



Entergy Operations, Inc.
1340 Echelon Parkway
Jackson, MS 39213

George A. Zinke
Manager, New Plant – QA/QC
(601) 368-5381
gzinke@entergy.com

G3NO-2008-00005

October 14, 2008

U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001
Attention: Document Control Desk

DOCKET: No. 52-024

SUBJECT: Responses to NRC Requests for Additional Information, Letter No. 6 (GG3 COLA)

REFERENCE: NRC Letter to Entergy Nuclear, *Request for Additional Information Letter No. 6 Related to the SRP Section 10.04.05 for the Grand Gulf Combined License Application*, dated September 18, 2008 (ADAMS Accession No. ML082620605)

Dear Sir or Madam:

In the referenced letter, the NRC requested additional information on three items to support the review of certain portions of the Grand Gulf Unit 3 Combined License Application (COLA). The responses to the following Requests for Additional Information (RAIs) are provided as Attachments 1 through 3 to this letter:

- RAI Question 10.04.05-1, Prevention of Pressure Transients in the Circulating Water System (CIRC)
- RAI Question 10.04.05-2, Circulating Water Large Bore Piping Codes and Failures
- RAI Question 10.04.05-3, Flooding Due to CIRC Cooling Tower Failure

Should you have any questions, please contact me or Mr. Tom Williamson of my staff. Mr. Williamson may be reached as follows:

Telephone: (601-368-5786)

Mailing Address: 1340 Echelon Parkway
Mail Stop M-ECH-21
Jackson, MS 39213

E-Mail Address: twilli2@entergy.com

DOBB
NRO

This letter contains commitments as identified in Attachment 4.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on October 14, 2008.

Sincerely,



GAZ/ghd

- Attachments:
1. Response to RAI Question No. 10.04.05-1
 2. Response to RAI Question No. 10.04.05-2
 3. Response to RAI Question No. 10.04.05-3
 4. Regulatory Commitments

cc: (email unless otherwise specified):

Mr. T. A. Burke (ECH)
Mr. S. P. Frantz (Morgan, Lewis & Bockius)
Mr. B. R. Johnson (GE-Hitachi)
Ms. M. Kray (NuStart)
Mr. P. D. Hinnenkamp (ECH)

NRC Project Manager – GGNS COLA
NRC Director – Division of Construction Projects (Region II)
NRC Regional Administrator - Region IV
NRC Resident Inspectors' Office: GGNS

ATTACHMENT 1

G3NO-2008-00005

RESPONSE TO NRC RAI LETTER NO. 6

RAI QUESTION NO. 10.04.05-1

RAI QUESTION NO. 10.04.05-1

NRC RAI 10.04.05-1

In Grand Gulf Nuclear Station (GGNS) FSAR Section 10.4.5.2.1, "General Description," the applicant addressed the final configuration of its circulating water system (CWS) and stated that the CWS design includes condenser water box vents to help fill the water boxes during startup and remove air and other gases from these boxes during normal operation. However, the applicant did not mention CWS pump discharge air release valves and cooling tower vacuum relief valves at strategic points in the CWS. General Design Criteria (GDC) 4, "Environmental and Dynamic Effects Design Bases," requires that design features be provided to accommodate the effects of discharging water, and prevent pressure transients such as water hammer and subsequent CWS piping or component failure from occurring on pump start-ups from initial system depressurization. Therefore, the staff requests that the applicant provide additional information to ensure that the CWS is provided with adequate air and vacuum relief valves to prevent the pressure transients and subsequent CWS piping or component failure from occurring on pump startup from initial system depressurization.

Energy Response

The Circulating Water System (CIRC) incorporates design provisions that minimize the effect of hydraulic transients upon the functional capability and the integrity of system components. These design features include slow-stroke motor-operated valves (MOVs), air release valves to fill and keep the system full, vacuum release valves that minimize pressure transients, valve control and interlock features that ensure correct valve line-up prior to pump start, and discharge isolation valves that open and close with pump start and stop signals. These design features conform to SRP Section 10.4.5, Item III.1 guidance.

Proposed COLA Revision

FSAR Section 10.4.5.2.1 will be revised to describe the provisions in the CIRC system design that minimize the effect of hydraulic transients upon the functional capability and the integrity of the system components, as indicated in the attached draft markup.

