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 50-251 Turkey Point Plant, Unit 4, Florida Power and Light C 05000251
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 UHRIG, R.E. Florida Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION
 VARGA, S.A. Operating Reactors Branch 1

SUBJECT: Forwards responses to questions re proposed installation of condensate polishing demineralizers. Responses suppl info previously submitted in 800318 & 0527 ltrs. Oversize drawings encl.

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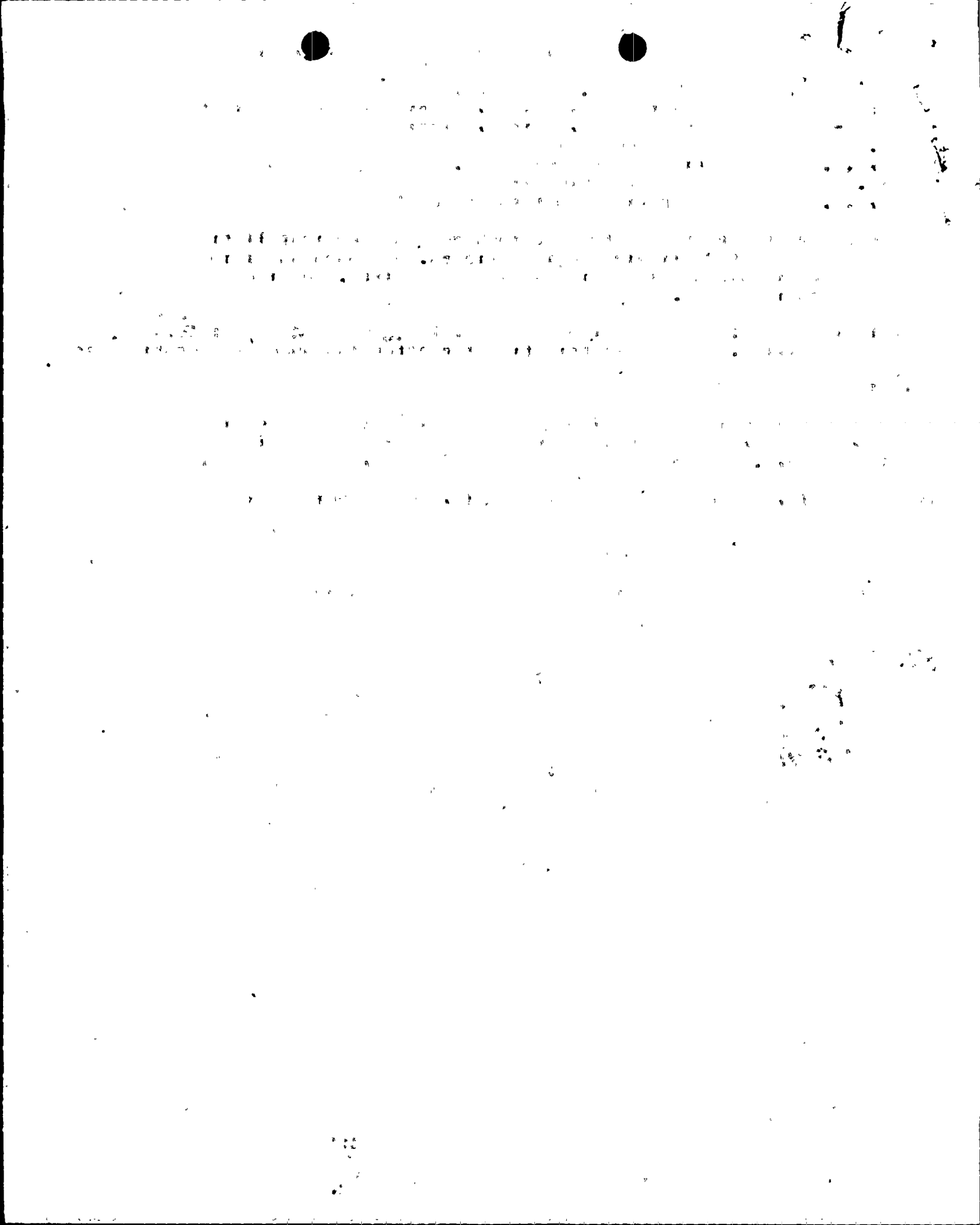
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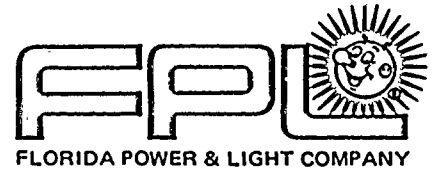
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July 22, 1980
L-80-231

Office of Nuclear Reactor Regulation
Attention: Mr. Steven A. Varga, Chief
Operating Reactors Branch 1
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555


Dear Mr. Varga:

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Steam Generator Repair

Attached you will find Florida Power & Light Company's responses to the questions regarding the proposed installation of condensate polishing demineralizers at Turkey Point Units 3 and 4, which were transmitted by Mr. Marshall Grotenhuis of your branch on June 16, 1980. These responses supplement information previously submitted in our letters of May 27, 1980 and March 18, 1980, to Mr. A. Schwencer.

