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Robert J. Barrett
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December 5, 2001
IPN-01-084

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, DC 20555-0001

SUBJECT: Indian Point Nuclear Generating Unit No. 3
Docket No. 50-286
Withdrawal of a One – Time Amendment to the Technical Specification Regarding Allowed Outage Time Associated With One Diesel Generator or Any Diesel Fuel Oil System and Submittal of an RAI Response for Subject Amendment

REFERENCES:

1. Entergy letter, "Proposed One -Time Change to the Technical Specification Regarding Allowed Outage Time Associated With One Diesel Generator or Any Diesel Fuel Oil System," M. Kansler to U.S. NRC Document Control Desk dated February 14, 2001.

2. Entergy letter, "Supplement to the Proposed Revision of a One-Time Amendment to the Technical Specification Regarding Allowed Outage Time Associated with One Diesel Generator or Any Diesel Fuel Oil System and a Reply to an NRC Request for Additional Information," R. Barrett to U.S. NRC Document Control Desk dated July 25, 2001.

3. NRC letter, "Indian Point Nuclear Generating Unit No. 3 – Request For Additional Information Regarding Proposed Change to Allowed Outage Time (TAC No. MB1199)," G. Wunder to M. Kansler dated March 30, 2001.

4. NRC letter, "Indian Point Nuclear Generating Unit No. 3 – Request For Additional Information Regarding Proposed Change To Allowed Outage Time (TAC No. MB1199)," G. Vissing to M. Kansler dated August 8, 2001.

Dear Sir:

This letter transmits Entergy's request to withdraw the one-time Technical Specification (TS) request regarding an extension of the allowed outage time (AOT) for an Emergency Diesel Generator (EDG) or an EDG fuel oil system. This TS amendment request had been originally submitted as indicated in Reference # 1. It was followed up with a supplemental submittal indicated in Reference # 2, as requested by NRC in Reference # 3. Entergy now desires to withdraw this TS amendment request due to various factors, primarily because water detected in the EDG Fuel Oil Storage Tanks (FOSTs) has not been confirmed as in-leakage.

A001

Recent tank testing of the 31, 32 & 33 EDG FOSTs, to determine structural leak tightness, has resulted in satisfactory tank integrity results for all three tanks.

Also included is Entergy's response to the NRC Request for Additional Information (RAI of Reference # 4) involving Probabilistic Risk Assessment (PRA) clarification questions and a query involving the cold weather impact on these FOSTs having a postulated water in-leakage path. These RAI questions are answered in Attachment 1, along with the associated Tables 1, 2 & 3. This RAI is being answered, even though the subject TS is being requested to be withdrawn, for information purposes, should Entergy desire to submit an EDG/FOST related TS amendment request in the future.

Entergy is making no new commitments in this letter. If you have any questions, please call Mr. John Donnelly, IP3 Manager of Licensing, at 914-736-8310.

Very truly yours,

Robert J. Barrett
Vice President, Operations
Indian Point Nuclear Generating Unit No. 3

STATE OF NEW YORK
COUNTY OF WESTCHESTER
Subscribed and sworn to before me
this 5 day of DECEMBER 2001.

Notary Public

Christina Leitmann
Notary Public, State of New York
Registration #01LE5070946
Qualified In Putnam County
My Commission Expires Jan. 6, 2003

Attachments

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ATTACHMENT I TO IPN-01-084

REPLY TO NRC RAI QUESTIONS REGARDING
THE PROPOSED ONE-TIME EDG FOST AOT EXTENSION

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NO. 3
DOCKET NO. 50-286
DPR-64

Reply to NRC Questions Regarding Proposed One -Time EDG FOST AOT Extension

Q1. "Question 2 of the Request for Additional Information (RAI) may not have clearly indicated that the baseline (internal and external) Core Damage Frequency (CDF) and Large Early Release Frequency (LERF) was requested. Also the change in CDF and LERF should consider external events (in addition to the internal events contribution) as supported by your existing external events models. This information is needed to help address the Regulatory Guide 1.174 acceptance guidelines. Please provide this information as supported by your internal and external probabilistic safety assessment models."

