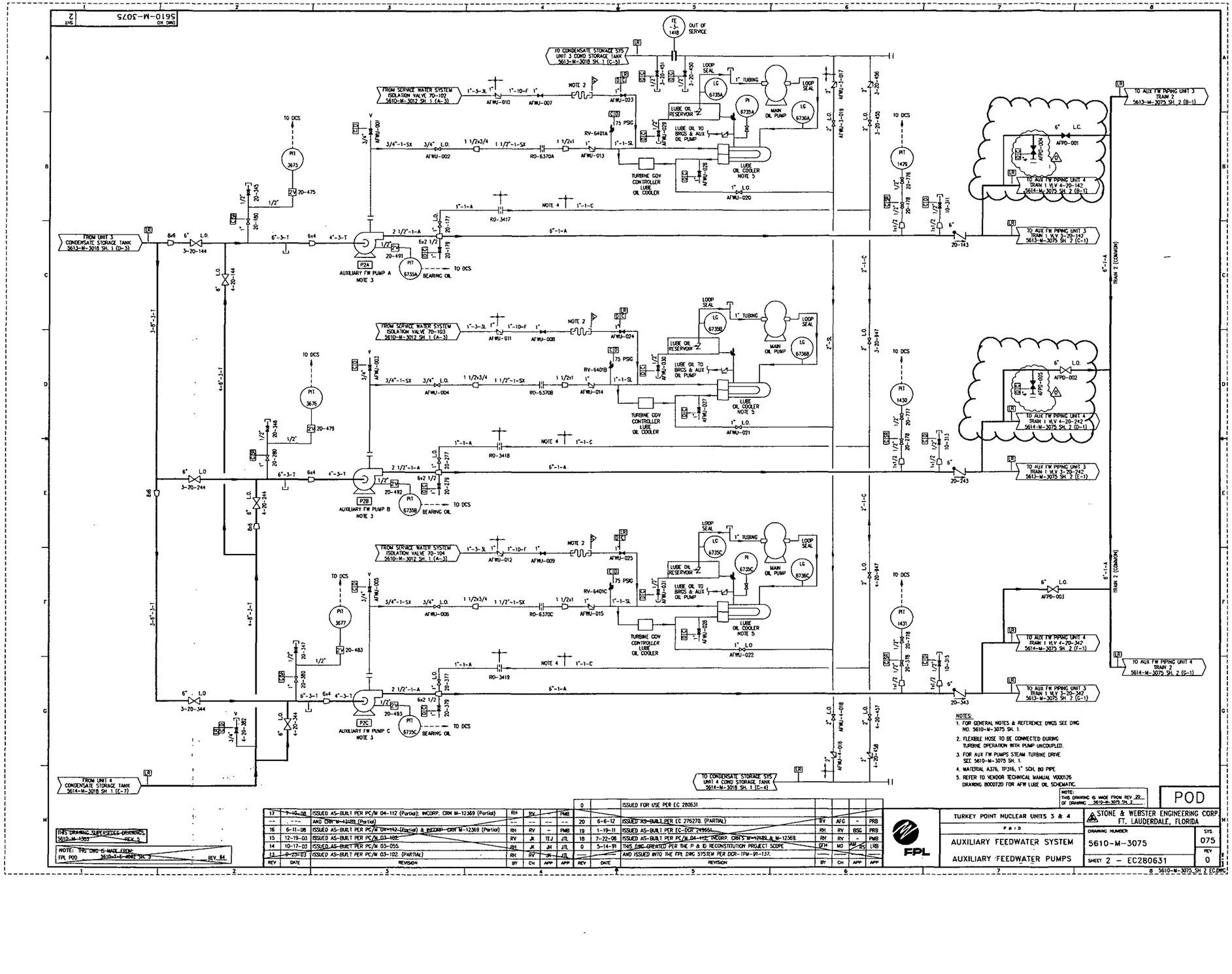
STONE & WEBSTER ENGINEERING CORP.
FT. LAUDERDALE, FLORIDA

DRAWING NUMBER 5613-M-3018 SYS 018

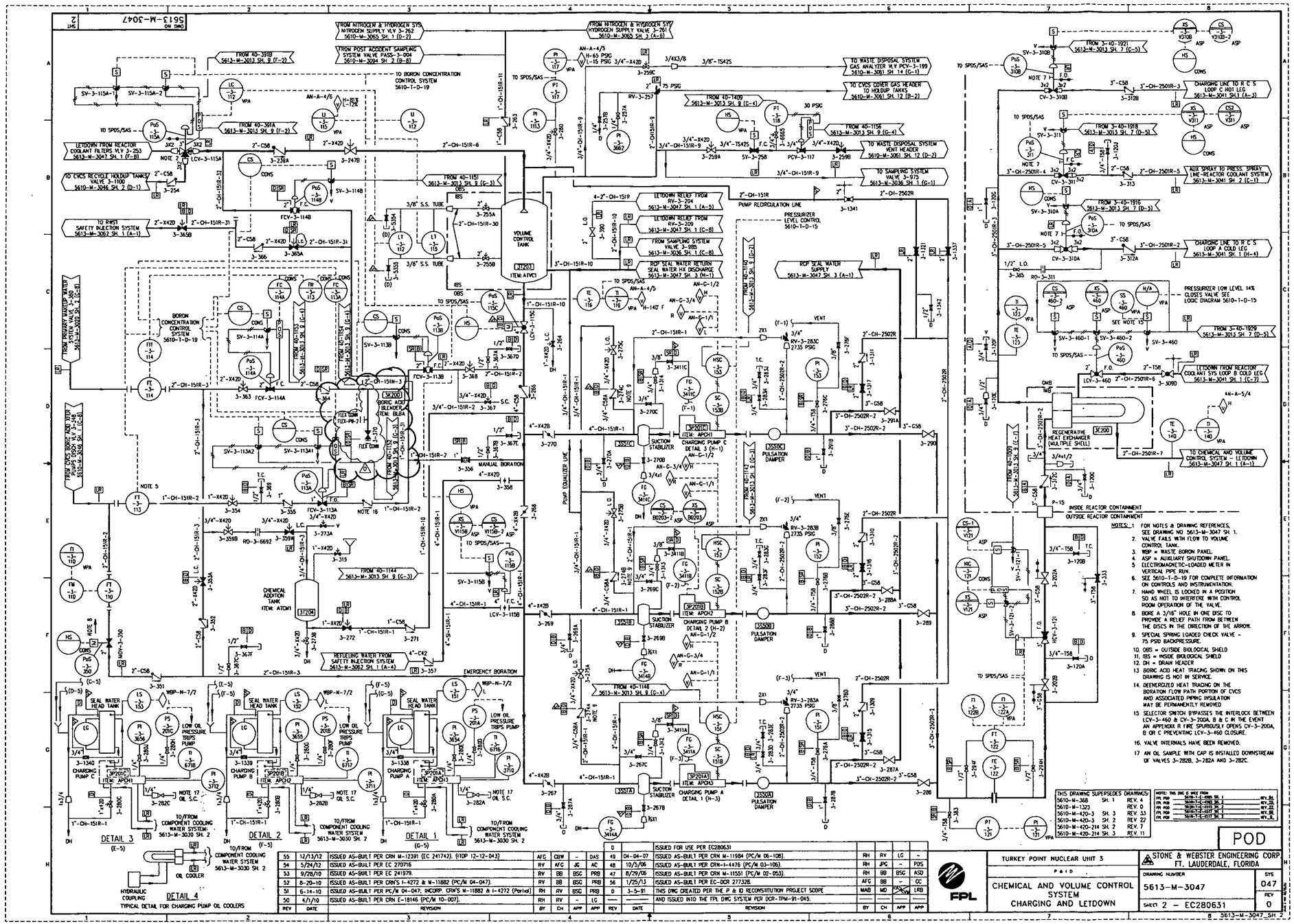
SHEET 1 – EC280631 REV 0

POD

5613-M-3018_SH 1 EC.DWG


5610-M-3075
FROM UNIT 3 CONDENSATE STORAGE TANK 5613-M-3016 SH. 1 (D-3)
TO CONDENSATE STORAGE SYS UNIT 3 COND STORAGE TANK 5613-M-3018 SH. 1 (C-3)
FROM UNIT 4 CONDENSATE STORAGE TANK 5614-M-3018 SH. 1 (C-7)
TO CONDENSATE STORAGE SYS UNIT 4 COND STORAGE TANK 5614-M-3018 SH. 1 (C-4)
FROM SERVICE WATER SYSTEM ISOLATION VALVE 70-102 5610-M-3012 SH. 1 (A-3)
FROM SERVICE WATER SYSTEM ISOLATION VALVE 70-103 5610-M-3012 SH. 1 (A-3)
FROM SERVICE WATER SYSTEM ISOLATION VALVE 70-104 5610-M-3012 SH. 1 (A-3)
P2A AUXILIARY FW PUMP A NOTE 3
P2B AUXILIARY FW PUMP B NOTE 3
P2C AUXILIARY FW PUMP C NOTE 3
MAIN OIL PUMP
LUBE OIL RESERVOIR
LUBE OIL TO BRGS & AUX OIL PUMP
LUBE OIL COOLER NOTE 5
TURBINE GOV CONTROLLER LUBE OIL COOLER
BEARING OIL
TO DCS
OUT OF SERVICE
TO AUX FW PIPING UNIT 3 TRAIN 2 5613-M-3075 SH. 2 (B-1)
TO AUX FW PIPING UNIT 4 TRAIN 1 VLV 4-20-142 5614-M-3075 SH. 2 (B-1)
TO AUX FW PIPING UNIT 3 TRAIN 1 VLV 3-20-142 5613-M-3075 SH. 2 (C-1)
TO AUX FW PIPING UNIT 3 TRAIN 1 VLV 3-20-242 5613-M-3075 SH. 2 (D-1)
TO AUX FW PIPING UNIT 4 TRAIN 1 VLV 4-20-242 5614-M-3075 SH. 2 (D-1)
TO AUX FW PIPING UNIT 4 TRAIN 2 5614-M-3075 SH. 2 (G-1)
