River Bend Nuclear Station

Unit 3

Combined License Application

Part 10: ITAAC

REVISION 0

September 2008

TIER 1 INFORMATION

AND

INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA

1. TIER 1 INFORMATION

DCD Tier 1 is incorporated by reference.

2. COL ITAAC

The Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) for the COLA are provided in tabular form, consistent with the format shown in RG 1.206 Table C.II.1-1.

The COL-ITAAC consists of the following four parts.

1. Design Certification ITAAC
2. Emergency Planning ITAAC
3. Physical Security ITAAC
4. Site-specific ITAAC

This set of COL-ITAAC is included herein. Completion of the ITAAC is a proposed condition of the combined license to be satisfied prior to fuel load.

2.1 DESIGN CERTIFICATION ITAAC

The Design Certification ITAAC are contained in DCD Tier 1, which is incorporated by reference in Section 1.

2.2 PHYSICAL SECURITY ITAAC

The Physical Security ITAAC are contained in DCD Tier 1, which is incorporated by reference in Section 1.

2.3 EMERGENCY PLANNING ITAAC

The Emergency Planning ITAAC are provided in Table 2.3-1.

Table 2.3-1
ITAAC For Emergency Planning

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
1.0 Emergency Classification System			
10 CFR 50.47(b)(4) – A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and state and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.	1.1 A standard emergency classification and emergency action level (EAL) scheme exists, and identifies facility system and effluent parameters constituting the bases for the classification scheme. [D.1**] [**D.1 corresponds to NUREG-0654/FEMA-REP-1 evaluation criteria.] ITAAC element addressed in: COL EP II.D.1, Appendix 1	1.1 An inspection of the Control Room, Technical Support Center (TSC), and Emergency Operations Facility (EOF) will be performed to verify that they have displays for retrieving facility system and effluent parameters identified in the following list of EALs (Reference Appendix 1, Part 5, Emergency Plan) Abnormal Rad Levels/Radiological Effluents: AU1, (EALs 1,2), AU2, AA1 (EALs 1, 2), AA2, AA3, AS1 (EAL 1), AG1 (EAL 1) Cold Shutdown Refueling System Malfunction: CU1, CU2, CU3, CU4, CU7, CU8, CA1, CA4, CS1, CG2 Fission Product Barrier Threshold Values: Fuel Clad Barrier Threshold Values: 1. Reactor Vessel Water Level. 2. Primary Containment Radiation Monitoring 3. Other Indications RCS Barrier Threshold Values: 1. Primary Containment Pressure 2. Reactor Vessel Water Level 3. RCS Leak Rate 4. Primary Containment Radiation Monitoring. Containment Barrier Threshold Values: 1. Primary Containment Conditions	1.1.1 A report exists that confirms the specific parameters identified in the EALs listed in ITA Section 1.1 have been retrieved and displayed in the Control Room, TSC, and EOF. 1.1.2 A report exists that confirms the ranges available in the Control Room, TSC, and EOF encompasses the values for the specific parameters identified in the EALs listed in ITA Section 1.1.

Table 2.3-1
ITAAC For Emergency Planning

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
		2. Primary Containment Isolation Failure or Bypass 3. Primary Containment Radiation Monitoring Hazards or Other Conditions Affecting Plant Safety: HU1 (EAL 2), HA1 (EALs 1,2) System Malfunction: SU1, SU4 (EAL 1), SU8, SA1, SA2, SA4, SS1, SS2, SS3, SS6, SG1, SG2	
2.0 Notification Methods and Procedures			
10 CFR 50.47(b)(5) – Procedures have been established for notification, by the licensee, of state and local response organizations and for notification of emergency personnel by all organizations; the content of initial and follow-up messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.	2.1 The means exist to notify responsible State and local organizations within 15 minutes after the licensee declares an emergency. [E.1] ITAAC element addressed in: COL EP II.E.1	2.1 A test will be performed of the capabilities.	2.1.1 A report exists that confirms communications have been established via the ESP/State and Local Hotline among the Control Room and the following: • Louisiana Governor's Office of Homeland Security/Emergency Preparedness or Department of Environmental Quality • Mississippi Emergency Management Agency or Mississippi Highway Patrol • East Baton Rouge Parish Emergency Medical Services • East Feliciana Parish Sheriff's Office • Pointe Coupee Parish Sheriff's Office • West Baton Rouge Parish Communications District

