



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

November 3, 2000

LICENSEE: Florida Power and Light Company

FACILITY: St. Lucie Nuclear Plant, Unit 1

SUBJECT: SUMMARY OF MEETING ON OCTOBER 24, 2000, REGARDING  
ST. LUCIE UNIT 1 EMERGENCY DIESEL GENERATOR ALLOWED  
OUTAGE TIME EXTENSION (TAC NO. MA 7205)

On October 24, 2000, the U.S. Nuclear Regulatory Commission (NRC) staff met with Florida Power and Light Company (FPL) representatives at NRC headquarters in Rockville, Maryland. The purpose of the meeting was to discuss FPL's request dated November 17, 1999, to extend the Unit 1 emergency diesel generators (EDGs) allowed outage time (AOT) from 3 days to 14 days. The meeting was open to the public, as stated in the meeting notice dated October 6, 2000, and was held at FPL's request. Enclosure 1 is a list of attendees and Enclosure 2 is the handout material that was distributed during the meeting.

FPL representatives described the configuration of the cable spreading room (CSR), including the electrical systems train separation and the layout of the potential ignition sources, via the use of a walkdown video and drawings of the CSR. The control room (CR) is located directly above the CSR. A reduced-size copy of the CSR, CR, and train layout drawings is included as Enclosure 3. The fire protection features in the CSR include water hoses, fire extinguishers, and fire watches, including video cameras. They also discussed the revised fire risk analysis for St. Lucie Unit 1 CR and the CSR, and the basis for their request to extend the EDG AOT from 3 days to 14 days. The results of the FPL analyses are provided in Enclosure 2. FPL concluded that the increase in risk from a fire for a 14-day EDG AOT is not significant.

The staff noted that the meeting was beneficial in gaining an understanding of FPL fire risk analyses and the additional compensatory measures that will be implemented during the EDG outage. Based on NRC staff comments, FPL agreed to provide the following in a timely manner.

1. Responses to the NRC staff concerns that should include quantitative reevaluation and elaboration of the fire risk analysis in the CSR and CR. The elaboration of the fire risk should include a discussion of critical components, ignition sources, cable trays and cable arrangement, location of critical cables, and transient combustible control.

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2. Tier 2 commitments when in the extended AOT, such as significant restrictions on hot-work in the CSR, continuous fire watch, plant fire protection walkdown prior to entering an extended AOT, and potential thermographic examination of high-risk ignition sources in the CSR and the CR.

*Kahtan N. Jabbour*

Kahtan N. Jabbour, Senior Project Manager, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-335

Enclosures:

1. Attendance List
2. FPL Handout
3. Reduced-size drawings

cc w/enclosures: See next page

November 3, 2000

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**/RA/**

Kahtan N. Jabbour, Senior Project Manager, Section 2  
 Project Directorate II  
 Division of Licensing Project Management  
 Office of Nuclear Reactor Regulation

Docket No. 50-335

- Enclosures:
- 1. Attendance List
  - 2. FPL Handout
  - 3. Reduced-size drawings

cc w/enclosures: See next page

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DOCUMENT NAME: G:\PDII-2\St. Lucie\Meetings.wpd

OFFICE	PDII-2/PM	PDII-2/LA	PDII-2/SG	
NAME	KJabbour <i>KNS</i>	BClayton <i>ETO</i>	RCorreia <i>RRC</i>	
DATE	11/3 /00	11/3 /00	11/3 /00	11/ /00

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ATTENDANCE LIST

NUCLEAR REGULATORY COMMISSION MEETING WITH FLORIDA POWER

AND LIGHT COMPANY

ST. LUCIE UNIT 1 EMERGENCY DIESEL GENERATOR

ALLOWED OUTAGE TIME EXTENSION

OCTOBER 24, 2000

NRC

H. Berkow

R. Correia

M. Caruso

I. Jung

W. Rogers

S. Wong

J. Hyslop

M. Wohl

C. Gratton

G. Shukla\*

K. Jabbour

FPL

E. Weinkam

V. Rubano

C. Guey

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\* denotes part-time attendance