TO AUX FW PIPING UNIT 3 TRAIN 1 VLV 3-20-342 5613-M-3075 SH. 2 (G-1)
6" L.O. AFPD-001
6" L.O. AFPD-002
6" L.O. AFPD-003
6" L.O. AFPD-004
6" L.O. AFPD-005
6"-1-A TRAIN 2 (COMMON)
NOTES:
1. FOR GENERAL NOTES & REFERENCE DWGS SEE DWG NO. 5610-M-3075 SH. 1.
2. FLEXIBLE HOSE TO BE CONNECTED DURING TURBINE OPERATION WITH PUMP UNCOUPLED.
3. FOR AUX FW PUMPS STEAM TURBINE DRIVE SEE 5610-M-3075 SH. 1.
4. MATERIAL A376, TP316, 1" SCH. 80 PIPE
5. REFER TO VENDOR TECHNICAL MANUAL V000126 DRAWING 8000720 FOR AFW LUBE OIL SCHEMATIC.
THIS DRAWING SUPERSEDES DRAWING 5610-M-3307 REV. 2
NOTE: THIS DWG IS MADE FROM FPL PDD 5610-P-E-4082 SH. 3 REV. 84
17 7-10-08 ISSUED AS-BUILT PER PC/M 04-112 (Partial); INCORP. CRN M-12369 (Partial) RH RV - PMB
16 6-11-08 ISSUED AS-BUILT PER PC/M DR-112 (Partial) & INCORP. CRN M-12369 (Partial) RH RV - PMB
15 12-19-03 ISSUED AS-BUILT PER PC/M 03-102 RV JK TEJ JTL
14 10-17-03 ISSUED AS-BUILT PER PC/M 03-055 RH JK JH JTL
13 9-23-03 ISSUED AS-BUILT PER PC/M 03-102. (PARTIAL) RH RV JK JTL
REV DATE REVISION BY CH APP APP
0 ISSUED FOR USE PER EC 280631
20 6-6-12 ISSUED AS-BUILT PER EC 276270. (PARTIAL) RV AFG - PRB
19 1-19-11 ISSUED AS-BUILT PER EC-DCP 249654 RH RV BSG PRB
18 7-22-08 ISSUED AS-BUILT PER PC/M DR-112, INCORP. CRN'S M-12481 & M-12369. RH RV - PMB
0 5-14-91 THIS DWG CREATED PER THE P & ID RECONSTITUTION PROJECT SCOPE GDH MD AW RS LRB
