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W3F1-2000-0090
A4.05
PR

June 29, 2000

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

Subject: Waterford 3 SES
Docket No. 50-382
License No. NPF-38
Additional Information Regarding Request for Review and
Approval of Design Basis Change Regarding Tornado Missiles

Gentlemen:

By letter dated October 29, 1999, Entergy Operations, Inc. (EOI) proposed changes to the Waterford 3 design basis as described in the Updated Final Safety Analysis Report (UFSAR) for which it has been determined that an unreviewed safety question exists. The changes concern design requirements for physical protection from tornado missiles for safety-related systems, structures and components. Based on a telephone conference with the NRC Staff on May 23, 2000, EOI is providing additional information regarding the proposed changes.

Clarification as requested during the telephone conference is included in Attachment 1. Additionally, as described in Attachment 1, revised marked-up UFSAR pages are included in Attachment 2.

The original change was evaluated in accordance with 10CFR50.91(a)(1), using the criteria in 10CFR50.92(c), and was determined to not involve any significant hazards consideration. The attached responses do not impact that determination.

There are no commitments contained in this submittal. Should you have any questions or comments concerning this request, please contact Jerry Burford at (601) 368-5755.

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Pursuant to 28 U.S.C.A. Section 1746, I declare under penalty of perjury that the foregoing is true and correct. Executed on June 29, 2000.

Very truly yours,



C.M. Dugger
Vice President, Operations
Waterford 3

CMD/fgb/dah/rtk

Attachments: 1. Additional Information Regarding Request for Review and
Approval of Design Basis Change Regarding Tornado Missiles
2. Revised Marked-Up UFSAR Pages

cc: E.W. Merschoff, NRC Region IV
N. Kalyanam, NRC-NRR
J. Smith
N.S. Reynolds
NRC Resident Inspectors Office
Louisiana DEQ/Surveillance Division
American Nuclear Insurers

ATTACHMENT 1
To W3F1-2000-0090

Additional Information Regarding Request for Review and
Approval of Design Basis Change Regarding Tornado Missiles

Additional Information Regarding Request for Review and Approval of Design Basis Change Regarding Tornado Missiles

Request 1

Correlate the items in the Targets and Category table on pages 6 & 7 of 11 of Attachment 3 of the October 29, 1999 submittal to Updated Final Safety Analysis Report (UFSAR) Table 3.2-1 for review purposes.

Response

Table 1 (see page 4 of 4), "Targets and Category," is included in this submittal to relate the individual items in the original table to UFSAR Table 3.2-1 items. Some items in Target Category 2 have been regrouped to allow correlation to the UFSAR Table.

Two items in UFSAR Table 3.2-1 (Sheet 1, "Structures," and Sheet 21, "Electrical Systems and Equipment") are multi-system items and are not specifically listed in Table 1.

During the compilation of Table 1, two changes were identified in order to provide additional clarification to the marked-up UFSAR pages included in the original submittal. These changes affect UFSAR Table 3.2-1 Sheet 7, "Waste Management System," and Sheet 14 "Control Room Air Conditioning System." These changes are associated with Item 4, "Waste Management Piping," under Target Category 3 and Item 6, "Control Room Differential Pressure Sensing Lines (2)," under Target Category 2 in Table 1. The revised marked-up UFSAR pages are included in Attachment 2. The attached pages replace the corresponding marked-up UFSAR pages in Attachment 4 of the October 29, 1999 submittal.

Request 2

NRC has requested that EOI confirm the proposal to allow temporary removal of existing missile barriers to perform maintenance or modification activity during normal plant operating condition based on the TORMIS probabilistic risk analysis approach will not be used.

Response

EOI hereby revises the proposed change to UFSAR Section 3.5.1.4.1 provided in the October 29, 1999 submittal to remove the following statement:

Temporary removal of protective features will be permitted under administrative controls, if removal is determined to be necessary for plant maintenance or configuration changes.

The revised marked-up UFSAR page is included in Attachment 2. The attached page replaces the corresponding marked-up UFSAR page in Attachment 4 of the October 29, 1999 submittal.

Request 3

Clarify whether the wall/target strike probabilities calculated in TORMIS are mean or median estimates of the probability.

Response

The probabilities reported from TORMIS calculations are mean estimates of the probability of concern. They are not the median values.

Request 4

Clarify which values are being used for W3 in the response to Item 1 in "Resolution of NRC's Five Points in the TORMIS Safety Evaluation Report on TORMIS," on Attachment 3, Page 8 of 11 of the October 29, 1999 submittal.