Markup of Grand Gulf COLA

The following markup represents Entergy's good faith effort to show how the COLA will be revised in a future COLA submittal in response to the subject RAI. However, the same COLA content may be impacted by revisions to the ESBWR DCD, responses to other COLA RAIs, other COLA changes, plant design changes, editorial or typographical corrections, etc. As a result, the final COLA content that appears in a future submittal may be somewhat different than as presented herein.

10.4 OTHER FEATURES OF STEAM AND POWER CONVERSION SYSTEM

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

10.4.5.2.1 General Description

Replace the text with the following.

GGNS CDI

The Circulating Water System (CIRC) is depicted in Figures 10.4-201 through 10.4-204. The CIRC consists of the following components:

- Condenser water boxes, piping, and valves
- Condenser tube cleaning equipment
- Water box drain subsystem
- Four 25% capacity pumps and pump discharge valves
- One hyperbolic natural draft cooling tower (NDCT) and one mechanical draft cooling tower (MDCT)

STD-08-075 (08/29/08)
(GGNS Only)

Table 10.4-3R includes the temperature range of the water delivered by the CIRC pumps to the main condenser.

The CIRC water is normally circulated by four motor-driven pumps through the condenser and back to the cooling towers. The operating circulating water flow rate varies depending on ambient conditions, system configuration, and heat load.

The four pumps are arranged in parallel. Discharge lines combine into two parallel circulating water supply lines to the main condenser. Each main circulating water supply line connects to a low pressure condenser inlet water box. An interconnecting line fitted with a butterfly valve is provided to connect both circulating water supply lines. The discharge of each pump is fitted with a remotely operated valve. This arrangement permits isolation and maintenance of any one pump while the others remain in operation and minimizes the backward flow through an out-of-service pump.

The CIRC and condenser are designed to permit isolation of half of the three series connected tube bundles to permit repair of leaks and cleaning of water boxes while operating at reduced power.

The CIRC includes water box vents to help fill the condenser water boxes during startup and remove accumulated air and other gases from the water boxes during normal operation.

The CIRC system incorporates design provisions that minimize the effect of hydraulic transients upon the functional capability and the integrity of the system components. These design features include slow-stroke motor-operated valves (MOV)s, air release valves to fill and keep the system full, vacuum release valves that minimize pressure transients, valve control and interlock features that ensure correct valve line-up prior to pump start, and discharge isolation valves that open and close with pump start and stop signals.

Circulating water chemistry is maintained by the circulating water chemical feed system and with blowdown. Circulating water chemical equipment injects the required chemicals into the cooling tower basin before entering the circulating water pumps. Additional injection points are located in the inlet piping of each cooling tower.

10.4.5.2.2 Component Description

Replace the ~~text~~ last paragraph with the following.

GGNS CDI

~~Codes and standards applicable to the CIRC are listed in DGD Section 3.2 with the exception of large bore piping (piping with a nominal diameter of 700 mm (27.6 in) and larger). Large bore CIRC piping is constructed using AWWA standards. The system is designed and constructed in accordance with Quality Group D specifications.~~

Table 10.4-3R provides reference parameters for the major components of the CIRC.

10.4.5.2.2.1 CIRC Chemical Injection

Circulating water chemistry is maintained by the circulating water chemical feed system. Chemical feed equipment injects the required chemicals into the circulating water in the cooling tower basin before water enters the circulating water pumps.

Additional injection points are located at the inlet of the cooling towers. This maintains a non-corrosive, non scale-forming condition and limits the biological film formation that reduces the heat transfer rate in the condenser and cooling tower fill.

Plant chemistry specifies the required chemicals used within the system. The chemicals can be divided into five categories based upon function: biocide, algaecide, pH adjuster, corrosion inhibitor, and scale inhibitor. The pH adjuster, corrosion inhibitor, and scale inhibitor are metered into the system continuously or as required to maintain proper concentrations. Biocide application frequency may

ATTACHMENT 2

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RESPONSE TO NRC RAI LETTER NO. 6

RAI QUESTION NO. 10.04.05-2

RAI QUESTION NO. 10.04.05-2

NRC RAI 10.04.05-2

In Grand Gulf Nuclear Station (GGNS) FSAR Section 10.4.5.2.2, "Component Description," the applicant provided information regarding industry codes and standards that are applicable to the GGNS circulating water system (CWS) design. The applicant stated that the codes and standards applicable to GGNS CWS are in accordance with DCD Section 3.2, with the exception of large bore piping (i.e., piping with a nominal diameter of 700 mm (27.6 in) and larger). The applicant further stated that the large bore CWS piping is constructed using AWWA (American Water Works Association) standard and that the system is designed and constructed in accordance with American Society of Mechanical Engineers (ASME) Quality Group D specification. However, Table 3.2-3 of the ESBWR DCD specifies standard ASME B31.1 for quality group D piping, not the AWWA standard nor the Group D specification. In addition, in accordance with SRP Section 10.4.5, Item III.1, design provisions are to be incorporated that minimize the effect of hydraulic transients upon the functional capability and integrity of the system components. Therefore, the staff requests that the applicant justify the above deviation from the DCD; as well as, provide information regarding compliance with the applicable guidance. Additionally, the staff requests the applicant explain and ensure that failure of this large bore piping will not affect the intended functions of the safety-related equipment and/or systems.

