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RBG-46445

June 3, 2005

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

SUBJECT: River Bend Station – Response to Request for Additional Information for Proposed Upgraded Emergency Action Levels (EALs) Using NEI 99-01 Revision 4 Methodology – LAR 2003-27

River Bend Station
Docket No. 50-458
License No. NPF-47

REFERENCES
1. April 5, 2005, Letter from NRC to Paul D. Hinnenkamp, River Bend Station - Request for Additional Information. (RBC-50273)
2. May 20, 2005, Letter to Document Control Desk, River Bend Station – Response to Request for Additional Information for Proposed Upgraded Emergency Action Levels (EALs) Using NEI 99-01 Revision 4 Methodology – LAR 2003-27. (RBG-46442)

Ladies and Gentlemen:

On May 20, 2005, River Bend Station (RBS) submitted additional information in response to Reference 1. In the response (Reference 2), there was one editorial error and an attachment was omitted. This letter corrects these administrative issues. Attachment 1 provides a printout of dose projection results as discussed in Reference 2, response to Question 13. Attachment 2 corrects an editorial error in the response to Question 19.

There are no new commitments in this submittal.

If you have any questions regarding this submittal, please contact Mr. Barry Burmeister at 225-381-4148.

Sincerely,

D. N. Lorfing
Manager – Licensing

DNL/BMB

A001

Attachments –

Attachment 1	Attachment to Question 13
Attachment 2	Corrected Question 19 Response

cc: Mr. Michael Webb
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Washington, DC 20555

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Attachment 1

Attachment to Question 13

13. **[ICs AS1 and AG1] The NEI 99-01 Basis states that the methodology and source term used should be the same as those associated with the effluent monitor EALs in ICs AU1 and AA1. In the Basis under Attachment 4, the licensee states that a clad damage source term was used, which is inconsistent with ODCM source term used in ICs AU1 and AA1. Resolve any inconsistencies with NEI 99-01 guidance, and provide proposed change to comply or further technical justification for deviations. In addition, provide calculational results under References, which serve to document calculations performed for EAL 1 in ICs AS1 and AG1.**

Response:

NEI Appendix A section A.2 states "The fundamental basis of AU1 and AA1 ICs differs from that for AS1 and AG1 ICs" and "While some of the example EALs for AU1 and AA1 use indications of offsite dose rates as symptoms that the RETS may be exceeded, the IC, and the classification are not concerned with the particular value of offsite dose." It also states "The basis of the AS1 and AG1 is a particular value of offsite dose for the event duration. AG1 is set to the value of the EPA PAG. AS1 is a fraction (10%) of the EPA PAG." (NEI-99-01, p. a.2)

Calculation G13.18.9.6*012-Rev 0, *Effect of Core Uprate on the DRMS Process Safety Limits/Conversion Factors*, states that the source term for the ODCM value is normal operations source term. The SAE and GE base process safety limit in the calculation uses a LOCA source term isotopic mix.

Per the guidance in NEI-99-01, page 5-A-13 and page 5-A-15, the monitor reading for the SAE and GE Table 1 values were determined by using the dose assessment program to back calculate for the values in the IC. This is a software program and calculations are not available for submittal. **The printout of the dose projection result is included.** The software uses the source term per NUREG/CR-1228, *Source Term Estimation During Incident Response To Severe Nuclear Power Plant Accidents* which was specifically written to address offsite dose consequence evaluations.

In response to question 13 on the use of clad damage as the source term for the SAE and GE,: RBS has re-performed back calculations assuming no clad damage to estimate a release equivalent to a SAE and to a GE assuming the remaining assumptions were the same. The EAL setpoints have been revised to reflect the no clad damage calculation with results. It should be noted that the software automatically selects clad damage for fuel building ventilation.

Output

Calculation Date: 05/17/2005 Calculation Time: 16:33:36

Dose Rate Calculations

Distance	TEDE Dose (Rem)	TEDE Dose Rate (Rem/hr)	Thyroid Dose (Rem)	Thyroid Dose Rate (Rem/hr)	Plume Arrival (hr)
SB	1.02e-001	1.02e-001	5.90e-002	5.90e-002	0.15
2 Miles	1.77e-002	1.77e-002	1.04e-002	1.04e-002	0.50
5 Miles	3.95e-003	3.95e-003	2.37e-003	2.37e-003	1.25
10 Miles	1.16e-003	1.16e-003	7.28e-004	7.28e-004	2.50

Meteorological Data

Wind Speed: 4.00 mph
Wind Direction: 321.00 degrees
Delta T: -0.60 degrees F
Stability Class: D