Response

Item 1 from the NRC Safety Evaluation Report on TORMIS requires data on tornado characteristics be employed for both broad regions and the small areas around the site. The most conservative values should be used in the risk analysis or justification provided for those values selected.

EOI has selected to use the tornado probability for the local area around the plant. Since this value is less conservative than the broad region value, EOI provided the justification for using the local area value in the October 29, 1999 submittal under the Response to Item 1 of the NRC SER on TORMIS.

The broad value is calculated as the global probability, $P_G(F)$, on Attachment 3, Page 3 of 11 of the original submittal and is equal to 4.270×10^{-4} per year. The local value is calculated as the total site probability, $P_L(F)$, on Page 3 of 11 of the original submittal and is equal to 2.23×10^{-4} per year. Additionally, the calculated local value was compared to the current FSAR value (7.68×10^{-5}) and the more conservative calculated value of 2.23×10^{-4} per year was used for W3.

EOI is revising item 1 of proposed UFSAR Section 3.5.1.4.2, "TORMIS Description," included in the original submittal in order to clarify this issue. The revised item 1 will be as follows:

1. The probability of a tornado strike at WF3 is based upon local regional values.

The revised marked-up UFSAR page is included in Attachment 2. The attached page replaces the corresponding marked-up UFSAR page in Attachment 4 of the October 29, 1999 submittal.

Table 1 - Targets and Category

Target I.D.	Target Category	UFSAR Table 3.2-1 Item
Ultimate Heat Sink – ‘A’ and ‘B’ Train Components	1	
1. Dry Cooling Towers Fans, Motors 2. Associated conduits and electrical boxes 3. Component Cooling Water (CCW) piping, Accumulators and Cabinets		Sheets 7 & 8 "Component Cooling Water System" & Sheet 10 "Spent Fuel Pool System" & Sheet 12 "Compressed Air System"
Other Safety-Related Components	2	
1. Main Steam Header Supply to Emergency Feed Pump Turbine Piping and EFW Pump Discharge Piping to isolation valve		Sheet 11 "Main Steam & Feedwater System" & "Emergency Feedwater System"
2. Plant Stack		Sheet 21 "Radiation Monitoring" & "Accident Radiation Monitors"
3. Terry Turbine Exhaust Stack		Sheet 11 "Main Steam & Feedwater System" & "Emergency Feedwater System"
4. EDG Stacks (East & West Side) and Doors (D266 & D270)		Sheet 13 "Emergency Diesel Generator System"
5. Containment Escape Hatch and Doors (D051)		Sheet 22 "Miscellaneous"
6. Control Room Differential Pressure Sensing Lines (2)		Sheet 14 "Control Room Air Conditioning System - Instrumentation"
Non-Safety Related Components	3	
1. Sump Pump Motor & Floor Drain for Sump No. 2		Sheet 22 "Miscellaneous"
2. Control Room Breathing Air System Storage Tank		Not listed in UFSAR
3. Main Steam Line Relief Valves Vent Stacks (East & West Side)		Sheet 11 "Main Steam & Feedwater System - Piping and Valves - Item d"
4. Waste Management Piping		Sheet 7 "Waste Management System - Piping & Valves"
5. Main Steam Dump Valves vent to atmosphere (East & West side)		Sheet 11 "Main Steam & Feedwater System - Piping and Valves - Item d"
6. Reactor Building Roof Drains		Not listed in UFSAR

ATTACHMENT 2
To W3F1-2000-0090

Revised Marked-Up UFSAR Pages

the acceptance criteria value of 10^{-6} .

3.5.1.4.2. TORMIS DESCRIPTION

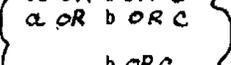
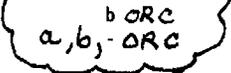
TORMIS implements a methodology developed by the Electric Power Research Institute ⁽¹⁷⁾. TORMIS determines the probability of striking walls and roofs of buildings on which exposed portions of the safety-related systems and components are located. The probability is calculated by simulating a large number of tornado strike events at the site for each tornado wind speed intensity scale. After the probability of striking the walls or the roof is calculated, the exposed surface areas of the components are factored in to compute the probability of striking a particular target.

The TORMIS analysis for W3 is in accordance with the TORMIS program, as described in Reference 17, using site-specific parameters described below:

1. The probability of a tornado strike at WF3 is based upon local regional values.
2. The Fujita Scale (F-Scale) wind speeds were used in lieu of the TORMIS wind speeds (F'-Scale) for the F_0 through F_5 intensities. In addition, a wind speed range from 300 to 360 mph was used for the F_6 intensity to correspond to the tornado wind speed described in Section 3.3.2.1 "Applicable Design parameters".
3. A more conservative near-ground profile was used than the base case in TORMIS, resulting in a higher tornado ground wind speed to ~246 mph giving a ratio of V_0/V_{33} equal to 0.82. NRC has accepted this value for other nuclear sites submittal using TORMIS analysis.
4. A site-specific walkdown was performed to include the contents of the warehouses, office buildings, sheds, trailers, parking lots, and switch yards. Based on the walkdown, a total of 71,800 missiles were postulated in 9 missile zones. This number is considered conservative on the basis of the example problem in Ref. 17 where a total of 65,550 missiles were postulated for one unit plant site.

