REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8610090166 DOC. DATE: 86/09/24 NOTARIZED: NO DOCKET #
FACIL: 50-250 Turkey Point Plant, Unit 3, Florida Power and Light C 05000250
50-251 Turkey Point Plant, Unit 4, Florida Power and Light C 05000251
AUTH. NAME AUTHOR AFFILIATION
WOODY, C. O. Florida Power & Light Co.
RECIP. NAME RECIPIENT AFFILIATION
NOVAK, T. M. Division of Pressurized Water Reactor Licensing - A (post 8

SUBJECT: Forwards addl info & amplifies basis re 860827 commitment to administratively implement 7-day limiting condition for operation in Modes 1-4 re emergency diesel generators.

DISTRIBUTION CODE: A001D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 8
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| | PWR-A PD2 PD 01 | 5 | 5 | McDONALD, D | 1 | 1 |
| | PWR-A PSB | 1 | 1 | PWR-A RSB | 1 | 1 |
| INTERNAL: | ADM/LFMB | 1 | 0 | ELD/HDS4 | 1 | 0 |
| | NRR/DHFT/TSCB | 1 | 1 | NRR/ORAS | 1 | 0 |
| | REG FILE 04 | 1 | 1 | RGN2 | 1 | 1 |
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ACCESSION NBR:8610090166 DOC.DATE: 85/09/23 NOTARIZED: NO DOCKET #
FACIL:50-250 Turkey Point Nuclear Plant, Unit 3, Florida Power and Light C 05000250
50-251 Turkey Point Nuclear Plant, Unit 4, Florida Power and Light C 05000251
AUTH.NAME AUTHOR AFFILIATION
NOVAKO,T.M. Florida Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
NOVAK,T.M. Division of Pressurized Water Reactor Licensing - A (post 1

SUBJECT: Forwards addl info & clarifies basis re 850827 commitment to administratively implement 7-day limiting condition for operation in Modes 1-4 re emergency diesel generators.

DISTRIBUTION CODE: A001D COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 4
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| | PWR-A FOB | 1 | 1 | PWR-A POLICY LA | 1 | 0 |
| | PWR-A PDP PD 01 | 5 | 5 | MCDONALD,D | 1 | 1 |
| | PWR-A PSB | 1 | 1 | PWR-A RSB | 1 | 1 |
| INTERNAL: | ADM/LFMB | 1 | 0 | ELD/HDS4 | 1 | 0 |
| | NRR/DHFT/TSCB | 1 | 1 | NRR/ORAS | 1 | 0 |
| | REG FILE 04 | 1 | 1 | RGN2 | 1 | 1 |
| EXTERNAL: | EG&G BRUSKE,S | 1 | 1 | LPDR 03 | 1 | 1 |
| | NRC PDR 02 | 1 | 1 | NSIC 05 | 1 | 1 |

TOTAL NUMBER OF COPIES REQUIRED: LTTR 23 ENCL 19

P. O. BOX 14000, JUNO BEACH, FL 33408

FLORIDA POWER & LIGHT COMPANY

SEPTEMBER 24 1986
L-86-387

Office of Nuclear Reactor Regulation
Attention: Mr. Thomas M. Novak, Acting Director
Division of Pressurized Water Reactor Licensing - A
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Novak:

Re: Turkey Point Units 3 & 4
Docket Nos. 50-250 & 50-251
Emergency Diesel Generator Technical Specifications

Florida Power & Light Company letter L-86-348, dated August 27, 1986 conveyed our commitment to administratively implement (pending submittal and approval of revised technical specifications) a seven (7) day LCO in modes 1, 2, 3 and 4 for the Turkey Point plant emergency diesel generators. In accordance with our subsequent discussions with your staff, this letter transmits additional information and amplification of the basis for a seven (7) day LCO.