Protective Action Recommendations

None required by Dose Projections

Evaluate Plant Conditions for possible Required Actions

Emergency Classification

Based on Dose Projections:
Site Area Emergency

Assumptions

Monitored Release Calculation
No Damage Spectrum Used
Release duration = 1.00 hours
Time after shutdown = 1.00 hours (05/17/2005 16:25)
Standby Gas Filtration, 99.0% efficiency assumed for stack release
System plateout assumed
Main stack release rate: 4.70E+007 uCi/s
Noble Gas release rate: 4.70E+001 Ci/s
Iodine release rate: 1.31E-002 Ci/s

ESP Print Return

MAIN PLANT EXHAUST

Output

Calculation Date: 05/17/2005 Calculation Time: 16:32:11

Dose Rate Calculations

Distance	TEDE Dose (Rem)	TEDE Dose Rate (Rem/hr)	Thyroid Dose (Rem)	Thyroid Dose Rate (Rem/hr)	Plume Arrival (hr)
SB	1.02e+000	1.02e+000	5.90e-001	5.90e-001	0.15
2 Miles	1.77e-001	1.77e-001	1.04e-001	1.04e-001	0.50
5 Miles	3.95e-002	3.95e-002	2.37e-002	2.37e-002	1.25
10 Miles	1.16e-002	1.16e-002	7.28e-003	7.28e-003	2.50

Meteorological Data

Wind Speed: 4.00 mph
Wind Direction: 321.00 degrees
Delta T: -0.60 degrees F
Stability Class: D

Emergency Classification

Based on Dose Projections:
General Emergency

Protective Action Recommendations

Based on Dose Projections, use Scenario #5

EVACUATE 2 MILE RADIUS AND 5 MILES
DOWNWIND AND SHELTER 10 MILE RADIUS
EVACUATE SCHOOLS,INSTITUTIONS, AND
RECREATION AREAS 5 MILE RADIUS

Evacuate (0-2) 1
(2-5) 4, 9
Shelter (2-5) 2, 3, 8, 16
(5-10) 5, 6, 7, 10, 11, 12, 13, 14, 15, 17, 18

Assumptions

Monitored Release Calculation
No Damage Spectrum Used
Release duration = 1.00 hours
Time after shutdown = 1.00 hours (05/17/2005 16:25)
Standby Gas Filtration, 99.0% efficiency assumed for stack release
System plateout assumed
Main stack release rate: 4.70E+008 uCi/s
Noble Gas release rate: 4.70E+002 Ci/s
Iodine release rate: 1.31E-001 Ci/s

ESP Print Return

MAIN PLANT EXHAUST

Output

Calculation Date: 05/18/2005 Calculation Time: 10:14:09

Dose Rate Calculations

Distance	TEDE Dose (Rem)	TEDE Dose Rate (Rem/hr)	Thyroid Dose (Rem)	Thyroid Dose Rate (Rem/hr)	Plume Arrival (hr)
SB	1.02e-001	1.02e-001	9.77e-003	9.77e-003	0.15
2 Miles	1.82e-002	1.82e-002	1.73e-003	1.73e-003	0.50
5 Miles	3.71e-003	3.71e-003	4.01e-004	4.01e-004	1.25
10 Miles	8.78e-004	8.78e-004	1.26e-004	1.26e-004	2.50

Meteorological Data

Wind Speed: 4.00 mph
Wind Direction: 321.00 degrees
Delta T: -0.60 degrees F
Stability Class: D

Protective Action Recommendations

None required by Dose Projections

Evaluate Plant Conditions for possible Required Actions

Emergency Classification

Based on Dose Projections:
Site Area Emergency

Assumptions

Monitored Release Calculation
Clad damage spectrum assumed for Fuel Building release
Release duration = 1.00 hours
Time after shutdown = 1.00 hours (05/17/2005 16:25)
FHB filtration 99.0% efficiency assumed for Fuel Building release
Fuel Pool scrubbing assumed for Fuel Building release
Fuel Building release rate: 6.70E+006 uCi/s
Noble Gas release rate: 6.70E+000 Ci/s
Iodine release rate: 1.11E-003 Ci/s

ESP Print Return

FUEL BUILDING VENT

Output

Calculation Date: 05/18/2005 Calculation Time: 10:15:51

Dose Rate Calculations

Distance	TEDE Dose (Rem)	TEDE Dose Rate (Rem/hr)	Thyroid Dose (Rem)	Thyroid Dose Rate (Rem/hr)	Plume Arrival (hr)
SB	1.02e+000	1.02e+000	9.77e-002	9.77e-002	0.15
2 Miles	1.82e-001	1.82e-001	1.73e-002	1.73e-002	0.50
5 Miles	3.71e-002	3.71e-002	4.01e-003	4.01e-003	1.25
10 Miles	8.78e-003	8.78e-003	1.26e-003	1.26e-003	2.50

Meteorological Data

Wind Speed: 4.00 mph
Wind Direction: 321.00 degrees
Delta T: -0.60 degrees F
Stability Class: D