Answer:

The baseline internal events CDF is 4.40 E-05 per year. The baseline LERF is 7.53 E-07 per year. As agreed in the follow-up conversation of 8/9/01, the change in CDF due to external events only will be provided since no LERF was computed for the IP3 IPEEE. A review of the IPEEE was made with regard to EDG failures in the fire and seismic analyses. These analyses are discussed below.

FIRE

A review of fire scenarios that result in an initial loss of offsite power with EDGs failing randomly was made. Fires in the Turbine Building (TB) zones 37A (south TB at elev. 15 ft) and 43A (south TB at elev. 36 ft) result in loss of offsite power. Fires in individual EDG rooms do not contribute significantly during FOST outages since they don't immediately result in a loss of offsite power. Fires in the central control, switchgear and cable spreading rooms result in conditional core damage probability (CCDP) of 1.0, regardless of FOST configuration. The results of the fire PRA are presented in Table 1.

SEISMIC

Two seismic accident sequences involved the random failure of EDGs. The most dominant sequence, S_8_CD (CDF of 1.92 E-05 per year) entailed a seismically induced loss of offsite power followed by the random failure of two of the EDGs resulting in a station blackout (SBO). The other, S_15_CD (CDF of 1.96 E-06 per year) involves a seismically induced Anticipated Transient Without Scram (ATWS). Quantification of the dominant sequences for the unavailability of each FOST yielded no significant increase in the CDF. A review of the minimal cutsets showed that most EDG failures resulted from seismically induced failures of support MCCs of an EDG concurrent with random, non-seismic failure of one of the other EDG components.

Failure of support MCCs will encompass the failure of the associated fuel transfer pumps. In addition, the seismically induced failures of all FOSTs contributed to this sequence.

SUMMARY

FOST	Increase in Fire & Seismic CDF (per year)
31	4.15 E-07
32	4.15 E-07
33	4.10 E-07

Q2. "The response to Question 5 of the RAI was for the emergency diesel generator (EDG) system. Question 5 of the RAI had requested information for the EDG fuel oil system (FOS):

Please provide the following information for the EDG FOS as it is currently modeled in the supporting PRA model: 1) system unreliability; 2) system success criteria; 3) independent and common cause failure component unreliabilities (indicate if they are plant-specific or generic); 4) important operator actions modeled in the system fault tree. How is the EDG FOS unreliability changed given one EDG FOS unavailable, as would be the case in the proposed LCO?"

Answer:

(1) The individual EDG fuel oil transfer unavailability along with increased unavailability is presented in the following table.

FOST	Fuel Oil Transfer Unavailability		
	EDG 31	EDG 32	EDG 33
Base (no maintenance)	1.15 E -07	1.15 E -07	1.15 E -07
31	3.19 E -05	3.19 E -05	3.19 E -05
32	1.90 E -05	1.90 E -05	1.90 E -05
33	1.65 E -05	1.65 E -05	1.65 E -05

(2) The system success criterion is sufficient fuel delivery to a day tank via at least one operable fuel oil transfer pump and associated valves, control circuits and strainers.

(3) Table 2 contains the basic events with descriptions for the fuel transfer system components for each EDG. This is Bayesian-updated plant specific data. Other EDG-related system unavailabilities were presented in the previous RAI response. Common-cause fuel system failures have not been explicitly modeled, but are part of the overall common-cause failures of EDGs and the 125 VDC support systems.

(4) Operation of each of the fuel transfer systems is automatic. However, as discussed in the previous RAI submittal, an operator action was introduced modeling the failure to transfer fuel manually (as directed via Operating procedure SOP-EL-1) during the FOST 31 outage. A screening value HEP was set conservatively at 0.1. The impact of tank unavailability for the fuel oil transfer system is presented in the response for item # 1 above.

Q3. Question 9 of the RAI had asked for the comparison of current EDG unreliability values to those assumed in the supporting PRA analysis. Together with the information provided in response to Question 9, comparison of the current EDG failure to start on demand and failure to run frequency for each diesel to the values in the supporting PRA analysis will complete the information requested.

Answer:

A tabulation based on plant specific and generic EDG data used for the Bayesian update of basic events by type code is presented in Table 3.