Very truly yours,

C. O. Woody
Group Vice President
Nuclear Energy

COW/JKH/cab

Attachment



A001
1/1

JKH1/028/1

# BASIS FOR INTERIM ADMINISTRATIVE SEVEN (7) DAY EMERGENCY DIESEL GENERATOR LCO

Turkey Point Technical Specification 3.7.2.b, applicable during power operation or restarting from hot shutdown, currently requires the following:

> "Power operation may continue if one diesel generator is out of service provided (1) the remaining diesel generator is tested daily and its associated engineered features are operable, and (2) either start-up transformer is operable. If the diesel outage is to be seven (7) days or more the NRC shall be notified."

FPL, as requested by the NRC, has established interim administrative controls for Turkey Point Units 3 and 4 which require that both units be shutdown if an inoperable diesel generator cannot be restored to an operable status within seven (7) days. These interim controls are appropriate for Turkey Point based on the following:

(1) A seven day LCO is required (based on a review of the Turkey Point diesel generator maintenance history) to allow adequate time to perform the manufacturer's recommended preventive maintenance, and to perform troubleshooting and/or repairs before a shutdown of both units is required. The example of performance based technical specifications included in Generic letter 84-15, Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability, states that "the maximum time that an individual diesel may be inoperable shall be established by the licensee based on the manufacturer's recommendations and previous maintenance and repair experience."

The objective, of course, is to minimize the duration of diesel generator unavailability while allowing adequate time to conduct preventive maintenance, inspections and repairs in an orderly, planned and successful manner. The existence of an LCO of specific duration by no means implies that the full LCO period is routinely used absent clear and present need for productive use of the time.

For Turkey Point, the planned preventive maintenance outages have typically been the longer periods of unavailability. A record search has revealed the following data which is representative of the longer historical emergency diesel outages:

| Emerg. Diesel | Start Date | Start Time | End Date | Compl. Time | Comments | | Elapsed Time | |
|---|---|---|---|---|---|---|---|---|
| A | 10/16/73 | 730 | 10/17/73 | 1500 | 4307.3* | 1 day | 7 hrs | 30 min |
| B | 10/17/73 | 1400 | 10/18/73 | 1830 | 4307.3 | 1 day | 3 hrs | 30 min |
| A | 07/31/74 | 800 | 08/01/74 | 1200 | 4307.3 | 1 day | 4 hrs | |
| B | 08/01/74 | 1300 | 08/02/74 | 1600 | 4307.3 | 1 day | 3 hrs | |
| A | 08/14/75 | 730 | 08/20/74 | 1600 | 4307.3 | | 8 hrs | 30 min |
| B | 08/21/75 | 730 | 08/21/75 | 1600 | 4307.3 | | | |
| A | 02/07/76 | 740 | 02/09/76 | 0 | | 1 day | 17 hrs | 20 min |
| B | 02/07/76 | 140 | 02/09/76 | 505 | | 2 days | 4 hrs | 25 min |
| A | 09/20/76 | 610 | 09/22/76 | 1102 | E00S LOG | 2 days | 5 hrs | 52 min |
| A | 09/20/76 | 730 | 09/21/76 | 1930 | 4307.3 | 1 day | 12 hrs | |
| B | 09/22/76 | 730 | 09/23/76 | 1930 | 4307.3 | 1 day | 12 hrs | |
| A | 09/26/77 | 200 | 09/29/77 | 1745 | | 3 days | 15 hrs | 45 min |
| B | 10/03/77 | 1100 | 10/06/77 | 1200 | 4307.3 | 3 days | 1 hr | |
| A | 02/14/78 | 0 | 03/19/78 | 200 | | 5 days | 2 hrs | |
| B | 03/20/78 | 800 | 03/23/78 | 930 | Piping Mods | 3 days | 1 hr | 30 min |
| B | 11/20/78 | 100 | 11/25/78 | 2200 | Replace Radiator | 5 days | 21 hrs | |
| B | 11/27/78 | 735 | 11/30/78 | 1515 | E00S Log | 3 days | 7 hrs | 40 min |
| A | 12/01/78 | 730 | 12/02/78 | 630 | 4307.3 | | 23 hrs | |
| A | 10/16/79 | 730 | 10/17/79 | 1800 | 4307.3 | 1 day | 10 hrs | 30 min |
| B | 10/17/79 | 730 | 10/17/79 | 2030 | 4307.3 | | 13 hrs | |
| A | 09/08/80 | 730 | 09/12/80 | 1130 | 4307.3 | 4 days | 4 hrs | |
| B | 09/15/80 | 730 | 09/17/80 | 1600 | 4307.3 | 2 days | 8 hrs | 30 min |
| A | 11/02/81 | 700 | 11/06/81 | 430 | | 3 days | 9 hrs | 30 min |
| B | 11/09/81 | 700 | 11/14/81 | 1630 | | 5 days | 9 hrs | 30 min |
| B | 03/01/83 | 930 | 03/08/83 | 700 | 4307.3 | 6 days | 21 hrs | 30 min |
| A | 03/09/83 | 1100 | 03/13/83 | 1400 | 4307.3 | 4 days | 3 hrs | |
| A | 12/10/84 | 700 | 12/23/84 | 1500 | 4307.3 | 13 days | 8 hrs** | |
| B | 01/08/85 | 1900 | 01/13/85 | 1700 | 18 Mo Insp | 4 days | 22 hrs | |