AND ISSUED INTO THE FPL DWG SYSTEM PER DCR-TPW-91-137. - - - -
REV DATE REVISION BY CH APP APP
FPL
TURKEY POINT NUCLEAR UNITS 3 & 4
P & I D
AUXILIARY FEEDWATER SYSTEM
AUXILIARY FEEDWATER PUMPS
STONE & WEBSTER ENGINEERING CORP FT. LAUDERDALE, FLORIDA
DRAWING NUMBER 5610-M-3075 SYS 075
SHEET 2 - EC280631 REV 0
POD
8 5610-M-3075_SH 2 EC.DWG

OIP Attachment 4
Conceptual Sketches and Modifications
Modification No. 6 (Unit 3 Shown, Unit 4 similar)



REV	DATE	REVISION	BY	CH	APP	APP
55	12/13/12	ISSUED AS-BUILT PER CRN M-12391 (EC 241742). (ITOP 12-12-043)	AFG	CBW	–	DAS
54	5/24/12	ISSUED AS-BUILT PER EC 270716	RV	AFG	JC	AC
53	9/28/10	ISSUED AS-BUILT PER EC 241979.	RV	BB	BSC	PRB
52	8-20-10	ISSUED AS-BUILT PER CRN'S I-4272 & M-11882 (PC/M 04-047).	RV	BB	BSC	PRB
51	6-14-10	ISSUED AS-BUILT PER PC/M 04-047; INCORP. CRN'S M-11882 & I-4272 (Partial)	RH	RV	BSC	PRB
50	4/1/10	ISSUED AS-BUILT PER CRN E-18146 (PC/M 10-007).	RH	RV	–	LG
49	04-04-07	ISSUED AS-BUILT PER CRN M-11984 (PC/M 06-108).	RH	RV	LG	–
48	10/5/06	ISSUED AS-BUILT PER CRN-I-4476 (PC/M 03-106).	RH	JPG	–	PDS
47	8/29/06	ISSUED AS-BUILT PER CRN M-11551 (PC/M 02-053).	RH	BB	BSC	ASD
56	1/25/13	ISSUED AS-BUILT PER EC-DCR 277328.	AFG	BB	–	QC
0	3-5-91	THIS DWG CREATED PER THE P & ID RECONSTITUTION PROJECT SCOPE	MAD	MD	PAS	LRB
—	—	AND ISSUED INTO THE FPL DWG SYSTEM PER DCR-TPM-91-045.	—	—	—	—
REV	DATE	REVISION	BY	CH	APP	APP