Q4. If cold weather conditions can cause EDG FOST crack growth, fuel oil sampling would not necessarily detect that growth. A severe weather storm may result in a loss of offsite power and bad fuel oil being supplied to all EDGs if undetected FOST crack growth is significant. If this is plausible, it would indicate a need to perform inspections before winter.

Answer:

There have been several positive samples for water discovered in two of the three EDG FOSTs on five (5) separate occasions from March 10, 1998 through January 18, 2001. There were four (4) occurrences in the 32 FOST and one (1) in the 31 FOST.

The history of these unexpected water intrusions is listed as follows:

*3/10/98 – slight amount of water found in 32 FOST (0.5 to 1 gallon).
*10/20/98 – approximately 2 inches of water found in 32 FOST (5 to 10 gallons).
*8/25/99 - approximately 5 inches of water found in 32 FOST (29-30 gallons).
*1/11/01 – approximately 1.5 inches of water found in 31 FOST (5-6 gallons).
*1/18/01 – slight amount of water found in 32 FOST (0.5 to 1 gallon).

On each of these occurrences of water detection there has never been a corresponding loss of fuel oil. It has been conservatively presumed that a water intrusion pathway, if not from inside the tank condensation, or from water contained in new fuel deliveries, is from either the top or the upper sides of the subject FOSTs. When 32 FOST was inspected during RO-10 in 1999, the inside of the tank was cleaned and inspected, with the result being the repair of several upper penetration welds inside the tank. The 32 FOST was re-tested satisfactorily prior to its return to service. Since the end of Refueling Outage (RO) -10, increased sampling of all three FOSTS was instituted to not only check 32 FOST, but possible extent of condition water detection for the 31 and 33 FOSTs as well. In January 2001, minor water intrusion was seen in both 31 and 32 FOSTs. This water intrusion was detected promptly via daily samples being taken on these tanks; the small amounts of water seen were quickly pumped out and operability of these tanks to support the associated EDG was never lost.

Since late January 2001 IP3 has been sampling the FOSTs for water intrusion three times per week on the 31 and 32 FOSTs, and once per week on the 33 FOST. This sampling frequency is to be increased if IP3 experiences any heavy precipitation. It may also be reduced based upon tank tightness tank results. There has been no water intrusion detected in any FOSTs since January 2001. With the heavy snows experienced during Feb through early April 2001, and heavy rains experienced during the spring of 2001, no further water intrusion has been detected, even with the increased water content sampling frequency. Also, each FOST is considered below the frost line and are supported underground. Therefore these tanks are not subject to ground upheavals. As such, freeze and thaw cycles, as experienced from winter to spring are expected to have a minimal affect on these underground structures. Upon review of the data related to the numbers of occurrences, and the volume of water detected, along with the time of year for these water intrusions, it is not altogether clear that the water intrusion events are a result of cold weather conditions.

The water intrusion data does not appear to support the possible theory that cold weather conditions did cause enhanced FOST crack growth leading to increased water intrusion. As such, the proposed scenario that a severe weather storm resulting in a loss of offsite power (LOOP) and "bad fuel oil" due to water intrusion into an FOST, leading to a problem with 480VAC power in a transient situation, does not appear plausible. Increased sampling frequency, no set pattern for water detection in the subject FOSTs, and no increase in volume of any water intrusions detected since 1999 make a reasonable argument against the need for performance of FOST inspections prior to cold weather conditions.

By continuing to pay careful attention to possible water intrusions and pump out of any detected water intrusions, completing the subject inspections before winter conditions would not appear necessary at this time based upon known FOST data. Thus, the urgency to complete this potential inspection and repair work for the FOSTs is driven by the need to safely integrate and risk assess these FOSTs activities into the plant operating cycle, using proper work control techniques as required. Should the present situation with the FOST water detection change, controlled plant work integration processes allow the proper planning and application of necessary resources to perform required inspection and repair during planned outage periods.

Further, recent EDG FOST tightness tests were satisfactorily completed for the 31, 32, and 33 FOSTs on October 2, 2001, October 23, 2001, and November 27, 2001, respectively. These certified tank leak tests confirmed tank integrity and ensured no leakage greater than 0.05 gallons per hour exists into or out of these three tanks.