NOTE: The increasing trend over the years in the time required to perform Maintenance Procedure 4307.3 and related preventive maintenance reflects the increasing scope and complexity of these activities as well as associated control and assurance features such as; independent verification, more detailed documentation of work performed, parts records, and post maintenance testing.

*Procedure 4307.3 covered Emergency Diesel Inspection - Mechnical and was typically worked in conjunction with the corresponding procedures for electrical, I&C and relay group preventive maintenance/inspection activities.

**One unit was in cold shutdown during this period.

(2) The interim LCO is consistent with the current technical specification in that action is required within 7 days (now unit shutdown(s) and NRC notification in accordance with the current technical specification vs. NRC notification only).

(3) A number of other operating plants have 7 day LCO's for their diesel generators.

(4) A discussion of AC Power unavailability was included in the Emergency Diesel Generator Load Evaluation, submitted to the NRC on June 12, 1986 (FPL Letter L-86-243). From this discussion (attached), it can be seen that a source of A.C. power (offsite power, safety related EDG, or black start diesel) can be made available in a short time period. (The five black start diesels installed at the Turkey Point Plant are the same basic engine size as the safety grade diesels and can provide power to the C bus on either nuclear unit by way of the switchyard or more importantly through recently installed 4 kV cable internal to the site proper. Thus, this cable can connect the black start diesel output bus to the respective units C bus without dependence on transformers or exposure to vulnerabilities associated with the switchyard under severe weather or other unusual conditions.)

(5) It is our long standing practice to shut down the nuclear units when a direct threat from an imminent external event (e.g., hurricane) is present. Emergency Procedure 20106, "National Emergencies", also delineates extensive precautions and preparations including additional emergency diesel operability testing as anticipatory actions.

(6) A major study assessing emergency diesel and electrical system configuration of the Turkey Point nuclear units is underway. Recommendations from this study include separation (unitization to the extent feasible) of the electrical systems and addition of two emergency diesel generators. Preliminary discussions have been held with the NRC staff to assure appropriate considerations relative to station blackout are incorporated in our thinking.

While a final decision has not been reached, it is anticipated that this project plan will be firm by the end of 1986. This is obviously a very significant and costly effort which has the full attention and support of FPL upper management.

(7) Submittal of revised technical specifications in accordance with the Turkey Point plant performance enhancement program commitments is imminent. The process associated with submittal, review and approval of these significantly upgraded technical specifications and bases are the appropriate forum for establishing the proper LCO for the emergency diesel generators.

(From FPL Letter L-86-243 to the NRC dated June 12, 1986)

## DURATION OF ONE EDG OPERATION: PLACING THE PROBLEM IN PERSPECTIVE

The occurrence of a LOCA followed by a unit trip, which is postulated to result in a loss of offsite power to both units, and then a subsequent failure of one EDG, constitutes the design basis accident scenario. This is an unlikely event. The probability of occurrence of this event has been calculated, and is $2.3 \times 10^{-5}$ events/year.