**St. Lucie Unit 1  
Meeting with the USNRC/NRR  
Proposed License Amendment  
Emergency Diesel Generator AOT  
PSA Considerations  
October 24, 2000**



# St. Lucie Unit 1

## Emergency Diesel Generator AOT

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- The staff's estimate of the increase in risk due to fire does not meet R.G. 1.177
  - Staff's estimate based on St. Lucie's IPEEE submittal
  - The IPEEE submittal used the FIVE methodology
    - Results in an unrealistically high core damage frequency for the CR and CSR
- FPL has proposed an alternate means of estimating the increase in risk
- This meeting is to review the basis of the fire risk for the CR and CSR for a 14-day AOT for St. Lucie Unit 1



# St. Lucie Unit 1

## Emergency Diesel Generator AOT

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- Based on the latest analysis, the estimated increase in risk is:
  - For the Cable Spread Room
    - ICCDP           4.0E-8
    - ICLERP        4.0E-9
  - For the Control Room
    - ICCDP           5.7E-8
    - ICLERP        5.7E-9



# St. Lucie Unit 1

## Emergency Diesel Generator AOT

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### **Cable Spread Room**

- The CSR was reviewed for:
  - Ignition Sources
  - Cable Tray and Cable Arrangement
  - Location of Critical Cables (EDG, SBO Cross Tie, Offsite Power)
  - Transient Combustible Control



# St. Lucie Unit 1

## Emergency Diesel Generator AOT

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### Ignition Sources

- The main ignition sources of concern are the pressurizer heater transformers
  - Transformers have 4 kV primary and 480 v secondary
  - Transformers are dry type with vented metal enclosure
  - 4 kV cables enter from the bottom and are not exposed in the room
  - Cables exit directly to attached switchgear
  - Cables exiting the switchgear are in conduit



# St. Lucie Unit 1

## Emergency Diesel Generator AOT

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### Ignition Sources (cont.)

- The power programmer cabinets are also a concern
  - These cabinets have a ventilation fan near the top of the cabinet
  - Ventilation louvers exist at the lower part of cabinet
  - A credible fire propagation pathway exists
  - A fault in these cabinets would likely trip the reactor
  - A reactor trip de-energizes the cabinets removing energy source



# St. Lucie Unit 1

## Emergency Diesel Generator AOT

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### Ignition Sources (cont.)

- Additional ignition sources considered include 480 v load centers, DC distribution panels, and reactor trip switchgear
  - All of these cabinets are enclosed
  - Most with solid tops
  - All cables exiting the cabinets are in conduit
  - Cabinets are well separated with no continuity of combustibles at floor level



# St. Lucie Unit 1

## Emergency Diesel Generator AOT

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### **Cable Tray and Cable Arrangement**

- In most cases the lowest tray has a solid bottom and cover
- Most cable tray stacks have at least one solid tray with a solid cover
- All non-qualified cables are heavily coated in fire retardant material
- Due to fire retardant coatings, most vented trays will act as solid trays
- Vertical cable tray runs have solid tops and bottoms



# St. Lucie Unit 1

## Emergency Diesel Generator AOT

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### **Location of Critical Cables (EDG, SBO Cross Tie, Offsite Power)**

- Control Cables for offsite power and EDG for Train A and B are well separated
  - Area under RTGB 101 has these cables in relatively close proximity
  - Cables from the control room are in enclosed wireway or conduit
- Control Cables for Station Blackout Cross Tie have some separation from EDG cables



# St. Lucie Unit 1

## Emergency Diesel Generator AOT

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### **Transient Combustible Control**

- Transient combustibles are under strict administrative control
- Cable trays are located greater than 9 feet above the floor
- Based on train separation a transient fire would be expected to affect only one train
- Based on cable tray location, cable tray construction and fire retardant
  - Unlikely that a transient fire would cause significant cable damage