TABLE 1
Results of the Fire PRA

Zone	Case	Description	Ignition Frequency (per year)	Severity Factor	Original CCDP	New CCDP	Increase in CCDP	Increase in Fire CDF Contribution (per year)
37A	1-31	Fire in TB Zone 37A Impacting 6.9kV Switchgear 31 While FOST-31 is Unavailable	1.48E-03	0.12	2.92E-05	2.02E-04	1.73E-04	3.07E-08
37A	1-32	Fire in TB Zone 37A Impacting 6.9kV Switchgear 31 While FOST-32 is Unavailable	1.48E-03	0.12	2.92E-05	2.02E-04	1.73E-04	3.07E-08
37A	1-33	Fire in TB Zone 37A Impacting 6.9kV Switchgear 31 While FOST-33 is Unavailable	1.48E-03	0.12	2.92E-05	1.99E-04	1.70E-04	3.02E-08
37A	2-32	Fire in TB Zone 37A Impacting 6.9kV Switchgear 32 While FOST-31 is Unavailable	1.57E-03	0.12	1.28E-04	2.54E-04	1.26E-04	2.37E-08
37A	2-32	Fire in TB Zone 37A Impacting 6.9kV Switchgear 32 While FOST-32 is Unavailable	1.57E-03	0.12	1.28E-04	2.54E-04	1.26E-04	2.37E-08
37A	2-33	Fire in TB Zone 37A Impacting 6.9kV Switchgear 33 While FOST-33 is Unavailable	1.57E-03	0.12	1.28E-04	2.51E-04	1.23E-04	2.32E-08
37A	3-31	Fire in TB Zone 37A Impacting 480V MCC-312A While FOST-31 is Unavailable	5.56E-04	0.12	1.28E-04	2.02E-04	7.40E-05	4.94E-09

TABLE 1
Results of the Fire PRA

Zone	Case	Description	Ignition Frequency (per year)	Severity Factor	Original CCDP	New CCDP	Increase in CCDP	Increase in Fire CDF Contribution (per year)
37A	3-32	Fire in TB Zone 37A Impacting 480V MCC-312A While FOST-32 is Unavailable	5.56E-04	0.12	1.28E-04	2.02E-04	7.40E-05	4.94E-09
37A	3-33	Fire in TB Zone 37A Impacting 480V MCC-312A While FOST-33 is Unavailable	5.56E-04	0.12	1.28E-04	2.00E-04	7.20E-05	4.80E-09
43A	31	Fire in TB Zone 43A While FOST-31 is Unavailable	2.05E-03	1	2.83E-05	2.02E-04	1.74E-04	3.56E-07
43A	32	Fire in TB Zone 43A While FOST-32 is Unavailable	2.05E-03	1	2.83E-05	2.02E-04	1.74E-04	3.56E-07
43A	33	Fire in TB Zone 43A While FOST-33 is Unavailable	2.05E-03	1	2.83E-05	2.00E-04	1.72E-04	3.52E-07