Entergy Response

Provisions to Minimize Hydraulic Transients in the Circulating Water System (CIRC)

FSAR Section 10.4.5.2.1 will be revised as discussed in the response to RAI 10.04.05-1 (see Attachment 1) to address design provisions incorporated to minimize the effect of hydraulic transients upon the functional capability and integrity of the system components.

Use of AWWA Standard versus ASME B31.1 for CIRC Piping

Upon further review, Entergy determined that it is not necessary to take an exception to DCD Section 3.2 in the FSAR. DCD Section 10.4.5.2.2 specifies that the CIRC is designed and constructed in accordance with Quality Group D specifications. DCD Table 3.2-3 identifies ASME B31.1 as the applicable code for piping in Quality Group D systems. ASME B31.1 states that AWWA standards are an acceptable means to comply with the code for large bore piping. Therefore, the use of AWWA standards for the design and construction of CIRC large bore piping is consistent with DCD Section 3.2 and Regulatory Guide 1.26.

Impact of Failure of CIRC Large-Bore Piping

FSAR Section 10.4.5.6 will be revised as discussed in the response to RAI 10.04.05-3 (see Attachment 3) to clarify that failure of large-bore CIRC piping will not adversely impact the intended functions of safety-related equipment or systems.

Proposed COLA Revision

FSAR Section 10.4.5.2.1 will be revised as discussed in the response to RAI 10.04.05-1 (see Attachment 1) to describe the provisions in the CIRC system design that minimize the effect of hydraulic transients upon the functional capability and the integrity of the system components. Please refer to the response to RAI 10.04.05-1 for the FSAR draft markup.

FSAR Section 10.4.5.2.2 will be revised to delete the exception for large bore piping, as indicated in the attached draft markup.

FSAR Section 10.4.5.6 will be revised as discussed in the response to RAI 10.04.05-3 (see Attachment 3) to clarify that failure of large bore CIRC piping will not adversely impact the intended functions of safety-related equipment or systems. Please refer to the response to RAI 10.04.05-3 for the FSAR draft markup.

Markup of Grand Gulf COLA

The following markup represents Entergy's good faith effort to show how the COLA will be revised in a future COLA submittal in response to the subject RAI. However, the same COLA content may be impacted by revisions to the ESBWR DCD, responses to other COLA RAIs, other COLA changes, plant design changes, editorial or typographical corrections, etc. As a result, the final COLA content that appears in a future submittal may be somewhat different than as presented herein.

The CIRC system incorporates design provisions that minimize the effect of hydraulic transients upon the functional capability and the integrity of the system components. These design features include slow-stroke motor-operated valves (MOVs), air release valves to fill and keep the system full, vacuum release valves that minimize pressure transients, valve control and interlock features that ensure correct valve line-up prior to pump start, and discharge isolation valves that open and close with pump start and stop signals.

Circulating water chemistry is maintained by the circulating water chemical feed system and with blowdown. Circulating water chemical equipment injects the required chemicals into the cooling tower basin before entering the circulating water pumps. Additional injection points are located in the inlet piping of each cooling tower.

10.4.5.2.2 Component Description

Replace the ~~text~~last paragraph with the following.

GGNS CDI

~~Codes and standards applicable to the CIRC are listed in DGD Section 3.2 with the exception of large bore piping (piping with a nominal diameter of 700 mm (27.6 in) and larger). Large bore CIRC piping is constructed using AWWA standards. The system is designed and constructed in accordance with Quality Group D specifications.~~

Table 10.4-3R provides reference parameters for the major components of the CIRC.

10.4.5.2.2.1 CIRC Chemical Injection

Circulating water chemistry is maintained by the circulating water chemical feed system. Chemical feed equipment injects the required chemicals into the circulating water in the cooling tower basin before water enters the circulating water pumps.