existing hose connections to Charging pump oil cooler

SAFETY RELATED

POD

TURKEY POINT NUCLEAR 14

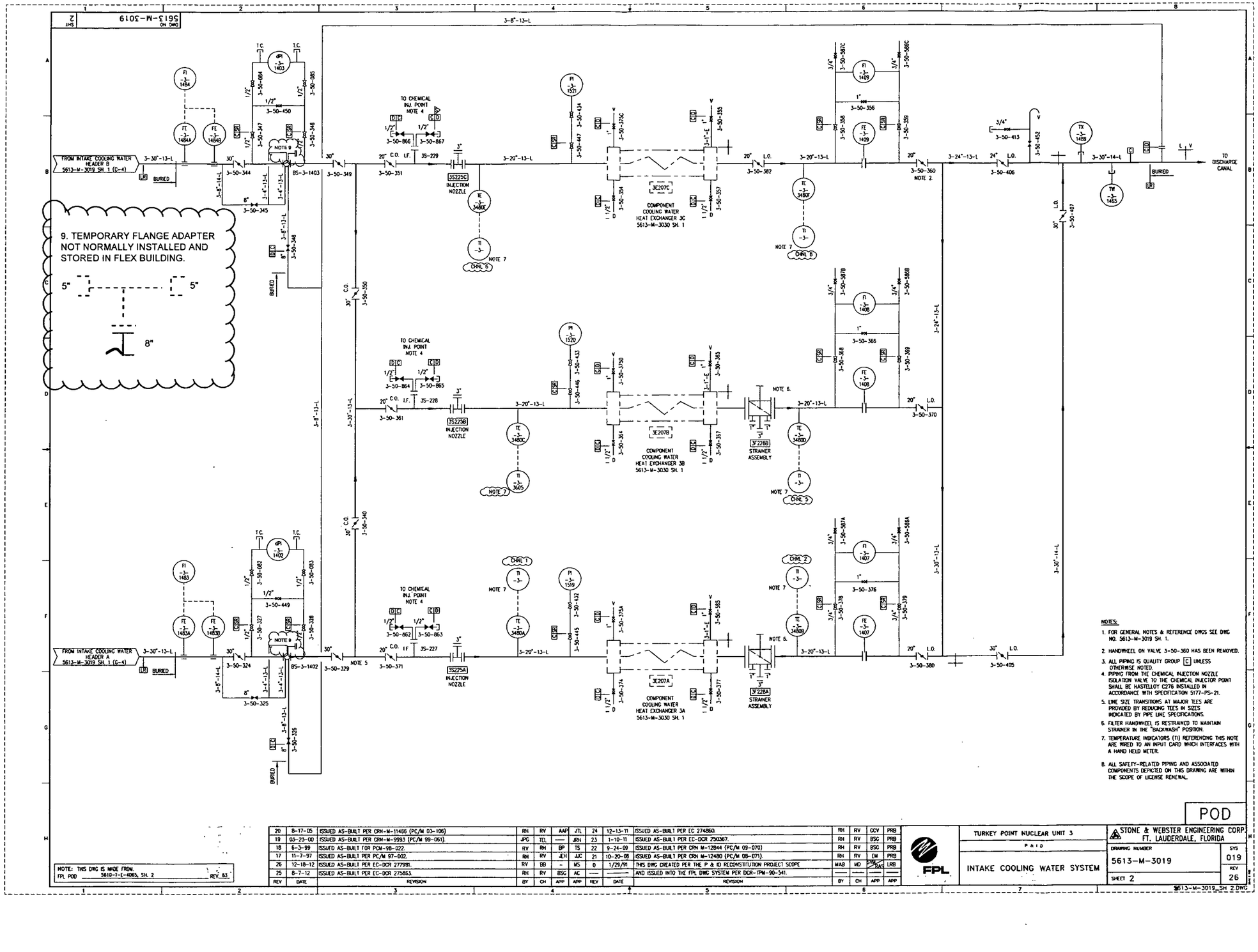
P & I D

COMPONENT COOLING WATER SYSTEM

STONE & WEBSTER ENGINEERING CORP
FT. LAUDERDALE, FLORIDA

DRAWING NUMBER 5613-M-3030 SYS 030 REV 17 SHEET 2

8 5613-M-3030_SH 2.DWG



NOTES:

1. FOR GENERAL NOTES & REFERENCE DWGS SEE DWG NO. 5613-M-3019 SH. 1.
2. HANDWHEEL ON VALVE 3-50-360 HAS BEEN REMOVED.
3. ALL PIPING IS QUALITY GROUP [C] UNLESS OTHERWISE NOTED.
4. PIPING FROM THE CHEMICAL INJECTION NOZZLE ISOLATION VALVE TO THE CHEMICAL INJECTOR POINT SHALL BE HASTELLOY C276 INSTALLED IN ACCORDANCE WITH SPECIFICATION 5177-PS-21.
5. LINE SIZE TRANSITIONS AT MAJOR TEES ARE PROVIDED BY REDUCING TEES IN SIZES INDICATED BY PIPE LINE SPECIFICATIONS.
6. FILTER HANDWHEEL IS RESTRAINED TO MAINTAIN STRAINER IN THE "BACKWASH" POSITION.
7. TEMPERATURE INDICATORS (TI) REFERENCING THIS NOTE ARE WIRED TO AN INPUT CARD WHICH INTERFACES WITH A HAND HELD METER.
8. ALL SAFETY-RELATED PIPING AND ASSOCIATED COMPONENTS DEPICTED ON THIS DRAWING ARE WITHIN THE SCOPE OF LICENSE RENEWAL.