TABLE 2
Basic Events with Descriptions for Fuel Transfer System EL Components

Event Name	Description	Probability
EDG-LCV-OC-1207A	DG31 FO TRAN LCV-1207A FLS TO RMN OP	2.38E-06
EDG-LCV-OC-1208A	DG32 FO TRAN LCV-1208A FLS TO RMN OP	2.38E-06
EDG-LCV-OC-1209A	DG33 FO TRAN LCV-1209A FLS TO RMN OP	2.38E-06
EDG-LSW-OC-1207S	FO LSW LC-1207S(DT1) CT FL TO RMN OP	2.40E-06
EDG-LSW-OC-1208S	FO LSW LC-1208S(DT2) CT FL TO RMN OP	2.40E-06
EDG-LSW-OC-1209S	FO LSW LC-1209S(DT3) CT FL TO RMN OP	2.40E-06
EDG-LSW-OO-1204S	FO LVL SW LC1204S (FST1) CT FL TO CL	2.40E-06
EDG-LSW-OO-1205S	FO LVL SW LC1205S (FST2) CT FL TO CL	2.40E-06
EDG-LSW-OO-1206S	FO LVL SW LC1206S (FST3) CT FL TO CL	2.40E-06
EDG-LSW-OO-1207S	FO LVL SW LC1207S (DT1) CT FL TO CL	2.40E-06
EDG-LSW-OO-1208S	FO LVL SW LC1208S (DT2) CT FL TO CL	2.40E-06
EDG-LSW-OO-1209S	FO LVL SW LC1209S (DT3) CT FL TO CL	2.40E-06
EDG-MDP-FR-FOT31	FUEL OIL PMP 31 FLS TO RUN GIVEN ST	7.20E-04
EDG-MDP-FR-FOT32	FUEL OIL PMP 32 FLS TO RUN GIVEN ST	7.20E-04
EDG-MDP-FR-FOT33	FUEL OIL PMP 33 FLS TO RUN GIVEN ST	7.20E-04
EDG-MDP-FS-FOT31	FUEL OIL PMP 31 FLS TO STRT ON DEM	5.00E-04
EDG-MDP-FS-FOT32	FUEL OIL PMP 32 FLS TO STRT ON DEM	5.00E-04
EDG-MDP-FS-FOT33	FUEL OIL PMP 33 FLS TO STRT ON DEM	5.00E-04
EDG-MSW-CO-31FP1	FO PUMP SW 1/FP1 (b)CT FL TO RMN CLS	1.21E-06
EDG-MSW-CO-32FP2	FO PUMP SW 1/FP2 (b)CT FL TO RMN CLS	1.21E-06
EDG-MSW-CO-33FP3	FO PUMP SW 1/FP3 (b)CT FL TO RMN CLS	1.21E-06
EDG-RCK-NO-FOT31	FUEL OIL PMP 31 CNTL CKT NO OUTPT	2.50E-03
EDG-RCK-NO-FOT32	FUEL OIL PMP 32 CNTL CKT NO OUTPT	2.50E-03
EDG-RCK-NO-FOT33	FUEL OIL PMP 33 CNTL CKT NO OUTPT	2.50E-03
EDG-STR-PG-DG31F	STRNR FR FO TK 31 TO DG31 DAY TK PG	2.13E-05
EDG-STR-PG-DG32F	STRNR FR FO TK 32 TO DG32 DAY TK PG	2.13E-05
EDG-STR-PG-DG33F	STRNR FR FO TK 33 TO DG33 DAY TK PG	2.13E-05