Given that the event has occurred, the AC power question is reduced to how long one EDG operation will be required. To respond to this query, the LOOP events to FPL fossil and nuclear facilities since 1973, and the repair time associated with EDG failures for both the St. Lucie and Turkey Point nuclear facilities have been analyzed. The results indicate:

| | EDG FAILURES | LOOP |
|---|---|---|
| Number of Occurrences | 46 | 27 |
| Median Time to Restore | 240 min. | 20 min. |
| Mean Time to Restore | 640 min. | 26 min. |

The probability of not restoring AC power is dominated initially by the restoration of offsite power.

There are five Black Start Diesels installed at PTPN. These diesels can also be used to power either the A or B buses via the C bus. This power source can be made available within about 15 minutes after the decision is made to initiate this AC source. It is thus reasonable to assume that this power source can be made available at about one hour post-LOCA. The Black Start Diesel reliability analysis assumes that these units are well maintained and available for nuclear plant use. Maintenance of these units will become the responsibility of the Nuclear Energy Department, and an appropriate maintenance program will be implemented to ensure their continued availability.

Figure 6 provides the results of the evaluation of the failure to restore an additional source of AC power. Assuming restoration of offsite power and EDG repair only, the probability of not restoring one of these sources decreases by an order of magnitude per hour. That is, at one hour, failure to restore an additional AC power source will occur 1 out of 10 times, at two hours 1 out of 100 times, at three hours 1 out of 1000 times, etc.

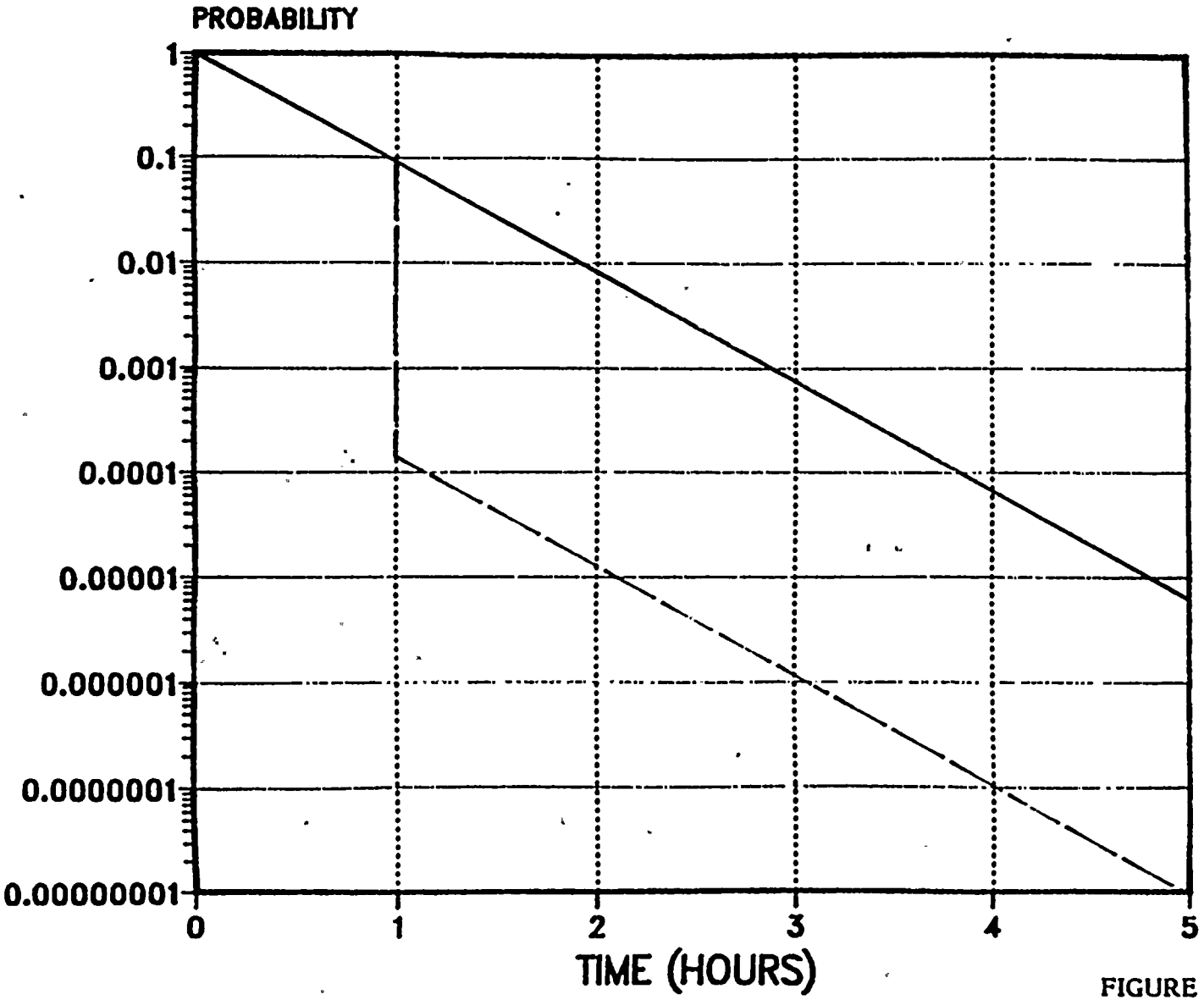
If the Black Start Diesels are started, 1 out of almost 1000 times the attempt to