Table 2.3-1 ITAAC For Emergency Planning			
Planning Standard	**EP Program Elements**	**Inspections, Tests, Analyses**	**Acceptance Criteria**
			• West Feliciana Parish Sheriff's Office
	2.2 The means exists to notify emergency response personnel. [E.2] ITAAC element addressed in: COL EP II.E.2	2.2 A test will be performed of the capabilities.	2.2 A report exists that confirms notification to the RBS 3 emergency response organization has been performed.
	2.3 The means exists to notify and provide instructions to the populace within the plume exposure EPZ. [E.6] ITAAC element addressed in: COL EP II.E.6 & E.7	NOTE: The means to notify and provide instructions to the populace within the plume exposure EPZ is addressed by Acceptance Criteria 8.1.1.2.	

Table 2.3-1 ITAAC For Emergency Planning			
Planning Standard	**EP Program Elements**	**Inspections, Tests, Analyses**	**Acceptance Criteria**
3.0 Emergency Communications			
10 CFR 50.47(b)(6) – Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.	3.1 The means exist for communications among the Control Room, TSC, EOF, principal State, local, and provincial emergency operations centers (EOCs), and radiological emergency teams. [F.1.d] ITAAC element addressed in: COL EP II.F.1.a, b & d	3.1 A test will be performed of the capabilities.	3.1.1 A report exists that confirms communications have been established among the Control Room, OSC, and TSC. 3.1.2 A report exists that confirms communications have been established among the Control Room, TSC, and EOF. 3.1.3 A report exists that confirms communications via the ESP/State and Local Hotline have been established among the TSC and the following: • Louisiana Governor's Office of Homeland Security/Emergency Preparedness or Department of Environmental Quality • Mississippi Emergency Management Agency or Mississippi Highway Patrol • East Baton Rouge Parish Emergency Medical Services • East Feliciana Parish Sheriff's Office • Pointe Coupee Parish Sheriff's Office • West Baton Rouge Parish Communications District • West Feliciana Parish Sheriff's Office 3.1.4 A report exists that confirms communications have been established

Table 2.3-1 ITAAC For Emergency Planning			
Planning Standard	**EP Program Elements**	**Inspections, Tests, Analyses**	**Acceptance Criteria**
			between the TSC and radiological monitoring teams.
	3.2 The means exist for communications from the Control Room, TSC, and EOF to the NRC headquarters and regional office EOCs (including establishment of the Emergency Response Data System (ERDS) between the onsite computer system and the NRC Operations Center.) [F.1.f] ITAAC element addressed in: COL EP II.F.1.f	3.2 A test will be performed of the capabilities.	3.2 A report exists that confirms communications have been established from the Control Room, TSC, and EOF to NRC Headquarters and Region IV EOCs, and an access port for ERDS is provided.
4.0 Public Education and Information			
10 CFR 50.47(b)(7) – Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or	4.1 The licensee has provided space which may be used for a limited number of the news media at the near-site Emergency Operations Facility (EOF) [G.3.b] ITAAC element addressed in: COL EP II.G.3.b	4.1 An inspection of the Joint Information Center will be performed to verify that space is provided for a limited number of the news media.	4.1 A report exists that confirms that the Joint Information Center has space for a limited number of news media.

Table 2.3-1
ITAAC For Emergency Planning

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.			
5.0 Emergency Facilities and Equipment			
10 CFR 50.47(b)(8) – Adequate emergency facilities and equipment to support the emergency response are provided and maintained.	5.1 The licensee has established a Technical Support Center (TSC) and onsite Operational Support Center (OSC). [H.1] ITAAC element addressed in: COL EP II.H.1	5.1.1 An inspection of the as-built TSC and OSC will be performed.	5.1.1 A report exists that confirms the TSC had at least 174 square meters (1875 square feet) of floor space. 5.1.2 A report exists that confirms the following communications equipment has been provided in the TSC and voice transmission and reception have been accomplished: • NRC systems: Emergency Notification System (ENS), Health Physics Network (HPN), Reactor Safety Counterpart Link (RSCL), Protective Measures Counterpart Link (PMCL), Management Counterpart Link (MCL) • Dedicated telephone to EOF • Dedicated telephone to Control Room • Dedicated telephone to OSC 5.1.3 A report exists that confirms the TSC has been located in the Electrical Building. 5.1.4 A report exists that confirms the TSC includes radiation monitors and a ventilation system with a high efficiency particulate air (HEPA) and charcoal filter. 5.1.5 A report exists that confirms a back-up electrical power supply is available for the TSC.