# St. Lucie Unit 1

## Emergency Diesel Generator AOT

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### Results

- Transformer fire
  - A fire in transformer for bus 1A3 would affect only “A” train power
  - A fire in transformer for bus 1B3 would affect only “B” train power
  - ICCDP estimated at  $6.06E-9$  for both transformers
- Power Programmer Cabinet
  - Cables from main Control Board for EDG and offsite power directly above these cabinets
  - ICCDP is estimated at  $3.07E-8$
- Cumulative ICCDP for CSR is estimated at  $3.68E-8$



# St. Lucie Unit 1

## Emergency Diesel Generator AOT

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### Control Room

- Severe and non-severe fires considered
- RTGB 101 sections represent a linear weighting factor of 2 with a linear weighting factor of 90 for all control room cabinets
- Non-severe fire ICCDP estimated at  $4.37E-8$
- Severe fire ICCDP estimated at  $1.34E-8$
- Cumulative ICCDP estimated at  $5.71E-8$



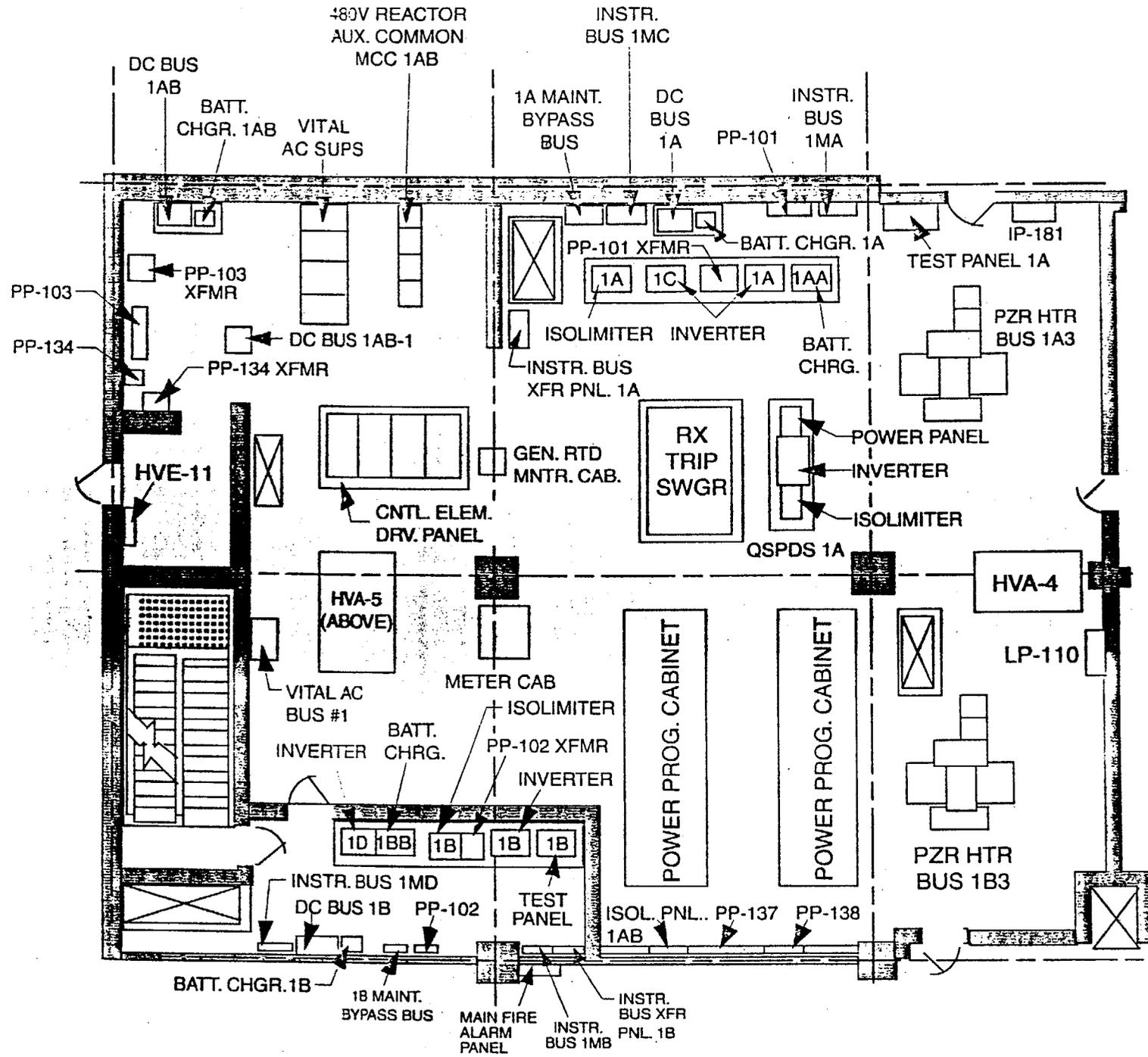
# St. Lucie Unit 1

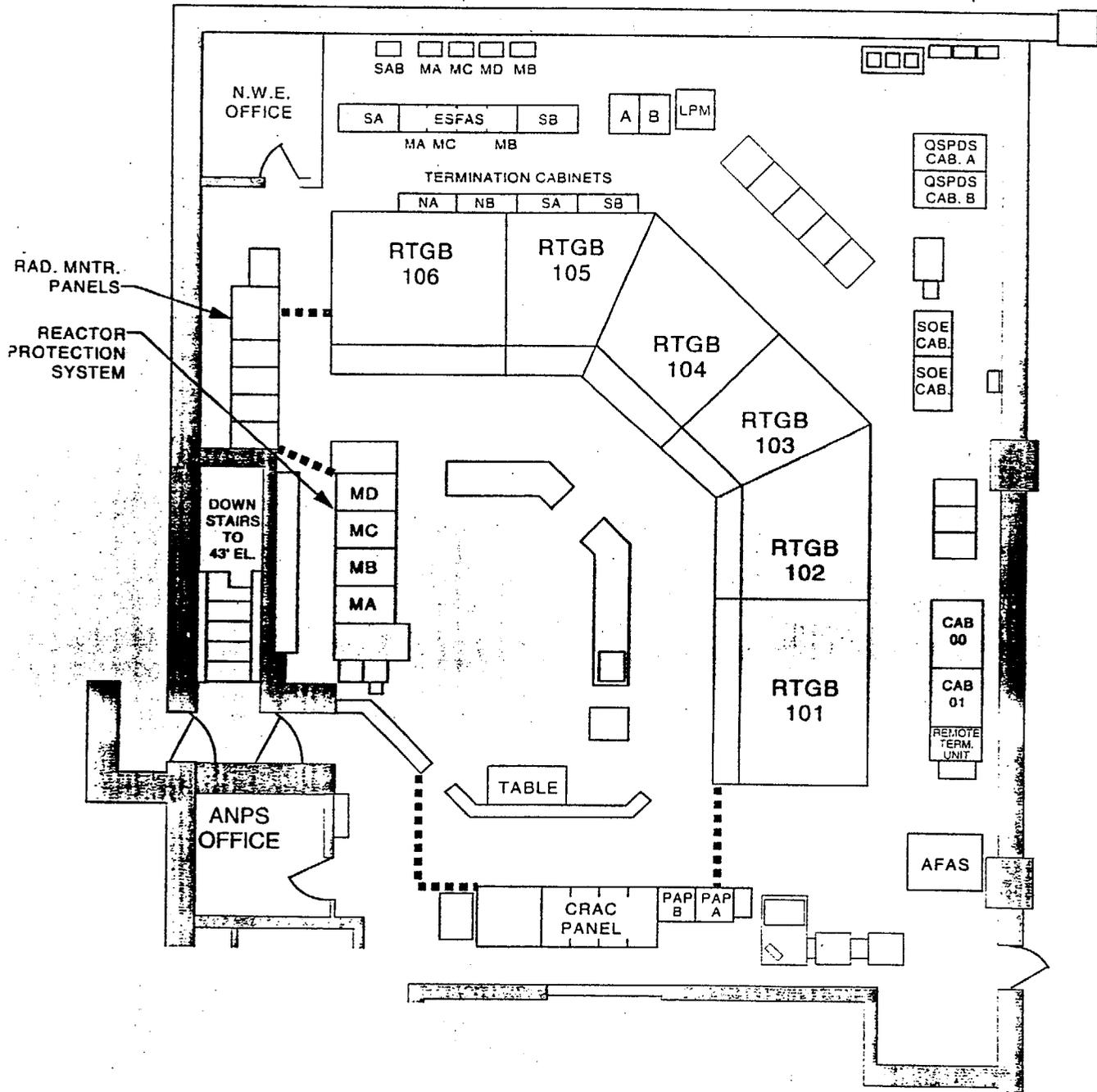
## Emergency Diesel Generator AOT

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### Summary

- The estimated ICCDP for fire risk with a 14-day AOT for the EDG is 9.39E-8 for the CR and CSR
- This estimate does not take credit for additional compensatory measures in the CSR
- Additional compensatory measures would lower the risk
- Difficult to estimate the affect on risk of the compensatory measures
- The risk assessment represented above shows that the increase in risk from a fire for a 14-day EDG AOT is not significant
- This information will be submitted in answer to the RAI



