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**Jerry C. Roberts**  
Director, Nuclear Safety Assurance

RBG-47021

April 22, 2010

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

**SUBJECT:** Response to Request for Additional Information on License  
Amendment Request 2009-05, 24-month Fuel Cycles  
River Bend Station – Unit 1  
Docket No. 50-458  
License No. NPF-47

**REFERENCES:** 1. Entergy letter to NRC, dated August 10, 2009, License  
Amendment Request 2009-05, 24-month Fuel Cycles (Letter No.  
RBG-46932)  
2. NRC letter to Entergy (via email), dated April 8, 2010, Request  
for Additional Information

RBF1-10-0057  
File Code No.: G9.5

Dear Sir or Madam:

On August 10, 2009, Entergy submitted a request to amend the station's operating license to allow implementation of 24-month fuel cycles (Reference 1). During their review, the NRC staff determined that additional information is needed to complete the processing and approval of Entergy's request. The request for that information was transmitted to Entergy per Reference 2. The attachment to this letter contains the requested information.

This letter contains no commitments. If you have any questions on this matter, please contact David Lorfing, Manager – Licensing, at 225-381-4157.

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

Sincerely,

Jerry C. Roberts  
Director – Nuclear Safety Assurance

AC001  
NRC

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April 22, 2010  
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Attachment: Response to Request for Additional Information

cc: Regional Administrator  
U. S. Nuclear Regulatory Commission  
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NRC Senior Resident Inspector  
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St. Francisville, LA 70775

U. S. Nuclear Regulatory Commission  
Attn.: Mr. Alan B. Wang  
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Mr. Jeffrey P. Myers  
Louisiana Department of Environmental Quality  
Office of Environmental Compliance  
Attn.: OEC-ERSD  
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Baton Rouge, LA 70821-4312

Attachment to RBG-47021  
River Bend Station  
License Amendment Request 2009-05

Response to Request for Additional Information

Request for Additional Information:

In your August 10, 2009, submittal, on page 15, under Section 3.4 "Source Term", it is stated that RBS's core source term will be based on the ORIGN01P computer code instead of the previously approved CINDER computer code. Please provide additional information on any design bases parameters, assumptions or methodologies (other than the one mentioned previously) that were changed in the radiological design basis accident analyses as a result of the change? If there are many changes it would be helpful to compare and contrast them in a table. Also, please provide a justification for any changes.

Response:

There are two fundamental changes related to source term discussed in the License Amendment Request, as described below:

(1) There was a change in the computer code used to generate the RBS source term as a result of the previous transition from AREVA nuclear fuel to GNF nuclear fuel. This involved the transition from the CINDER7 computer code for generating the core source term to the ORIGEN 2.1 computer code. The CINDER7 computer code, which is no longer supported by General Electric (GE), was used for the core source term prior to the current fuel cycle. GE now uses ORIGEN 2.1, which is one of the recommended source term codes in Regulatory Guide 1.183. The change in source term computer code was approved using the 10CFR50.59 process as part of the current cycle 16 core design.

(2) The Updated Safety Analysis Report Chapter 15 accident analysis was evaluated based on the 24-month fuel cycle source term. This analysis modified the reactor core source term (radionuclide inventory) resulting from the transition to a 24-month fuel cycle. There were no other input changes. The code version used for the dose calculations was not changed. The resulting change in main control room, exclusion area boundary, and low population zone doses for each of the accident scenarios was less than 10% of the current USAR value which is within the licensee-controlled margin (refer to NEI 96-07, Section 4.3.3). This analysis is in the final stages of completion by the vendor. These changes must receive final approval by Entergy via the design change process which includes an evaluation per 10CFR50.59.