Additional injection points are located at the inlet of the cooling towers. This maintains a non-corrosive, non scale-forming condition and limits the biological film formation that reduces the heat transfer rate in the condenser and cooling tower fill.

Plant chemistry specifies the required chemicals used within the system. The chemicals can be divided into five categories based upon function: biocide, algaecide, pH adjuster, corrosion inhibitor, and scale inhibitor. The pH adjuster, corrosion inhibitor, and scale inhibitor are metered into the system continuously or as required to maintain proper concentrations. Biocide application frequency may

ATTACHMENT 3.

G3NO-2008-00005

RESPONSE TO NRC RAI LETTER NO. 6

RAI QUESTION NO. 10.04.05-3

RAI QUESTION NO. 10.04.05-3

NRC RAI 10.04.05-3

In Grand Gulf Nuclear Station (GGNS) FSAR Section 10.4.5.8, "Normal Power Heat Sink," the applicant described the GGNS site-specific normal power heat sink which consists of two cooling towers, one natural draft (NDCT) and the other mechanical draft (MDCT) tower. The applicant stated that the NDCT would be located at a distance equal to its height 168 m (550 ft) away from Seismic Category 1 and 2 structures, and therefore there is no potential for the cooling tower to fall or damage safety-related structures or components. Regarding the MDCT, it has multiple fans with associated motors, couplings and gearboxes. These fans rotate at relatively slow speed and the fan blades are made of relatively low-density material. The applicant stated that a failure of a fan could result in the generation of missiles; however, the applicant concluded that due to the location of the MDCT and the materials used in the construction of the MDCT any damage would be confined to the MDCT itself.

The staff reviewed the information provided by the applicant in FSAR Section 10.4.5.8 and could not find further details on the location of the MDCT. Also, the staff could not find any design features to prevent or control the flooding effects in case of a cooling tower failure (i.e., missile generation) on the nearby safety-related areas and/or the safety-related SSCs as they relate to the requirements of GDC 4 criteria. Also, no information is provided in the COLA with respect to Section 10.4.5.6, "Flood Protection," of the ESBWR DCD, Revision 4. In accordance with SRP Section 10.4.5, "Circulating Water System," Item II.1, design provisions need to be provided to accommodate the effects of discharging water that may result from a failure of a component or piping in the CWS. Therefore, the staff requests that the applicant provide additional information regarding its cooling tower failure analysis or the provisions that are incorporated in the GGNS CWS design to prevent unacceptable flooding of areas containing safety-related equipment or to mitigate the consequences of flooding.

Entergy Response

The MDCT is arranged as a round counter-flow cluster cooling tower that has an approximate height of 18.3 m (60 ft) and an approximate diameter of 83 m (272 ft). The MDCT is constructed of a low-density fiber reinforced plastic that is unlikely to fail by tipping or falling over. Any missiles produced by the failure of a component of the MDCT of this design and construction would be contained within the cooling tower structure itself. The MDCT is located more than 122 m (400 ft) from any Category 1 or 2 structure, the nearest structure being the Radwaste building (FSAR Figure 2.4.1-201, Sh. 1), and is approximately 150 ft from the NDCT. Therefore, a failure of the MDCT would not cause any damage to a Category 1 or 2 structure due to its physical distance from any Category 1 or 2 structure and its low-density construction.

As indicated in FSAR 10.4.5.8, the NDCT is located a minimum distance equal to its height from any Seismic Category 1 or 2 structure, system, or component (SSC). Therefore, its collapse would not adversely impact any Seismic Category 1 or 2 SSC. Failure of a Circulating Watery System (CIRC) pipe in the yard, component in a CIRC cooling tower, or any other components in CIRC in the yard would not have an adverse impact on the intended functions of safety-related SSCs.