Please notify us if you require further information.

Very truly yours,


Robert E. Uhrig
Vice President
Advanced Systems & Technology

REU/LFR/ah

Attachments

cc: N. A. Coll, Esquire
H. F. Reis, Esquire

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RESPONSES TO: DEMINERALIZER QUESTIONS FOR FLORIDA POWER & LIGHT COMPANY

TURKEY POINT UNITS 3 AND 4

1. Q: Provide a general description and flow diagram of how the full flow condensate demineralizer operates. Indicate the number of demineralizer vessels per unit.

A: The condensate polishing demineralizer system is of the Powdex type and consists of the following sub-systems for each unit:

- Filter/Demineralizer
- Precoat
- Spent Resin Handling

The filter/Demineralizer sub-system consists of four 1/3 capacity filter/demineralizer vessels, each with an individual hold pump, and an individual flow control valve. The filter/demineralizer vessels contain the resin and/or filter media. The hold pumps maintain the minimum condensate flow that is required for proper resin and/or filter media retention. The individual hold pump loop for each vessel can be isolated from the main condensate system. The flow control valves for the sub-system maintain an even distribution of the condensate flow through all on-line units. All four filter/demineralizer units are piped in parallel.

The precoat sub-system is used to place resin or filter media charges into the filter/demineralizer vessels.

The spent resin handling sub-system consists of a pressure filter, dewatering filter, valves instruments and controls. The system is used for dewatering and filtration of resin slurries.

During normal operation three vessels in parallel are used at the design flow rate. The fourth vessel is a standby unit. An audible alarm is annunciated when the pressure differential across the unit reaches a predetermined but adjustable value, high sodium content, or when the effluent conductivity indicates ion exchange capacity exhaustion. Upon the annunciation of this alarm, the standby filter/demineralizer vessel is placed in service by remote manual push button, and the exhausted filter/demineralizer vessel is removed from service. The exhausted vessel can be either placed in the "hold" mode for testing to confirm exhaustion, backwashed and left clean without a precoat, or backwashed, precoat, and placed in the "hold" position as a standby.

For a detailed description, see attached condensate polishing system flow diagram 5177-088-M-2 and system description 5177-088-M-1.

2. Q: Indicate the anticipated frequency of back flushing and Powdex replacement for each demineralizer vessel. Describe how such an operation would be scheduled for the two units. Describe how run time will be determined.

A: Based upon the influent water quality and desired effluent quality, the condensate polishing demineralizer system will have an approximate run time of 2-3 weeks. The run time is determined based upon built up suspended solids and ion-exchange capacity exhaustion.

During one unit operation with three operating vessels (Unit 3 or 4), the backwash cycle would average once per week. With both units in operation (Unit 3 and 4), the backwash cycle would average twice per week.

3. Q: Indicate the source and water quality of the backflushing liquid.

A: The source of water used for backflushing is from a condensate quality demineralized water storage tank. The flushing water will normally have the following analysis:

Cation conductivity at 25 C micromhos/cm	≤ 2.00
Total solids, ppm	≤ 0.50
Fluoride, ppm	≤ 0.15
Chloride, ppm	≤ 0.15
Suspended solids, ppm	≤ 0.10
Sodium, ppm	≤ 0.10
Free hydroxide, ppm	≤ 0.10
pH	7.0-8.0
Silica, ppm	≤ 0.20
Particulates	Filtered to less than 25 microns
Dissolved oxygen, ppm	≤ 0.08
Dissolved carbon dioxide, ppm	≤ 2.00

4. Q: Provide the volume of discharge from the demineralizer vessel to the receiving vessel.

A: The volume of discharge from the demineralizer vessel to the backwash receiver tank is approximately 6,350 gpm per backwash.

5. Q: Provide the anticipated water quality values for pH, suspended solids, and conductivity of the supernatant discharged from the receiving vessel to the discharge canal.

A: The water quality of the supernatant discharged from the spent resin handling system to the discharge canal will usually exceed that of the canal water. The following are anticipated typical values:

pH	8.5-8.7
Conductivity micromhos/cm	1.0

5. (Continued) Values for total suspended solids will normally be within low volume waste source limits, and are expected to be significantly lower than those limits.

6. Q: Indicate the anticipated type (batch or continuous) volume, and flow rate of the discharge.

A: The spent resin handling system is designed for batch type operation. The system is designed to handle 6,000 gpm in 10 hours.

7. Q: Indicate the approximate location of the discharge point on a site map (line drawing of discharge).

A: See attached drawing 5610-C-2.