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CNRO-2008-00027

August 27, 2008

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

SUBJECT: Grand Gulf Nuclear Station, Unit 3 Combined Operating License
Application Responses to Environmental Site Audit Follow-up Items

Grand Gulf Nuclear Station, Unit 3
Docket No. 52-024

Dear Sir or Madam:

During the week of June 16, 2008, representatives of the NRC Office of New Reactors and supporting contractors conducted an Environmental and Safety Site Audit of the Grand Gulf Nuclear Station (GGNS) Unit 3 combined operating license application (COLA). During the audit, the NRC staff requested certain information to aid in their review of the application; specifically, Part 3, the Environmental Report. Attachment 1 provides a description of certain NRC environmental follow-up items and the associated Entergy responses. The numbering convention used in Attachment 1 (e.g., H4c) was developed to track the questions raised during the audit and is consistent with the NRC staff's identification of each question. A CD-ROM containing electronic files with the requested information is provided in Enclosure 1.

This letter contains new commitments as identified in Attachment 2.

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
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E-Mail Address: twilli2@entergy.com

DOB8
NRO

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

Executed on August 27, 2008.

Sincerely,



WKH/ghd

Attachments: 1. Responses to NRC Environmental Site Audit Follow-up Items Nos. H4c, A1, A3, EA1, EA2, ET3

2. Regulatory Commitments

Enclosure: 1. CD-ROM Containing Response to NRC Environmental Site Audit Follow-up Item Nos. H4c, A1, A3, EA1, ET3

cc: Mr. T. A. Burke (ECH) (w/o enclosure)

Mr. S. P. Frantz (Morgan, Lewis & Bockius) (w/o enclosure)

Mr. B. R. Johnson (GE-Hitachi) (w/o enclosure)

Ms. M. Kray (NuStart) (w/o enclosure)

Mr. P. D. Hinnenkamp (ECH) (w/o enclosure)

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

CNRO-2008-00027

**RESPONSES TO NRC ENVIRONMENTAL SITE AUDIT
FOLLOW-UP ITEM Nos. H4c, A1, A3, EA1, EA2, ET3**

**RESPONSES TO NRC ENVIRONMENTAL SITE AUDIT
FOLLOW-UP ITEM Nos. H4c, A1, A3, EA1, EA2, and ET3**

AUDIT TOPIC: HYDROLOGY – SURFACE WATER

NRC Audit Request Item H4c

Available design plans for the outfall diffuser including pipe diameter, slot width, apron dimensions and slopes. (Section 2.3.3.1.2)

Entergy Response

A drawing of the proposed diffuser design has been prepared for inclusion in the COLA Environmental Report (ER) as Figure 3.4-203.

Proposed COLA Revision:

See file "001_ER Fig 3.4-203 Draft.pdf," (256 KB; publicly available) on the enclosed CD-ROM.

AUDIT TOPIC: ALTERNATIVES

NRC Audit Follow-up Item A1

Description and purpose of alternative water treatment systems for the circulating water system and the facility (service) water system. This information is missing from the ER Section 9.4.2.

Entergy Response

Additional information will be added to COLA ER Section 9.4.2 to address the evaluation of alternative water treatment systems for the circulating water system and the facility (service) water system.

Proposed COLA Revision:

See file "002_ER 9.4.2 Draft Markups_Chem Trtmt Alts.pdf" (602 KB; publicly available) on the enclosed CD-ROM.

NRC Audit Follow-up Item A3

ER 9.4.1: The need to address alternatives for heat dissipation in accordance with the Final Environmental Impact Statement (FEIS) and the Board's initial decision.

Entergy Response

Additional information will be added to the COLA ER Section 9.4.1, to address evaluation of alternatives for heat dissipation system selection.

Proposed COLA Revision:

See file "003_ER 9.4.1 Draft Markups_Heat Dissip Alts.pdf" (301 KB; publicly available) on the enclosed CD-ROM.

AUDIT TOPIC: ECOLOGY - AQUATIC

NRC Audit Follow-up Item EA1

Update of COL ER Figure 3.4-201 such that the intake screens in the figure represent the style of intake screens in COL ER Figure 3.4-202.