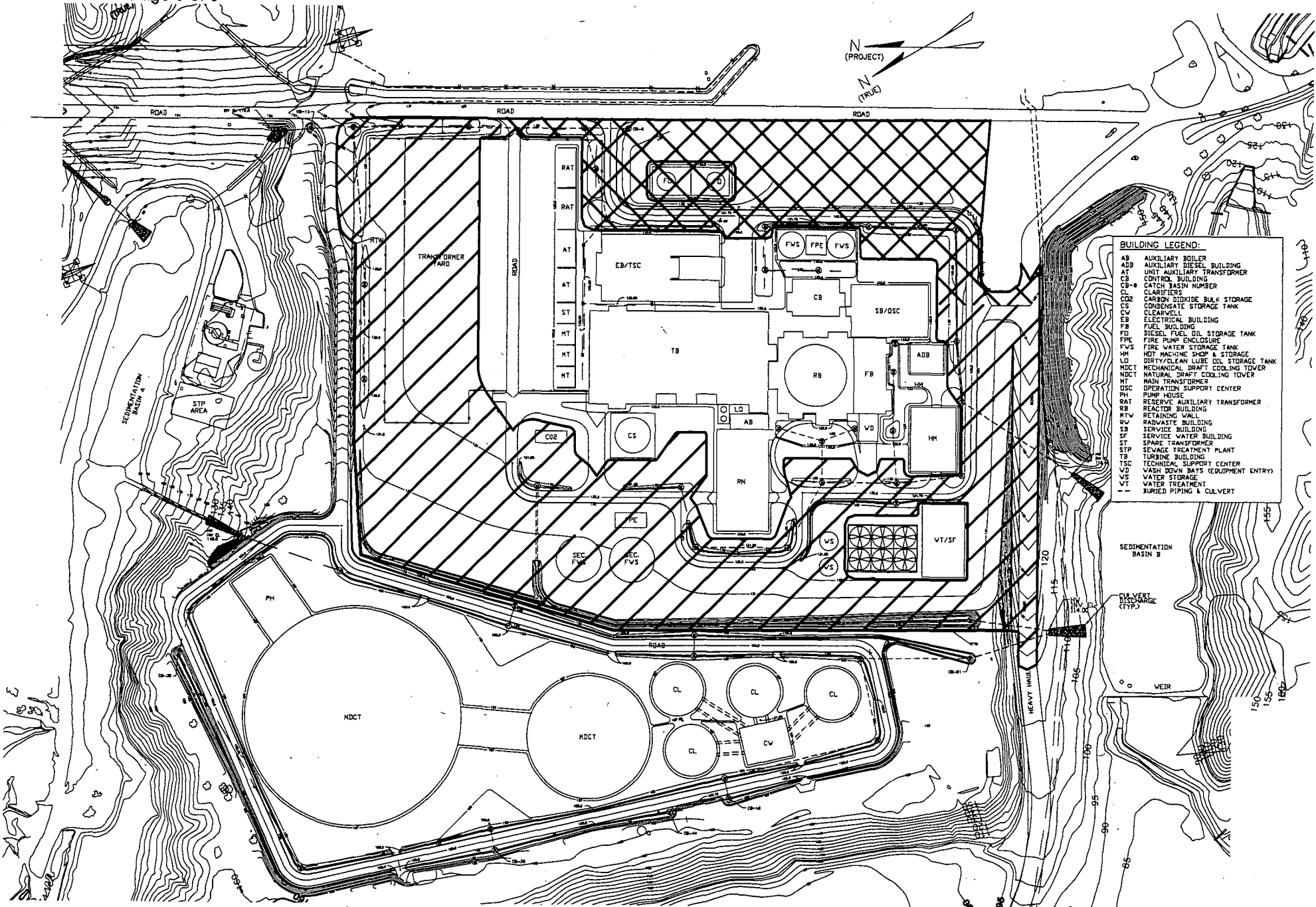
The MDCT basin is a "dry" basin in that during operation, water flows by gravity from the MDCT to the NDCT basin. When shut down, the MDCT basin contains no water. A failure of the NDCT basin, which contains approximately 28,012 m³ (7,400,000 gals) of water, would bound other failures of yard piping and components in the CIRC. A postulated rupture of one or more of the large CIRC pipes in the yard is bounded by a NDCT basin failure.

The cooling towers are located on a plateau on a grade of approximately elevation 156 ft above mean sea level (msl). The power block is on a grade of 133.5 ft msl, with the elevation of the power block buildings floor grade at 134 ft msl, six inches above grade (FSAR Section 2.4.1.1). The power block area is separated from the cooling tower area by a retaining wall that runs the length of the western edge of the area, and continues east on the north side to a point approximately equal to the location of the eastern edge of the Electrical Building. A drainage ditch runs along the retaining wall beginning along the north section of the wall, and the entire length of the western face of the wall. This drainage ditch, and the remainder of the passive drainage system for the Unit 3 yard, is designed to carry the 100-year return rainfall as identified in FSAR Section 2.4.2.3.3.1 and SSAR Table 2.3-74 (rainfall in in/hr based on 30-minute duration storm data). The area between the retaining wall and the power block is lower in elevation and is graded such that it will drain away from Unit 3, and eventually to the Mississippi River either via Stream A to the north or Stream B to the south (FSAR Figure 2.4.1-201, Sh. 1).