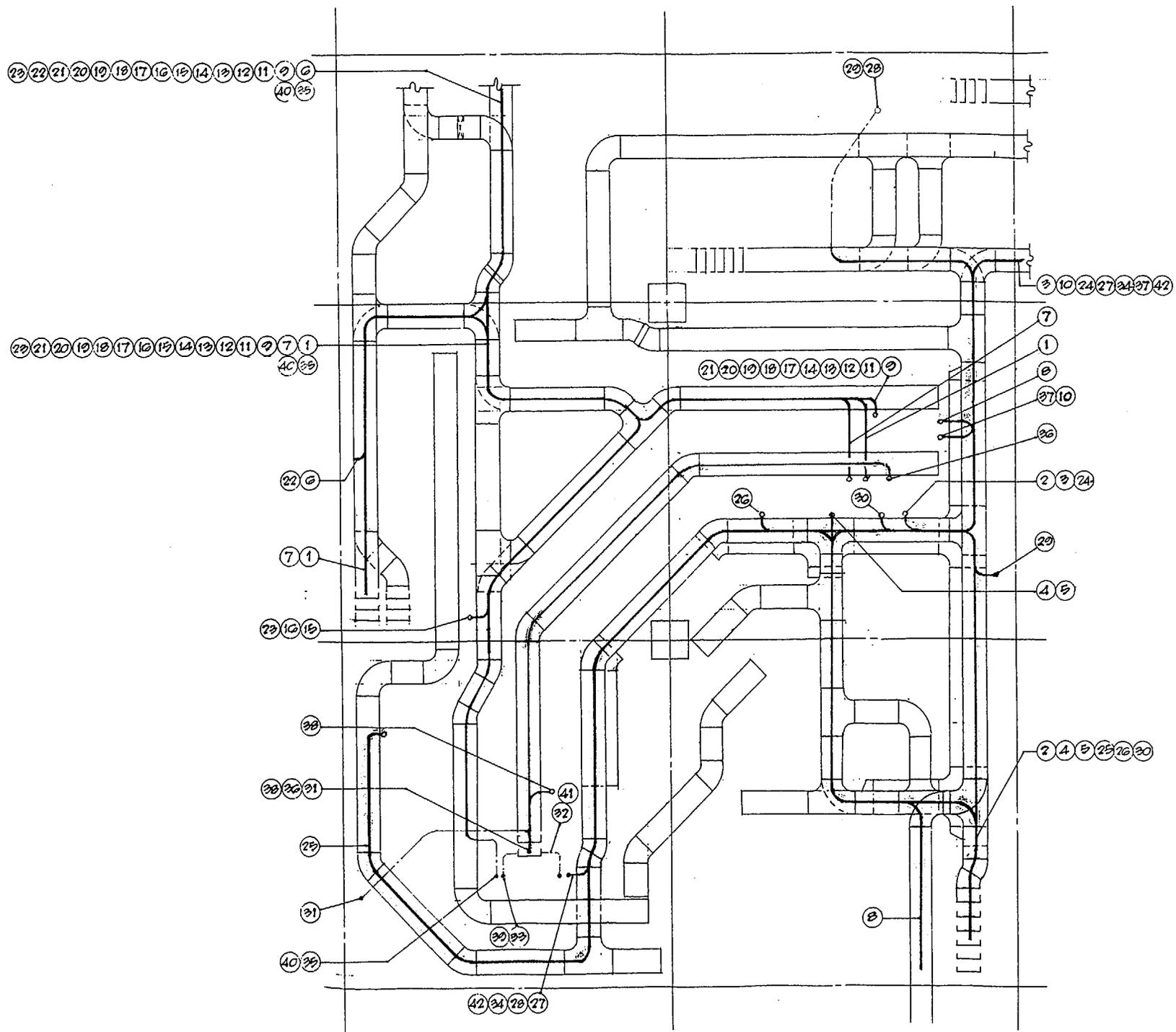


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ST. LUCIE - UNIT #1  
FLOOR PLAN UNIT 1 CONTROL ROOM  
ELEVATION 62.00'



\_\_\_\_\_ 'A' Train  
 \_\_\_\_\_ 'B' Train  
 \_\_\_\_\_ 'AB' Train

Florida Power and Light Company

**ST. LUCIE PLANT**

cc:

Mr. T. F. Plunkett  
President - Nuclear Division  
Florida Power and Light Company  
P.O. Box 14000  
Juno Beach, Florida 33408-0420

Rajiv S. Kundalkar  
Vice President  
St. Lucie Nuclear Plant  
6351 South Ocean Drive  
Jensen Beach, Florida 34957

Senior Resident Inspector  
St. Lucie Plant  
U.S. Nuclear Regulatory Commission  
P.O. Box 6090  
Jensen Beach, Florida 34957

Mr. R. G. West  
Plant General Manager  
St. Lucie Nuclear Plant  
6351 South Ocean Drive  
Jensen Beach, Florida 34957

Joe Myers, Director  
Division of Emergency Preparedness  
Department of Community Affairs  
2740 Centerview Drive  
Tallahassee, Florida 32399-2100

E. J. Weinkam  
Licensing Manager  
St. Lucie Nuclear Plant  
6351 South Ocean Drive  
Jensen Beach, Florida 34957

M. S. Ross, Attorney  
Florida Power & Light Company  
P.O. Box 14000  
Juno Beach, FL 33408-0420

Mr. John Gianfrancesco  
Manager, Administrative Support  
and Special Projects  
P.O. Box 14000  
Juno Beach, FL 33408-0420

Mr. Douglas Anderson  
County Administrator  
St. Lucie County  
2300 Virginia Avenue  
Fort Pierce, Florida 34982

Mr. J.A. Stall  
Vice President - Nuclear Engineering  
Florida Power & Light Company  
P.O. Box 14000  
Juno Beach, FL 33408-0420

Mr. William A. Passetti, Chief  
Department of Health  
Bureau of Radiation Control  
2020 Capital Circle, SE, Bin #C21  
Tallahassee, Florida 32399-1741

Mr. J. Kammel  
Radiological Emergency  
Planning Administrator  
Department of Public Safety  
6000 SE. Tower Drive  
Stuart, Florida 34997