power an A or B bus from the diesels will not be successful. Thus the presence of the Black Start Diesels dramatically reduces the probability of not restoring an additional AC power source.

It is reasonable to conclude that an additional AC power source can be made available on the order of an hour post-LOCA.

# FAILURE TO RESTORE ADDITIONAL AC POWER






NO CRANKING DIESELS
CRANKING DIESELS

FIGURE 6

DISTRIBUTION
(Docket File w/o encl)
PAD2 Rdg w/o encl.
D. Miller w/encl.
D. McDonald w/encl.

September 23, 1986

DOCKET NO(S). 50-250/50-251
Mr. C. O. Woody, Group Vice President
Nuclear Energy Department
Florida Power and Light Company
Post Office Box 14000
Juno Beach, Florida 33408

SUBJECT: TURKEY POINT PLANT UNITS 3 AND 4

The following documents concerning our review of the subject facility are transmitted for your information.

- [ ] Notice of Receipt of Application, dated _____.
- [ ] Draft/Final Environmental Statement, dated _____.
- [ ] Notice of Availability of Draft/Final Environmental Statement, dated _____.
- [ ] Safety Evaluation Report, or Supplement No._____ dated _____.
- [ ] Environmental Assessment and Finding of No Significant Impact, dated _____.
- [ ] Notice of Consideration of Issuance of Facility Operating License or Amendment to Facility Operating License, dated _____.
- [x] Bi-Weekly Notice; Applications and Amendments to Operating Licenses Involving No Significant Hazards Considerations, dated 9/10/86. [*see page(s)*] _____.
- [ ] Exemption, dated _____.
- [ ] Construction Permit No. CPPR-_____, Amendment No. _____ dated _____.
- [ ] Facility Operating License No. _____, Amendment No. _____ dated _____.
- [ ] Order Extending Construction Completion Date, dated _____.
- [ ] Monthly Operating Report for _____ transmitted by letter dated _____.
- [ ] Annual/Semi-Annual Report- _____ _____ transmitted by letter dated _____.

Division of PWR Licensing-A
Office of Nuclear Reactor Regulation

Enclosures:
As stated

cc: See next page

| OFFICE | LA:PAD#8 | | | | | | |
|---|---|---|---|---|---|---|---|
| SURNAME | DMiller:hc | | | | | | |
| DATE | 9/23/86 | | | | | | |

NRC FORM 318 (10/80) NRCM 0240 OFFICIAL RECORD COPY