Considering the site grading design, and including the area indicated by the cross-hatch on Figure RAI 10.4.5-3-1, which includes all areas around the power block periphery between elevations 133 ft msl and 129 ft msl, the volume of water (not including the volume of the passive drainage system, drainage ditch, culverts, catch basins and swales) that could be accommodated with no drainage is approximately 37,090 m³ (9,700,000 gals). Considering only the areas to the north, south, and west of the power block, a volume of approximately 30,840 m³ (8,000,000 gallons) could be accommodated in the remaining area between the site grade of elevations 133 ft msl and 129 ft msl. These volumes bound the entire volume of the CIRC cooling towers.

Figure RAI 10.4.5-3-2 shows the drainage patterns for the power block area; all areas around the power block being graded and sloped to provide drainage away from the power block structures. On the north side of the site, water would flow toward the drainage ditch on the east side, or to the west into the drainage ditch along the retaining wall and on to Stream B and/or the heavy haul road south of the unit. Water on the west side would flow to the west and south either through the drainage system to Stream B or overland to the heavy haul road. Water reaching the heavy haul road would flow down the road toward the river or into ditches on each side of this road. Water on the east side of the site would flow into drainage ditches and catch basins and flow to the north or the south away from the power block structures.

Therefore, as required by GDC 4, safety-related SSCs would not be subjected to flooding as a result of a failure of the NDCT cooling tower basin or other CIRC piping or components.



BUILDING LEGEND:

AB	AUXILIARY BOILER
ADB	AUXILIARY DIESEL BUILDING
AT	UNIT AUXILIARY TRANSFORMER
CB	CONTROL BUILDING
CB-N	CATCH BASIN NUMBER
CL	CLARIFIERS
CCB	CARBON DIOXIDE BULK STORAGE
CC	CONDENSATE STORAGE TANK
CCW	CLEARWELL
EB	ELECTRICAL BUILDING
FB	FUEL BUILDING
FSD	DIESEL FUEL OIL STORAGE TANK
FPE	FIRE PUMP ENCLOSURE
FWS	FIRE WATER STORAGE TANK
HM	HOT MACHINE SHOP & STORAGE
LD	DIRTY/CLEAN LUBE OIL STORAGE TANK
NDCT	MECHANICAL DRAFT COOLING TOWER
NDCT	NATURAL DRAFT COOLING TOWER
MT	MAIN TRANSFORMER
OSC	OPERATION SUPPORT CENTER
PH	PUMP HOUSE
RAT	RESERVE AUXILIARY TRANSFORMER
RB	REACTOR BUILDING
RTW	RETAINING WALL
RW	RADWASTE BUILDING
SB	SERVICE BUILDING
SF	SERVICE WATER BUILDING
ST	SPACE TRANSFORMER
STP	SEWAGE TREATMENT PLANT
TB	TURBINE BUILDING
TSC	TECHNICAL SUPPORT CENTER
VD	WASH DOWN BAYS (EQUIPMENT ENTRY)
VS	WATER STORAGE
VT	WATER TREATMENT
---	BURIED PIPING & CULVERT