Entergy Response

COLA ER Figure 3.4-201 Sheet 2 will be revised to reflect the type of screens indicated in ER Figure 3.4-202.

Proposed COLA Revision:

See file "004_ER Fig 3.4-201 Sh 2 Draft Markup.pdf" (380 KB, publicly available) on the enclosed CD-ROM.

NRC Audit Follow-up Item EA2

Documentation for the mussel survey performed on November 20, 2006 (December 4, 2006 letter from J. Fred Heitman, American Aquatics, Inc. to Derek Richard, Enercon).

Per discussions with the NRC staff on August 15, 2008, the NRC staff requested additional information on the survey related to the fat pocketbook mussel performed to support the Grand Gulf Unit 3 COL application Environmental Report (discussed in the COLA Environmental Report, Section 2.4.2 and 6.5.2). These discussions were related to NRC Grand Gulf site audit Information Needs item EA2.

Entergy understands the following information is requested to support NRC Staff review:

1. Summary discussion of survey methods and results, and
2. Clarification of survey coverage.

Entergy Response

Construction of new intake and discharge structures for GGNS Unit 3 on the east bank of the Mississippi River has the potential to disturb limited portions of shoreline and near-shore habitats that might be occupied by the fat pocketbook mussel. The NRC stated in NUREG-1817, Subsection 4.4.3.1, that impacts on the mussel from construction activities cannot be evaluated without conducting surveys along the shoreline at the proposed intake and discharge structures. To address this concern, a targeted field survey to determine the presence of mussels in the area of the proposed intake and discharge structures was conducted on November 20, 2006, as discussed below. The results of the mussel survey, discussed in the Grand Gulf Nuclear Station (GGNS), Unit 3 COLA ER Sections 2.4.2 and 6.5.2, indicated that no dead or live native mussels of any species or live mussels of any

exotic species were identified in the survey area. A summary of the mussel survey report is provided below.

Summary of Mussel Survey Report

A. Background and Conditions

On November 20, 2006, AMERICAN AQUATICS, INC. (AAI) conducted a "presence or absence" survey for the fat pocketbook mussel, *Potamilus capax*, at the barge loading area for GGNS. The GGNS site is located south of Vicksburg, MS along the east bank of the Mississippi River at approximately River Mile 406. Weather conditions during the survey were cold and windy with clear skies. The ambient temperature ranged from a low of 29 °F to a high of 55 °F. Water temperatures at the site were in the mid 50s (°F) and warmed towards the eastern portion of the barge loading area; that is, the portion farthest from the river. In general, the water visibility encountered by the divers was essentially zero.

B. Investigation Approach and Technique

As an initial step, the accessible shoreline was surveyed for dead mussel shells. This consisted of visual review of the following areas:

- (1) The shoreline inside the barge loading area,
- (2) The river shoreline immediately north of the barge area where excavation is expected to support construction of the proposed Unit 3 intake structure, and
- (3) River shoreline immediately south of the barge loading area, in the area of the proposed combined Unit 1/Unit 3 discharge areas.

Following the shoreline portion of the survey, AAI developed a sampling approach for the barge loading area and river shore, immediately north of the barge loading area.

The basic survey approach divided the barge loading areas into transects aligned generally parallel to the mouth of the barge loading area and the river flow direction. To support a consistent search routine and due to anticipated low or zero visibility, chains were laid along the bottom of the barge loading area to define the search transects. Two divers were involved, moving in tandem along the transect chain, searching the substrate for mussels. The intent was that any mussels encountered would be brought to the surface for identification and measurement. Once the mussels were categorized, they would then be returned along each transect where they had been collected. Free-diving would be used to expand the search area around a transect, as considered appropriate by the divers.

The barge loading area was divided into five transects. The first transect was located across the mouth of the barge loading area; transects 2 through 5 were progressively to the east and inside the barge loading area. A sixth transect was located immediately north of the barge loading area reaching between two outcroppings of rip-rap and, like the other transects, parallel to the river flow direction.