POD

REV	DATE	REVISION	BY	CH	APP	APP
20	8-17-05	ISSUED AS-BUILT PER CRN-M-11486 (PC/M 03-106)	RH	RV	AAP	JTL
19	03-23-00	ISSUED AS-BUILT PER CRN-M-9993 (PC/M 99-061)	JPC	TDL	—	JRH
18	6-3-99	ISSUED AS-BUILT FOR PCN-98-022.	RV	RH	BP	TS
17	11-7-97	ISSUED AS-BUILT PER PC/M 97-002.	RH	RV	JEH	AJC
26	12-18-12	ISSUED AS-BUILT PER EC-DCR 277981.	RV	BB	-	MS
25	8-7-12	ISSUED AS-BUILT PER EC-DCR 275863.	RH	RV	BSG	AC
24	12-13-11	ISSUED AS-BUILT PER EC 274860.	RH	RV	CCV	PRB
23	1-10-11	ISSUED AS-BUILT PER EC-DCR 250367.	RH	RV	BSG	PRB
22	9-24-09	ISSUED AS-BUILT PER CRN M-12844 (PC/M 09-070)	RH	RV	BSG	PRB
21	10-20-08	ISSUED AS-BUILT PER CRN M-12480 (PC/M 08-071).	RH	RV	EM	PRB
0	1/29/91	THIS DWG CREATED PER THE P & ID RECONSTITUTION PROJECT SCOPE	MAB	MD	DWG RAC	LRB
—	—	AND ISSUED INTO THE FPL DWG SYSTEM PER DCR-TPN-90-541.	—	—	—	—

NOTE: THIS DWG IS MADE FROM.
FPL POD 5610-1-E-4065, SH. 2 REV. 83

FPL

TURKEY POINT NUCLEAR UNIT 3
P A I D
INTAKE COOLING WATER SYSTEM

STONE & WEBSTER ENGINEERING CORP. FT. LAUDERDALE, FLORIDA

DRAWING NUMBER	SYS
5613-M-3019	019
SHEET 2	REV 26

5613-M-3019_SH 2.DWG

OIP Attachment 6 Figure 1 Instrumentation

Instrumentation						
Parameter	**Transmitter**	**Short term Power**	**Long Term Power**	**Available Alternative Method**	**Essential Function**	**EQ**
S/G-3A(4A) Pressure	PT-474/475/476	Battery to inverter to 120V vital AC power panels	Portable AC generator to battery chargers	Portable test equipment at instrument racks per 0-ONOP-103.3	Core Cooling	Y
S/G-3B(4B) Pressure	PT-484/485/486				Core Cooling	Y
S/G-3C(4C) Pressure	PT-494/495/496				Core Cooling	Y
S/G-3A(4A) Narrow Range Level	LT-474/475/476	Battery to inverter to 120V vital AC power panels	Portable AC generator to battery chargers	Portable test equipment at instrument racks per 0-ONOP-103.3	Core Cooling	Y
S/G-3B(4B) Narrow Range Level	LT-484/485/486				Core Cooling	Y
S/G-3C(4C) Narrow Range Level	LT-494/495/496				Core Cooling	Y
AFW flows	FT-1401A/B, 1457A/B, 1458A/B	Battery to inverter to 120V vital AC power panels	Portable AC generator to battery chargers	Local indications	Core Cooling	NA
Unit 3(4) CST Level	LT-6384A/B LI-6584	Battery to inverter to 120V vital AC power panels	Portable AC generator to battery chargers	Local indications	Core Cooling	NA

OIP Attachment 6 Figure 1 Instrumentation

Instrumentation						
Parameter	**Transmitter**	**Short term Power**	**Long Term Power**	**Available Alternative Method**	**Essential Function**	
RCS WR T-Cold	QSPDS A QSPDS B	Battery to inverter to 120V vital AC power panels	Portable AC generator to battery chargers	SG pressures and steam tables, CETC temperatures, Portable test equipment at instrument racks per 0-ONOP-103.3	Core Cooling	Y
RCS WR T-Hot					Core Cooling	Y
Neutron Flux	ND-6649A ND-6949B	Battery to inverter to 120V vital AC power panels	Portable AC generator to battery chargers	Portable test equipment at instrument racks per 0-ONOP-103.3	Core Cooling	Y
Core Exit Thermocouple (CETC) temperature	TE-1 to TE-51, QSPDS A QSPDS B	Battery to inverter to 120V vital AC power panels	Portable AC generator to battery chargers	Portable test equipment at instrument racks per 0-ONOP-103.3	Core Cooling	N
Pressurizer level	LT-459 LT-460 LT-461	Battery to inverter to 120V vital AC power panels	Portable AC generator to battery chargers	Portable test equipment at instrument racks per 0-ONOP-103.3	Core Cooling	Y
Reactor Vessel level (RVLIS), ICCS RVL	QSPDS A QSPDS B	Battery to inverter to 120V vital AC power panels	Portable AC generator to battery chargers	None; heated junction must be powered through existing panel	Core Cooling	N
RCS WR Pressure	PT-404 PT-406	Battery to inverter to 120V vital AC power panels	Portable AC generator to battery chargers	SG pressures (while RCS is at saturation)	Core Cooling	Y