Figure RAI 10.4.5-3-1 Site Drainage Hold-up Area

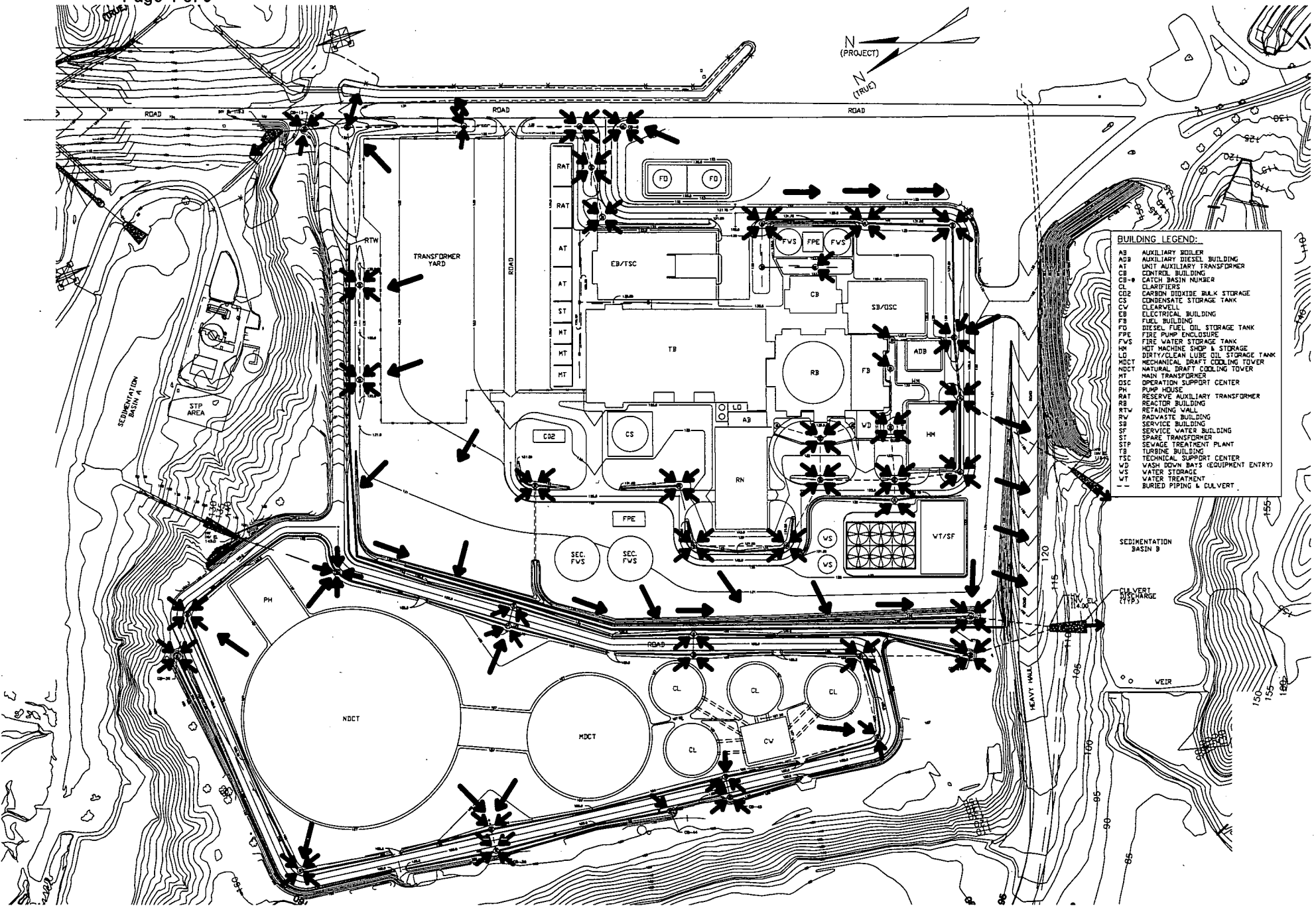


Figure RAI 10.4.5-3-2 Site Drainage Schematic

Proposed COLA Revision

FSAR Section 10.4.5.6 will be revised to clarify that failure of the NDCT or large-bore CIRC piping will not adversely impact the intended functions of safety-related equipment or systems, as indicated in the attached draft markup.

Markup of Grand Gulf COLA

The following markup represents Entergy's good faith effort to show how the COLA will be revised in a future COLA submittal in response to the subject RAI. However, the same COLA content may be impacted by revisions to the ESBWR DCD, responses to other COLA RAIs, other COLA changes, plant design changes, editorial or typographical corrections, etc. As a result, the final COLA content that appears in a future submittal may be somewhat different than as presented herein.

Leakage of condensate from the main condenser into the CIRC via a condenser tube leak is not likely during power operation, since the CIRC normally operates at a greater pressure than the shell (condensate) side of the condenser. For meeting the action required by NRC Inspection and Enforcement Bulletin No. 80-10, routine sampling and analysis will be performed for the CIRC by obtaining grab samples from the CIRC cooling tower basin. The samples provide the means to identify any events which could lead to unmonitored, uncontrolled radioactive releases to the environment.

10.4.5.5 Instrumentation Applications

Insert the following between the fourth and fifth paragraphs.

GGNS CDI

Level instrumentation provided in the circulating water pump pit controls makeup flow from the SWS to the NDCT basin. Level instrumentation in the pump pit initiates alarms in the main control room on abnormally low or high water level.

Pressure indication is provided on the circulating water pump discharge. Differential pressure instrumentation is provided between one inlet and outlet branch to the condenser and may be used to determine the frequency of operating the condenser tube cleaning system.

Local grab samples are used to periodically test the circulating water quality.

10.4.5.6 Flood Protection

Add the following to the end of this section.