Emergency Classification

Based on Dose Projections:
General Emergency

Protective Action Recommendations

Based on Dose Projections, use Scenario #5

EVACUATE 2 MILE RADIUS AND 5 MILES
DOWNWIND AND SHELTER 10 MILE RADIUS
EVACUATE SCHOOLS,INSTITUTIONS, AND
RECREATION AREAS 5 MILE RADIUS

Evacuate (0-2) 1
(2-5) 4, 9
Shelter (2-5) 2, 3, 8, 16
(5-10) 5, 6, 7, 10, 11, 12, 13, 14, 15, 17, 18

Assumptions

Monitored Release Calculation
Clad damage spectrum assumed for Fuel Building release
Release duration = 1.00 hours
Time after shutdown = 1.00 hours (05/17/2005 16:25)
FHB filtration 99.0% efficiency assumed for Fuel Building release
Fuel Pool scrubbing assumed for Fuel Building release
Fuel Building release rate: 6.70E+007 uCi/s
Noble Gas release rate: 6.70E+001 Ci/s
Iodine release rate: 1.11E-002 Ci/s

ESP Print Return

FUEL BUILDING VENT

Attachment 2

Corrected Question 19 Response

19. **[HU6 / HA6] Response to Specific Comment 31 states that the high alarm indicating 4 inches above floor level is used as the qualifier for the Unusual Event, and that an upgrade to an Alert would occur when flooding resulted in degraded performance or water level has risen above electrical components creating a safety hazard (95' elevation is used if entry into area is required). Table H1 in both HU6 and HA6 provide the same Maximum Safe Operating Values/Indicators which is inconsistent with the RAI response. The Bases discussion in Attachment 4 does not reflect RAI response, which does not discuss Maximum Safe Operating Values/Indicators. Resolve inconsistencies. In addition, clarify whether RBS EOPs provide specific thresholds for Maximum Normal Operating Values, which would be more indicative of the potential impact on safety-related equipment under IC HU6 - EAL 6.**

Response:

The wording for HA6 EAL 5 was changed to "Uncontrolled flooding in Auxiliary Building 70 ft elevation that results in degraded safety system performance as indicated in the control room or that creates industrial safety hazards (e.g., electric shock) that preclude access necessary to operate or monitor safety equipment."

The EOP Maximum ~~Normal~~ **Safe** Operating Values used in HU6 EAL 5 indicate a level four inches above floor level of the affected room. The areas in the table are all in the Auxiliary Building 70 ft elevation. The rewording of HA6 EAL5 is not tied to the alarm indicated in HU6 EAL 5. The NOUE would be declared first and system operation monitored for degradation of safety systems. The design of the plant does not present an immediate threat to personnel entering the rooms. The area's lowest elevation is 70 ft. The entrance into the ECCS and RCIC rooms is via the second floor on elevation 95 ft. After entering at 95 ft, a stairwell allows the operator to descend to a platform at elevation 78 ft. Because of the use of grating, the operator can observe the water level on the 70 ft elevation without entering the area. The safety component status indication and control switches are located on P601 in the main control room. Local access is not required to operate or monitor the safety equipment in the areas.

The system engineer walked down the areas to identify the hazards. For RHR rooms A, B, and C the equipment function is impacted when the water level reaches elevation 79 Ft. This is above the grating level of 78 Ft. which can be verified locally by entering the rooms through the 95 Ft elevation. In calculation G13.18.12.3-15-0 (internal flooding analysis) section 4.3.5, the general findings for the flood zones in the Auxiliary Building 70 ft elevation concludes that there are no PRA sensitive electrical cabinets, MCCs, or power supplies in the 8 zones for the 70 ft. elevation. In 7 of the zones, there are no scram sensitive components. The eighth zone (crescent area) contains scram sensitive components but they are not of much concern. The components are the CCP pumps (reactor building component cooling water). The loss of all 3 pumps would demand a start of the standby service water and manual scram of the reactor. These findings are also supported by calculation G13.18.12.3*16-0 (Quantitative analysis of internal flooding). Both are used in PRA level I analysis.

In USAR section 2.4 and 3.4, for the moderate energy line break, the maximum flooding in the crescent area is below all safe shutdown equipment, allowing 30 minutes for operator action to isolate the leak. Per the design, flooding in any one of the ECCS pump rooms will not affect the other ECCS rooms as discussed in USAR section 3.4. Per the USAR, operator action within 30 minutes after detection of flooding in any of the rooms is sufficient to keep water from flowing through ventilation openings high up in the cubicles and affecting the redundant ECCS pump rooms.

Based on the PRA study, the design described in the USAR, and the availability of monitoring and control in the main control room, a water level of 4 inches above the floor in the ECCS and RCIC rooms is acceptable for NOUE HU6 EAL 5 and is within the intent of the unusual event classification bases. Degradation of system performance as indicated in the main control room when flooding level reaches safety components and/or inability to access the area to monitor or operate safety equipment meets the intent of an alert classification.

The EALs are not considered a deviation.