OIP Attachment 6 Figure 1 Instrumentation

Instrumentation						
Parameter	**Transmitter**	**Short term Power**	**Long Term Power**	**Available Alternative Method**	**Essential Function**	
Cold Leg Accumulator (CLA) wide range level	LT-920 LT-922 LT-924 LT-926 LT-928 LT-930	Battery to inverter to 120V vital AC power panels	Portable AC generator to battery chargers	Portable test equipment at instrument racks per 0-ONOP-103.3	Core Cooling	N
MT Pressure	PT-6306A PT-6306B	Battery to inverter to 120V vital AC power panels	Portable AC generator to battery chargers	Local gauge at 3/4-2063 or -2059 vent	Containment	N
CTMT Temperature	TE-6700/6701/6702	Battery to inverter to 120V vital AC power panels	Portable AC generator to battery chargers	Portable test equipment at instrument racks per 0-ONOP-103.3	Containment	Y
SFP Level	New modification being developed per EA-12-051			Local visual	SFP Level	NA
DC bus voltage	Local meters	Battery	Battery	Local meters	Battery Capacity	NA
RWST level	LI-6583A/6583B	Battery to inverter to 120V vital AC power panels	Portable AC generator to battery chargers	Local pressure gauges PIC-957A/957B, and PI-1596A/1596B	Core Cooling, Containment	NA

OIP Attachment 6

Credited Equipment

Permanent (Installed) Equipment

Permanent (installed) equipment to be utilized in the overall FLEX coping strategies includes equipment in the following systems:

AFW System and CST

Refueling Water Storage Tank (RWST)

RHR System

CCW System

SFP Cooling System

Containment Heat Removal System

Safety Injection System (Accumulators)

CVCS System

480 and 4KV Electrical Distribution Systems

125 DC System

Control Building HVAC Systems

For permanent equipment to be credited for FLEX actions, the equipment must be rated as ASME SC 3 or better or listed as Safety Related by PTN. Equipment not rated to AMSE SC 3 or better is not credited in the overall coping strategies detailed in previous sections. However, if some of this equipment is available following a ELAP and LUHS event, it should be used to mitigate any potential adverse consequences due to the ELAP and LUHS event.

Onsite FLEX Equipment

The overall coping strategies rely on providing active onsite equipment to provide flow and power. This equipment is required to be stored in structures that meet the external hazards requirements of NEI 12-06. Other equipment will be required to be in the qualified storage structure(s) as part of the overall coping strategies and includes hoses, hose to piping adapters, fans, electrical cables, communications equipment, portable lighting, diesel fuel transfer tank, and debris removal equipment.

OIP Attachment 6

Credited Equipment

Offsite FLEX Equipment

Offsite FLEX equipment will be provided by the Regional Response Center (RRC). This equipment must be rated for the minimum requirements of the phase 3 strategies detailed above. Major equipment expected to be available from the RRC includes additional diesel powered pumps, large diesel generators, and large diesel fuel supply. Other items include additional hoses, radiation protection equipment, personnel commodities, and portable lighting.

The following Attachment 6 Tables 1 and 2 describe the onsite and offsite phase 2 and phase 3 FLEX Credited Equipment respectively:

OIP Attachment 6

Credited Equipment

Table 1							
PWR Portable Equipment Phase 2							
						Performance Criteria	*Maintenance*
List portable equipment	Core	Containment	SFP	Instrumentation	Accessibility		*Maintenance / PM requirements*
Three (3) Diesel Generators	X	X	X	X	X	600 kW, 480V	Will follow EPRI template requirements
Four (4) Electrical Cables	X	X	X	X	X	800 feet, 480V cables with quick connect fittings, 750 Amps continuously	Will follow EPRI template requirements
Three (3) SGPump	X					300 gpm, 300 psi (min)	Will follow EPRI template requirements
Three (3) Discharge Hoses for SGPump	X					500 feet each	Will follow EPRI template requirements
Three (3) Suction Hoses for SG Pump	X					50 feet each	Will follow EPRI template requirements
Three (3) SFP Makeup Pumps			X			250 gpm, 150 psi (min), 200 psi (max)	Will follow EPRI template requirements
Three (3) Discharge Hoses for SFP Pump			X			2000 feet	Will follow EPRI template requirements
Three (3) Suction Hoses for SFP Pump			X			50 feet with Suction Strainer	Will follow EPRI template requirements
Hand Loader and Nitrogen Bottles for SDTA operation	X					80 psi (min), 200 psi (max)	Will follow EPRI template requirements

OIP Attachment 6

Credited Equipment

Table 1							
PWR Portable Equipment Phase 2							
						Performance Criteria	*Maintenance*
List portable equipment	Core	Containment	SFP	Instrumentation	Accessibility		*Maintenance / PM requirements*
Fuel Trailer						With Installed Fuel Transfer Pump	Will follow EPRI template requirements