GGNS CDI

Failure of a pipe or other component in the CIRC, including the NDCT cooling tower basin, in the yard would not have an adverse impact on the intended design functions of safety-related SSCs.

A failure of the NDCT basin would bound other failures of yard piping and components in the CIRC. The cooling towers are located on a plateau on a grade of approximately elevation 156 ft above mean sea level (msl), and the power block is on a grade of 133.5 ft msl, with the elevation of the power block buildings floor grade at 134 ft msl, six inches above grade (Section 2.4.1.1; Figure 2.4.1-201, Sh. 1). The power block area is separated from the cooling tower area by a retaining wall that runs the length of the western edge of the area, and continues east on the north side to a point approximately equal to the location of the eastern edge of

the Electrical building. A drainage ditch runs along the retaining wall beginning along the north section of the wall, and the entire length of the western face of the wall. As indicated in FSAR Section 2.4.2.3.3.1, this drainage ditch, and the remainder of the passive drainage system for the Unit 3 yard is designed to carry the 100-year return rainfall identified in SSAR Table 2.3-74 (rainfall in in/hr based on 30 minute duration storm data). The area between the retaining wall and the power block is lower in elevation and is graded such that it will drain away from Unit 3, and eventually to the Mississippi River either via Stream A to the north, or Stream B to the south (FSAR Figure 2.4.1-201, Sh. 1). All areas around the power block are graded and sloped to provide drainage away from the power block structures. Water reaching the heavy haul road would flow down the road toward the river or into ditches on each side of this road.

The yard area around the power block below elevation 133 ft msl is capable of fully containing the contents of the NDCT basin. A postulated rupture of one or more of the large CIRC pipes or the MDCT basin is bounded by a NDCT basin failure.

Therefore, as required by GDC 4, safety-related SSCs would not be subjected to flooding as a result of a failure of the NDCT cooling tower basin or other CIRC system piping or components in the yard.

10.4.5.8 Normal Power Heat Sink

Replace the text with the following.

GGNS CDI

A NDCT, in conjunction with a MDCT, supports a maximum cold water temperature of 35°C (95°F).

The NDCT design flow rate is 163529.8 m³/hr (720,000 gpm) including Plant Service Water System supply. The operating flow rate varies from 100 percent to 66 percent of the total design flow depending on ambient conditions and heat load.

The MDCT is sized for approximately 33 percent of total circulating water flow. The MDCT is a fiber reinforced plastic counter-flow cluster design with low-clog PVC film fill.

The NDCT is located at least 168m (550 ft.) away from any seismic Category 1 or 2 structures. Thus if there were any structural failure of the cooling towers, no seismic Category 1 or 2 structures or any safety-related systems or components would be affected or damaged. Also, given the location of the cooling towers and the prevailing northeast wind at the plant site, cooling tower plumes are normally directed away from the plant toward the Mississippi River. Under prevailing

conditions, the plumes will have no effect on the plant HVAC intakes or the plant switchyard. The direction of the prevailing wind and location of the towers make fogging near the plant unlikely. The NDCT is made of non-combustible material. The materials used in the construction of the MDCT are of the type with a low flame spread rating.

The MDCT has multiple fans with associated motors, couplings and gearboxes. The fans rotate at relatively slow speed and the fan blades are made of relatively low-density material. A failure of a fan could result in the generation of missiles. However, due to the attributes discussed above and due to the location of the MDCT being at least 122 m (400 ft.) from any Category 1 or 2 structure. (FSAR Figure 2.1-202), any damage would be confined to the MDCT itself. Therefore, there would be no damage to any seismic Category 1 or 2 structures or any safety-related systems or components.

10.4.6.3 Evaluation

Replace the second sentence in the third paragraph with the following.

STD COL 10.4-1-A A table summarizing the manufacturer's recommended threshold values of key chemistry parameters and associated operator actions is provided as Table 10.4-201.

10.4.10 COL INFORMATION

10.4-1-A Leakage (of Circulating Water Into the Condenser)

STD COL 10.4-1-A This COL Item is addressed in Section 10.4.6.3.

ATTACHMENT 4

G3NO-2008-00005

REGULATORY COMMITMENTS

REGULATORY COMMITMENTS

The following table identifies those actions committed to by Entergy in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
Entergy will revise FSAR Section 10.4.5 as indicated in draft markups included in Attachments 1, 2 and 3 of this letter, in Revision 1 of Part 2 of the COL application.	✓		Future COLA Submittal