Table 2.3-1 ITAAC For Emergency Planning			
Planning Standard	**EP Program Elements**	**Inspections, Tests, Analyses**	**Acceptance Criteria**
			5.1.6 A report exists that confirms the OSC is in a location separate from the Control Room. 5.1.7 A report exists that confirms the following communications equipment has been provided in the OSC, and voice transmission and reception have been accomplished: • Dedicated telephone to Control Room • Dedicated telephone to TSC • Plant page system (voice transmission only)
	5.2 The licensee has established an EOF. [H.2] ITAAC element addressed in: COL EP II.H.2	5.2 An inspection of the EOF will be performed.	5.2.1 A report exists that confirms the EOF has at least 243 square meters (2,625 square feet). 5.2.2 A report exists that confirms voice transmission and reception have been accomplished between the EOF and TSC. 5.2.3 A report exists that confirms voice transmission and reception have been accomplished via the ESP/State and Local Hotline among the EOF and the following: • State of Louisiana EOC • State of Mississippi EOC • East Baton Rouge Parish EOC • East Feliciana Parish EOC • Pointe Coupee Parish EOC • West Baton Rouge Parish EOC • West Feliciana Parish EOC
6.0 Accident Assessment			
10 CFR 50.47(b)(9) – Adequate methods, systems, and equipment for	6.1 The means exist to provide initial and continuing radiological	6.1 A test of the emergency plan will be conducted by performing an exercise or drill to verify the capability	6.1 A report exists that confirms an exercise or drill has been accomplished including use of selected monitoring parameters

Table 2.3-1
ITAAC For Emergency Planning

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.	assessment throughout the course of an accident. [I.2] ITAAC element addressed in: COL EP II.I.2, Appendix 2	to perform accident assessment.	identified in the EALs listed in ITA Section 1.1 to assess simulated degraded plant and initiate protective actions in accordance with the following criteria: A. Accident Assessment and Classification 1. Initiating conditions identified, EALs parameters determined, and the emergency correctly classified throughout the drill. B. Radiological Assessment and Control 1. Onsite radiological surveys performed and samples collected. 2. Radiation exposure to emergency workers monitored and controlled. 3. Field monitoring teams assembled and deployed. 4. Field team data collected and disseminated. 5. Dose projections developed. 6. The decision whether to issue radio-protective drugs to RBS 3 emergency workers made. 7. Protective action recommendations developed and communicated to appropriate authorities.
	6.2 The means exist to determine the source term of releases of radioactive material within plant systems, and the magnitude of the release of radioactive materials based on plant system parameters and effluent monitors. [I.3]	6.2 An analysis of emergency plan implementing procedures will be performed.	6.2.1 A report exists that confirms a methodology has been established to determine source term of releases of radioactive materials within plant systems.

Table 2.3-1 ITAAC For Emergency Planning			
Planning Standard	**EP Program Elements**	**Inspections, Tests, Analyses**	**Acceptance Criteria**
	ITAAC element addressed in: COL EP II.I.3, Appendix 2		
	6.3 The means exist to continuously assess the impact of the release of radioactive materials to the environment, accounting for the relationship between effluent monitor readings, and onsite and offsite exposures and contamination for various meteorological conditions. [I.4] ITAAC element addressed in: COL EP II.I.4, Appendix 2	6.3 An analysis of emergency plan implementing procedures will be performed.	6.3 A report exists that confirms a methodology has been provided to establish the relationship between effluent monitor readings and onsite and offsite exposures and contamination for various radiological conditions.
	6.4 The means exists to acquire and evaluate meteorological information. [I.5] ITAAC element addressed in: COL EP II.I.5	6.4 An inspection of the Control Room, TSC, and EOF will be performed to verify the availability of the following meteorological data is available: • Wind speed (at 30 ft. and 150 ft.) • Wind direction (at 30 ft. and 150 ft.) • Ambient air temperature (at 30 ft. and 150 ft.)	6.4 A report exists that confirms the specified meteorological data was available at the Control Room, TSC, and EOF.
	6.5 The means exist to make rapid assessments of actual or potential	6.5 An analysis of emergency plan implementing procedures will be performed.	6.5 A report exists that confirms a methodology has been established to provide rapid assessment of the actual or