OIP Attachment 6

Credited Equipment

Table 2							
PWR Equipment Phase 3							
	Use and (potential / flexibility) diverse uses					*Performance Criteria*	*Maintenance*
List portable equipment	Core	Containment	SFP	Instrumentation	Accessibility		*Maintenance / PM requirements*
Two (2) Large Load Diesel Generators	X	X	X	X	X	4160V, 3750 kVA, 150 Amps, 2 connection points	To be addressed by RRC
One (1) Medium Diesel Generators	X	X	X	X	X	480V, 700 kVA, 600 Amps, 10 connection points	To be addressed by RRC
Electrical Cables	X	X	X	X	X	800 feet, 480V cables with quick connect fittings, 750 Amps continuously	To be addressed by RRC
Two (2) UHS Pumps	X	X	X			9000 gpm, 8" connection	To be addressed by RRC
Two (2) UHS Pump Hoses	X	X	X			500 feet each	To be addressed by RRC

OIP Attachment 6

Credited Equipment

Table 2							
PWR Equipment Phase 3							
	Use and (potential / flexibility) diverse uses					*Performance Criteria*	*Maintenance*
List portable equipment	Core	Containment	SFP	Instrumentation	Accessibility		*Maintenance / PM requirements*
Two (2) SG Pump	X					300 gpm, 300 psi (min), 150 feet from suction	To be addressed by RRC
Two (2) Discharge Hoses for SG Pump	X					500 feet each	To be addressed by RRC
Two (2) Suction Hoses for SG Pump	X					50 feet each	To be addressed by RRC
Boric Acid	X					4000 lbs (25 lb bags)	To be addressed by RRC
Two (2) SFP Makeup Pumps			X			250 gpm, 150 psi (min), 200 psi (max)	To be addressed by RRC
Two (2) Discharge Hoses for SFP Pump			X			2000 feet	To be addressed by RRC

OIP Attachment 6

Credited Equipment

Table 2							
PWR Equipment Phase 3							
	Use and (potential / flexibility) diverse uses					*Performance Criteria*	*Maintenance*
List portable equipment	Core	Containment	SFP	Instrumentation	Accessibility		*Maintenance / PM requirements*
Two (2) Suction Hoses for SFP Pump			X			50 feet with Suction Strainer	To be addressed by RRC
Bulk Diesel Fuel	X	X	X	X	X		To be addressed by RRC

Turkey Point IER Open Item 3.2.1.9.A Status

In the first Turkey Point 6 month update, Reference 3, FPL changed the strategy for repowering the Charging pumps. Two Charging pumps (one in each Unit) will be repowered from two portable FLEX Diesel Generators (DG) connected to independent permanently installed 480 VAC load centers instead of the load side of the breaker to the pump. The new 480V connections for the 480V load centers will be through dedicated permanently installed breakers protected from all hazards for Class 1 equipment. One primary connection through the A train breaker and one alternate train connection through the B train breaker in each Unit. The FLEX DG for each Unit will be connected either train to repower the desired Charging pump. The revised configuration meets NEI 12-06 guidance since all required electrical distribution equipment and circuits including batteries and battery chargers are designed to Class 1E requirements and are located in a Class 1 structure or protected from external hazards. A single train of AC power provides adequate power for baseline coping capability. It is noted that the 480V load centers are within a Class 1 structure that is elevated well above all flood hazards including the hurricane storm surge which is the bounding flood hazard. Therefore, it is reasonable to expect all such equipment to remain functional and available after a BDB external event.

The second 6 month update substitutes the strategy to use the redundant and diverse Charging pumps for the RCS portable makeup pump. The following provides the basis for this strategy.

Section 3.2.2 Minimum Baseline Capabilities, Item 13

(13) Use of portable equipment, e.g., portable power supplies, portable pumps, etc., can extend plant coping capability. The procedures/guidance for implementation of these portable systems should address the transitions from installed sources to portable sources.

The use of portable equipment to charge batteries or locally energize equipment may be needed under ELAP/LUHS conditions. Appropriate electrical isolations and interactions should be addressed in procedures/guidance. Regardless of installed coping capability, all plants will include the ability to use portable pumps to provide RPV/RCS/SG makeup as a means to provide a diverse capability beyond installed equipment. The use of portable pumps to provide RPV/RCS/SG makeup requires a transition and interaction with installed systems.

The following NEI 12-06 Sections provide the rational for the final strategy to be used at Turkey Point

3.2 PERFORMANCE ATTRIBUTES

" ...The baseline assumptions have been established on the presumption that other than the loss of the ac power sources and normal access to the UHS, installed equipment that is designed to be robust with respect to design basis external events is assumed to be fully available. Installed equipment that is not robust is assumed to be unavailable..."

Turkey Point IER Open Item 3.2.1.9.A Status

3.2.1.3 Initial Conditions

(6) Permanent plant equipment that is contained in structures with designs that are robust with respect to seismic events, floods, and high winds, and associated missiles, are available."