C. Results

The initial shoreline review for dead mussels identified no native mussels of any species. Shells of dead zebra mussels (*Dreissena polymorpha* and Asiatic Clam *Corbicula fluminea*) were found on the bank. These two exotic species are not unexpected along the shores of the Mississippi River; however, because the shells are from dead organisms, no further assessment was possible regarding possible origins (other than "upstream").

During the diving portion of the survey, no mussel species were found along transects 1 through 3. Divers executed "free-dives" in the area of transects 4, 5, and 6 in an attempt to enhance the search for the target species. This method allowed divers to work a larger area than normally possible using chained transects. Chains were removed after each transect was reviewed.

Chains for transects 1 and 6 were laid in water approximately 15 feet deep. Transects 2 through 5 varied from approximately 13 feet to 8 feet in depth. (Transect 5 was laid in the most shallow portion of the barge area, to its eastern edge.)

The barge loading area had steep submerged banks dropping quickly to maximum depth. The substrate was soft-to-compact silt, with no hard substrata. Visibility underwater, as noted earlier, was essentially zero. The divers encountered warmer water in the back (eastern portion) of the barge loading area as they neared the current Unit 1 discharge outfall (which is often submerged).

D. Summary

The shoreline review identified no native mussels, and no living mussels of any species. After completing the diving surveys of all six transects, no dead or live native mussels of any species or live mussels of any exotic species were identified in the survey area. Therefore, the contractor conducting the survey concluded that colonization of the area by mussels of any species, including the fat pocketbook mussel, was not likely.

Proposed COLA Revision:

None

AUDIT TOPIC: ECOLOGY - TERRESTRIAL

NRC Audit Follow-up Item ET3

Copy of consultation letters between Entergy and Federal and State agencies.

- Mississippi Natural Heritage Program
 - Entergy: June 30, 2006 (onsite), June 2006, 2007(TL)
 - MNHP: August 11, 2006 (onsite)

- U.S. Fish and Wildlife Service
 - Entergy: June 30, 2006 (onsite), June 206, 2007 (TL)
 - FWS: Jul 21, 2006 (onsite), Nov 5, 2007 (TL)
- National Marine Fisheries Service
 - Entergy: Jul 12, 2006 (onsite~~TL~~)

Entergy Response

The requested consultation letters are provided on the enclosed CD-ROM. Note the corrections above to the list of requested letter files. See the following files on the enclosed CD-ROM:

1. "005_ConstMNHP 6-30-06.pdf" (933 KB, publicly available)
2. "006_MNHP TransLine ETS Consultation Letter 6-20-07 with figs.pdf" (8,707 KB, publicly available)
3. "007_MNHP-MS Museum of Nat Sci Response 8-11-06.pdf" (3,387 KB, publicly available)
4. "008_ConstUSFWS 6-30-06.pdf" (932 KB, publicly available)
5. "009_USFWS TransLine ETS Consultation Letter 6-20-07 with figs.pdf" (8,776 KB, publicly available)
6. "010_USFWS Response 07-21-06.pdf" (1,150 KB, publicly available)
7. "011_USFWS County List of Species for T-Lines Response 11-5-07.pdf" (4,056 KB, publicly available)
8. "012_ConstNMFS 7-12-06.pdf" (947 KB, publicly available)

Proposed COLA Revision:

None

ATTACHMENT 2

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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 | |
| 1. Additional information will be added to COLA ER Section 9.4.2 to address the evaluation of alternative water treatment systems for the circulating water system and the facility (service) water system. | ✓ | | COLA Revision 1 Submittal |
| 2. Additional information will be added to the COLA ER Section 9.4.1, to address evaluation of alternatives for heat dissipation system selection. | ✓ | | COLA Revision 1 Submittal |
| 3. COLA ER Figure 3.4-201 Sheet 2 will be revised to reflect the type of screens indicated in ER Figure 3.4-202. | ✓ | | COLA Revision 1 Submittal |

ENCLOSURE 1

CNRO-2008-00027

**CD-ROM CONTAINING RESPONSES TO NRC ENVIRONMENTAL SITE AUDIT
FOLLOW-UP ITEM NOS. H4c, A1, A3, EA1, ET3**