Table 3 - IP3 IPE EDG Generic and Plant Specific Data

Basic Event Type Code				BE Pop.		PLANT SPECIFIC DATA Rev 0		PLANT SPECIFIC DATA Rev 1		PLANT SPECIFIC DATA Combined		GENERIC DATA				UPDATED REV. 0		REV. 1		COMBINED		Generic Data Source	Description
SYS	COM	FM	U	R0	R1	Failures	Exposures	Failures	Exposures	Failures	Exposures	Mean	EF	alpha	beta	mean	EF	mean	EF	mean	EF		
EDG	ASV	FE	N	6	6	3	1,821			3	1,821	1.00E-03	3	1.8	1,774	1.33E-03	2	1.00E-03	3	1.33E-03	2	ASEP, R1	AIR START SOLENOID VLV DOES'T ENERGIZE
EDG	ASW	OC	H	3	3	1				1	0	2.50E-07	10	0.2	656,083	1.77E-06	4	2.50E-07	10	1.77E-06	4	IEEE-500	BKR AUX SWITCH FAILS TO REM OPEN
EDG	ENG	FR	H	3	3		763	1	369.48	1	1,133	2.00E-03	10	0.2	82	1.94E-04	10	2.58E-03	4	9.58E-04	4	ASEP,R1	DIESEL ENGINE FAILS TO RUN
EDG	ENG	FS	N	3	3		973		383	0	1,356	3.00E-02	3	1.7	55	1.65E-03	3	3.86E-03	3	1.20E-03	3	ASEP,R1	DIESEL ENGINE FAILS TO START
EDG	GEN	HW	H	3	3	1	973			1	973	1.40E-03	10	0.2	117	1.07E-03	4	1.40E-03	10	1.07E-03	4	JAFNPP	DIESEL GENERATOR HARDWARE FAILURE
EDG	LCV	OC	H	3	3		130,542		107,262	0	237,804	1.00E-07	3	1.8	17,786,907	9.93E-08	3	9.94E-08	3	9.87E-08	3	ASEP, R1	LCV FAILS TO REMAIN OPEN (FAIL CLOSED)
EDG	LSW	OC	H	3	3					0	0	2.70E-08	10	0.2	6,074,840	2.70E-08	10	2.70E-08	10	2.70E-08	10	WASH-1400	LEVEL SWITCH DOES NOT OPERATE
EDG	LSW	OO	N	6	6					0	0	3.00E-06	10	0.2	54,674	3.00E-06	10	3.00E-06	10	3.00E-06	10	ASEP,R1	LEVEL SWITCH DOES NOT OPERATE
EDG	MDP	FR	H	3	3					0	0	3.00E-05	10	0.2	5,467	3.00E-05	10	3.00E-05	10	3.00E-05	10	ASEP, R1	MDP FAILS TO CONTINUE TO RUN
EDG	MDP	FS	N	3	3					0	0	5.00E-04	10	0.2	327	5.00E-04	10	5.00E-04	10	5.00E-04	10	ASEP, R1	MDP FAILS TO START ON DEMAND
EDG	MSW	CO	H	3	7		304,598		250,278	0	554,876	8.00E-08	10	0.2	2,050,257	6.97E-08	10	7.13E-08	10	6.30E-08	10	WASH-1400	MANUAL SWITCH DOES'T OPERATE PROPERLY
EDG	MSW	DN	N		1					0	0	3.00E-05	10							3.00E-05	10	IREP	MANUAL SWITCH DOES'T OPERATE PROPERLY
EDG	MSW	OC	H	3	3					0	0	2.70E-08	10	0.2	6,074,838	2.70E-08	10	2.70E-08	10	2.70E-08	10	WASH-1400	MANUAL SWITCH DOES'T OPERATE PROPERLY
EDG	PRY	HW	H	6	6					0	0	3.20E-07	10	0.2	512,565	3.20E-07	10	3.20E-07	10	3.20E-07	10	IEEE-500	PROTECTIVE RELAY HARDWARE FAILURE
EDG	PSW	OC	H	3	12					0	0	2.70E-08	10	0.2	6,074,840	2.70E-08	10	2.70E-08	10	2.70E-08	10	WASH-1400	PRESSURE SWITCH FAILS TO REMAIN OPEN
EDG	RCI	FE	N		12					0	0	1.30E-04	3							1.30E-04	3	JAFNPP	RELAY DOES NOT ENERGIZE
EDG	RCK	NO	N	3	3					0	0	2.50E-03	10	0.2	64	2.50E-03	10	2.50E-03	10	2.50E-03	10	JAFNPP	CONTROL CIRCUIT NO OUTPUT
EDG	RCS	CC	N	12	12					0	0	3.00E-04	10	0.2	545	3.00E-04	10	3.00E-04	10	3.00E-04	10	EG&G	RELAY FAILS TO OPEN
EDG	RCS	CO	H	3	3					0	0	5.00E-07	10	0.2	328,041	5.00E-07	10	5.00E-07	10	5.00E-07	10	EG&G	RELAY FAILS TO REMAIN CLOSED
EDG	RCS	OC	H	28	30					0	0	5.00E-07	10	0.2	328,041	5.00E-07	10	5.00E-07	10	5.00E-07	10	EG&G	RELAY FAILS TO REMAIN OPEN
EDG	RCS	OO	N	6	6					0	0	3.00E-04	10	0.2	545	3.00E-04	10	3.00E-04	10	3.00E-04	10	EG&G	RELAY FAILS TO CLOSE
EDG	RLY	NO	N		4					0	0	3.00E-04	10							3.00E-04	10	EG&G	RELAY NO OUTPUT
EDG	STR	PG	H	3	3		130,542		107,262	0	237,804	3.00E-06	10	0.2	54,674	8.86E-07	10	1.01E-06	10	5.61E-07	10	EG&G	STRAINER CLOGGED (PLUGGED)
EDG	TNK	RP	H	3	3					0	0	8.60E-10	30	0.0	16,393,058	8.60E-10	30	8.60E-10	30	8.60E-10	30	GEESSAR	TANK RUPTURE