From Table D-1 – Summary of Performance Attributes for PWR Core Cooling Functions

Safety Function - RCS Inventory Control/Long - Term Subcriticality

- Method - Low Leak RCP Seals and/or borated high pressure RCS makeup required
- Baseline Capability - Site analysis required to determine RCS makeup requirements / Boration and/or letdown path may be required
- Purpose - Extended coping without RCS makeup is not possible without minimal RCS leakage. Plants must evaluate use of low leak RCP seals and/or providing a high pressure RCS makeup pump.
- Performance Attributes - Makeup capability to maintain core cooling*. Sufficient letdown to support required makeup and ensure subcriticality*. *Note: Items are subject to generic or plant-specific analysis"

Safety Function- Core Cooling and Heat Removal (Modes 5 and 6 with steam generators not available)

- Method - All Plants Provide Means to Provide Borated RCS Makeup **
- Baseline Capability- Diverse makeup connections to RCS for long-term RCS makeup and residual heat removal
- Purpose - Long-term sustained coping will require RCS makeup and boration.
- Performance Attributes – In order to address the requirement for diversity, if re-powering of installed charging pumps is used for this function, then either (a) multiple power connection points should be provided to the charging pump, or (b) provide a single power supply connection point for the charging pump and a single connection point for a portable makeup pump.

Basis for Use of Two Charging Pumps

The 480V load centers are physically separated in two robust structures elevated above all flooding hazards. In addition the raceways to the pump motors are also robust. Utilizing two independent charging pumps provides the same or greater diversity as a single RCS portable pump with two connection points. The charging system provides at least two different delivery points to the RCS. The portable FLEX DG connected to either independent 480 V load center provides the diversity using portable equipment for the RCS makeup function. The Turkey Point

Turkey Point IER Open Item 3.2.1.9.A Status

Charging pumps will be powered in a manner that meets NEI Sections 3.2 and 3.2.1.3. In addition, providing the ability to power two independent charging pumps from two independent and robust sources is equivalent from a diversity stand point to powering a single installed charging pump at two different locations. Therefore, in lieu of using a portable FLEX pump and/or locally powering a charging pump, the installed charging pumps powered by independent and robust sources provide adequate diversity for RCS makeup following an ELAP event.

Turkey Point IER Open Item 3.2.4.7.A Status

Turkey Point OIP, Key Site assumptions to implement NEI 12-06 strategies, Page 5 of 101 states:

> "The refueling water storage tanks (RWST's) are also rugged structures designed to withstand seismic and high wind events. They are exposed to impact from the design basis wind driven missiles. Similar to the CST's, the current licensing basis credits redundancy and separation to address the design basis wind driven missiles. Therefore, survival of one RWST is credited in the strategies."

The current UFSAR Chapter 5E indicates that the RWSTs are not required to achieve safe shutdown. However, Chapter 5E of the original Final Safety Analysis Report, which was reviewed and approved by the NRC as part of the initial operating license, identified that the RWSTs have adequate separation and redundancy to ensure one RWST would survive a design basis tornado missiles. Later versions of the UFSAR eliminated the need for the RWSTs as a boration source to maintain hot standby conditions and changed Chapter 5E accordingly. The existing Boric Acid Storage Tanks located inside a class I structure provide the needed boration sources during a tornado event. No modification or changes were done to the RWST or connected piping that changed their separation and redundancy.

Both RWSTs are rugged structures designed to withstand the design basis seismic and wind events but not tornado generated missiles. Both tanks have nearby structures on the west, north and south directions that provide full height shielding. On the east side there are several structures that provide protection to the lower half of the tanks, and the Cask Crane and support structure that provides partial protection for the full height of both tanks. These structures surrounding the RWST's would be expected to protect both tanks from the wind driven design basis tornado missiles.

NE 12-06 provides the following guidance for protection of FLEX equipment:

> Section 7.3.1(c) Protection of FLEX Equipment
>
> > In evaluated storage locations separated by a sufficient distance that minimizes the probability that a single event would damage all FLEX mitigation equipment such that at least N sets of FLEX equipment would remain deployable following the high wind event. (This option is not applicable for hurricane conditions).
> >
> > - Consistent with configuration b., the axis of separation should consider the predominant path of tornados in the geographical location.
> > - Consistent with configuration b., stored mitigation equipment should be adequately tied down.

Turkey Point IER Open Item 3.2.4.7.A Status

Basis for RWST Separation Adequacy

FPL current licensing basis does not require separation between redundant features to be orientated opposite of the predominant tornado path as previously discussed.

NEI 12-06 Section 7.3.1(c) allows use of separation as a method for ensuring at least "N" FLEX equipment is available during tornado conditions provided the axis of separation considers the predominant path of tornados. The RWSTs are separated by a distance of approximately 130 ft (check). The 75th percentile width for a Florida tornado is 120 ft. In addition, the typical path of a tornado is from the West – South West direction. Given the historical information for tornados in Florida including widths and prevailing direction, adequate separation distance in the north-south axis is provided for the RWSTs. Additionally, there is significant protection provided by surrounding structures as discussed above and the tanks are rated for tornado wind speeds. Based on these considerations, and that adequate separation was found acceptable for the Turkey Point design basis tornado missile in the original plant licensing basis, the RWSTs are robust and sufficient separation exist that at least one tank or portions of both tanks will be available as a water source following a high wind event to support ELAP strategies for Modes 5 and 6. For the mode 1-4 ELAP, RCS inventory is maintained by the use of low leakage seals, injection of the accumulators, and makeup from the boric acid storage tanks which provide sufficient volume until the recovery phase 72 hours after the initiation of the ELAP event. Therefore, the RWSTs are not needed during modes 1 through 4.