Table 2.3-1 ITAAC For Emergency Planning			
Planning Standard	**EP Program Elements**	**Inspections, Tests, Analyses**	**Acceptance Criteria**
	magnitude and locations of any radiological hazards through liquid or gaseous release pathways, including activation, notification means, field team composition, transportation, communication, monitoring equipment, and estimated deployment times. [I.8] ITAAC element addressed in: COL EP II.I.8		potential magnitude and locations of any radiological hazards through liquid or gaseous release pathways.
	6.6 The capability exists to detect and measure radioiodine concentrations in air in the plume exposure EPZ, as low as 10-7 µCi/cc (microcuries per cubic centimeter) under field conditions. [I.9] ITAAC element addressed in: COL EP II.I.9	6.6 A test of RBS 3 field survey instrumentation will be performed to verify the capability to detect airborne concentrations as low as 1E-07 microcuries per cubic centimeters.	6.6 A report exists that confirms instrumentation used for monitoring I-131 to detect airborne concentrations as low as 1E-07 microcuries per cubic centimeters has been provided.
	6.7 The means exist to estimate integrated dose from the projected and actual dose rates, and for comparing these estimates with the EPA protective action guides (PAGs). [I.10] ITAAC element addressed in:	6.7 An analysis of emergency plan implementing procedures will be performed to verify that a methodology is provided to establish means for relating contamination levels and airborne radioactivity levels to dose rates and gross radioactivity measurements for the following isotopes – Kr-88, Ru-106, I-131, I-132, I-133, I-134, I-135, Te-132, Xe-	6.7 A report exists that confirms the means for relating contamination levels and airborne radioactivity levels to dose rates and gross radioactivity measurements for the specified isotopes has been established.

Table 2.3-1
ITAAC For Emergency Planning

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
	COL EP II.I.10, Appendix 2	133, Xe-135, Cs-134, Cs-137, Ce-144.	
7.0 Protective Response			
10 CFR 50.47(b)(10) – A range of protective actions has been developed for the plume exposure EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure EPZ appropriate to the locale have been developed.	7.1 The means exist to warn and advise onsite individuals of an emergency, including those in areas controlled by the operator, including:[J.1] a. employees not having emergency assignments; b. visitors; c. contractor and construction personnel; and d. other persons who may be in the public access areas, on or passing through the site, or within the owner controlled area. [II.J.1] ITAAC element addressed in: COL EP II.J.1.	7.1 A test of the onsite warning and communications capability will be performed during a drill or exercise.	7.1.1 A report exists that confirms that, during a drill or exercise, notifications and instructions were provided to onsite workers and visitors, within the Protected Area, over the plant public announcement system. 7.1.2 A report exists that confirms that, during a drill or exercise, audible warnings were provided to individuals outside the Protected Area, but within the Owner Controlled Area.
8.0 Exercises and Drills			
10 CFR 50.47(b)(14) – Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to	8.1 Licensee conducts a full participation exercise to evaluate major portions of emergency response capabilities, which includes participation by each State and local agency within the	8.1 A full participation exercise (test) will be conducted within the specified time periods of Appendix E to 10 CFR Part 50.	8.1.1.1 An exercise report exists and concludes that the exercise is completed within the specified time periods of Appendix E to 10 CFR Part 50, onsite exercise objectives have been met, and there were no uncorrected exercise deficiencies.

Table 2.3-1
ITAAC For Emergency Planning

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
develop and maintain key skills, and deficiencies identified as a result of exercises or drills are (will be) corrected.	plume exposure EPZ, and each State agency within the ingestion exposure EPZ. [N.1] ITAAC element addressed in: COL EP II.N.1.		8.1.1.2 A report exists that confirms exercise objectives, including specific acceptance criteria, addressed each of the following Emergency Planning (EP) Program Elements: • Emergency Classification • Notification and Emergency Communications • Emergency Public Information • Emergency Facilities and Equipment • Accident Assessment • Protective Response and Protective Action Recommendations • Radiological Exposure Control • Recovery and Re-Entry 8.1.2.1 A report exists that confirms onsite emergency response personnel were mobilized to fill emergency response positions, and there are no uncorrected onsite exercise deficiencies. 8.1.2.2 A report exists that confirms onsite emergency response personnel performed their assigned responsibilities, and there are no uncorrected onsite exercise deficiencies.