WSES-FSAR-UNIT-3

TABLE 3.2-1 (Sheet 7 OF 25)

<u>Waste Management System (Cont'd)</u>	<u>Safety Class</u>	<u>Seismic Category</u>	<u>Tornado* Wind Criterion</u>	<u>Flood** Criterion</u>	<u>Notes</u>
Piping and Valves					5
a) Not Isolated from SC 3 Components	3	I	b	b	
b) Associated with GDT	NNS	(d)	-	-	3, 17
c) Other	NNS	-		-	17
<u>Boron Management System</u>					
Reactor Drain Tank	NNS	-	-	-	
Equipment Drain Tank	NNS	-	-	-	
Holdup Tanks	3	I	b	b	
Holdup Recirculation Pump	NNS	-	-	-	
Holdup Recirculation/Drain Pump	NNS	-	-	-	
Holdup Drain Pump	NNS	-	-	-	
Equipment Drain Tank Pump	3	I	b	b	
Reactor Drain Tank Pump	3	I	b	b	
Flash Tank	3	I	b	b	
Flash Tank Pumps	3	I	b	b	
Preconcentrator Ion Exchangers	NNS	-	-	-	
Boric Acid Concentrator Packages	NNS	-	-	-	
Boric Acid Condensate Ion Exchangers	NNS	-	-	-	
Boric Acid Condensate Tanks and Pumps	NNS	-	-	-	
Piping and Valves					5
a) Not Isolated from SC 3 components	3	I	b	b	
b) Other	NNS	-	-	-	
<u>Component Cooling Water System</u>					
Component Cooling Water Surge Tank	3	I	b	b	
Component Cooling Heat Exchangers	3	I	b	b	
Component Cooling Water Pumps	3	I	b	b	
Component Cooling Water Makeup Pumps	3	I	b	b	
Auxiliary Component Cooling Water Pumps	3	I	b	b	
<u>Wet Cooling Towers BASIN</u>	3	I		b	
Dry Cooling Towers	3	I		b	
Piping and Valves					
a) Required for performance of safety functions	3	I	b OR c	b	5
b) Normally or automatically isolated from parts covered by a.	NNS	-		-	
<u>Instrumentation:</u>					
1. Primary elements for:					7, 18
a) CCW Pumps, Heat Exchangers and Surge tank	IE	I	b	b	

WSES-FSAR-UNIT-3

TABLE 3.2-1 (Sheet 14 OF 25)

<u>Control Room Air Conditioning System</u>	<u>Safety Class</u>	<u>Seismic Category</u>	<u>Tornado* Wind Criterion</u>	<u>Flood** Criterion</u>	<u>Notes</u>
Control Room Emergency Filtration Units S-8	3	I	b	b	15
Control Room Air Handling Units AH-12	3	I	b	b	
Control Room Toilet Exhaust Fans E-34	NNS	I	b	b	
Control Room Conference and Kitchen Exhaust Fan E-42	NNS	-	-	-	
Supplemental Recirc Air Handling Units AH-31	NNS	-	-	-	17
Chlorine & Broad Range Detectors	NNS	-	b	b	17
Ductwork and Dampers					17, 25
a) Required for the performance of Safety Functions	3	I	b	b	
b) Other	NNS	-	-	-	
Instrumentation:					
1. Panel mounted components for all units	IE	I	b	b	7, 18
2. Control relays in Auxiliary Panel for all units	IE	I	b	b	
3. Alarm signals for all units	IE	I	b OR C	b	
4. Computer signals for all units	NNS	-	b	b	
RAB Cable Vault and Switchgear Areas Ventilation System					
Switchgear Area Air Handling Units AH-25	3	I	b	b	
Switchgear Area Air Handling Units AH-30	3	I	b	b	
Battery Rooms Exhaust Fans E-29, 30, 31	3	I	b	b	
Battery Room Exhaust Fans E-46	3	I	b	b	
H&V Room Ventilation Fans E-52	3	I	b	b	
Ductwork and Dampers					
a) Required for the performance of Safety Functions	3	I	b	b	
b) Other	NNS	-	-	-	