2.4 SITE-SPECIFIC ITAAC

The Site-Specific ITAAC are provided in the following sections. Site specific systems were evaluated against selection criteria in Section 14.3. If a site-specific system described in the FSAR does not meet an ITAAC selection criterion, only the system name and the statement “No entry for this system” are provided.

2.4.1 ITAAC FOR BACKFILL UNDER CATEGORY I STRUCTURES

Design Description

Backfill under Category I structures is installed up from competent bearing layer to meet the average and minimum soil density requirements specified in Table 2.4.1-1.

Inspections, Tests, Analyses and Acceptance Criteria

Table 2.4.1-2 provides a definition of the inspections, tests and/or analyses, together with associated acceptance criteria, for the backfill under Category I structures ITAAC.

Table 2.4.1-1

Compaction Requirements for Backfill Under Category I Structures

Average Compaction (all tests)	97% Compaction
Minimum Compaction (all tests)	95% Compaction

Table 2.4.1-2

ITAAC For Backfill Under Category I Structures

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. Backfill under Category I structures is installed to meet average and minimum soil density requirements specified in Table 2.4.1-1	1. Inspection and testing will be performed during placement of the backfill materials.	1. A report exists that concludes the installed backfill under Category I structures meets the average and minimum soil density requirements specified in Table 2.4.1-1.

2.4.2 ITAAC FOR PLANT SERVICE WATER SYSTEM (PORTION OUTSIDE THE SCOPE OF THE CERTIFIED DESIGN)

Design Description

The Plant Service Water System (PSWS) is the heat sink for the Reactor Component Cooling Water System. The PSWS does not perform any safety-related function. There is no interface with any safety-related component.

The PSWS cooling towers and basins are not within the scope of the certified design. A specific design for this portion of the PSWS is described in FSAR Section 9.2.1. Interface requirements are necessary for supporting the post-72-hour cooling function of the PSWS. The plant-specific portion of the PSWS shall meet the following interface requirement:

> The PSWS is required to remove 2.02×10^{7} MJ (1.92×10^{10} BTU) over a period of 7 days without active makeup.

Inspections, Test, Analyses and Acceptance Criteria

Table 2.4.2-1 provides a definition of the inspections, tests, and/or analyses, together with associated acceptance criteria for the PSWS.

Table 2.4.2-1

ITAAC For Plant Service Water Reserve Storage Capacity

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. The PSWS contains an inventory of cooling water sufficient for RCCWS cooling from hour zero (0) through day 7 (2.02×10^7 MJ (1.92×10^{10} BTU)) without active makeup.	1. Inspection of the as-built PSW cooling tower basin will be conducted.	1. Report(s) document that the usable water volume in the cooling tower basins (Trains A and B), defined as the volume above the pump minimum submergence water level and below the minimum normal operating level, is a minimum of 2.4 million gallons.

2.4.3 CIRCULATING WATER SYSTEM (PORTION OUTSIDE THE SCOPE OF THE CERTIFIED DESIGN)

No entry for this system

2.4.4 STATION WATER SYSTEM (INCLUDING INTAKE STRUCTURE AND SERVICING EQUIPMENT)

No entry for this system

2.4.5 YARD FIRE PROTECTION SYSTEM (PORTIONS OUTSIDE SCOPE OF CERTIFIED DESIGN)

No entry for this system

2.4.6 POTABLE & SANITARY WATER SYSTEMS

No entry for this system

2.4.7 OFFSITE POWER

No entry for this system

2.4.8 COMMUNICATIONS SYSTEMS (EMERGENCY NOTIFICATION SYSTEM)

Addressed in Table 2.3-1, Topic 3.0, Emergency Communications.

2.4.9 MAKEUP WATER SYSTEM

No entry for this system

2.4.10 MOBILE LIQUID RADWASTE SYSTEM (PORTION OUTSIDE SCOPE OF CERTIFIED DESIGN)

No entry for this system

2.4.11 MOBILE SOLID RADWASTE SYSTEM (PORTION OUTSIDE SCOPE OF CERTIFIED DESIGN)

No entry for this system

2.4.12 HYDROGEN WATER CHEMISTRY SYSTEM

No entry for this system

2.4.13 METEOROLOGICAL MONITORING SYSTEM

No entry for this system