

## **PMBelCOL PEmails**

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**Cc:** Joseph Sebrosky; Brian Anderson; Robert Moody; Ned Wright  
**Subject:** DRAFT - RAI 646 - related to SRP section 13.3 for Bellefonte Units 3 and 4  
**Attachments:** BLN Draft RAI 646- 13.03.doc  
**Importance:** High

Attached is a draft RAI related to SRP section 13.3 for Bellefonte Units 3 and 4. Please let me know whether you would like to schedule a conference call to discuss this RAI in greater detail.

Thank you,  
Brian

Brian Anderson  
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US Nuclear Regulatory Commission  
Office of New Reactors  
Project Manager, AP1000 Projects Branch 1

**Hearing Identifier:** Bellefonte\_COL\_Public\_EX  
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Bellefonte Units 3 and 4  
TVA  
Docket No. 52-014 and 52-015  
SRP Section: 13.03 - Emergency Planning  
Application Section: COLA Part 5

QUESTIONS

13.03-\*\*\*

**SITE-1:** Assignment of primary responsibilities for emergency response

Basis: 10 CFR 50.47(b)(1); 10 CFR 50, Appendix E.IV.A.8/ NUREG-0654/FEMA-REP-1, Evaluation Criterion A.1.a, Evaluation Criterion A.1.c, Evaluation Criterion A.1.d; Evaluation Criterion A.3

SRP ACCEPTANCE CRITERIA: Requirement A; Acceptance Criteria 1 and 18

A. Section II.A, "Assignment of Responsibility (Organizational Control)," of the BLN Emergency Plan provides a list of participating organizations and a discussion of their roles and responsibilities. Identify the specific county governments and organizations that will respond to an emergency event.

B. Section II.A, of the BLN Emergency Plan defines assignment of responsibility. However, the BLN Emergency Plan does not provide the title of officials responsible for planning, ordering and controlling protective actions. Identify, by title, the State and/or local officials that will be responsible for implementing offsite protective actions.

C. Section II.A, of the BLN Emergency Plan states in the text that the Shift Manager assumes the role of the Site Emergency Director (SED), however Footnote 2 uses the term Emergency Coordinator. Clarify terminology discrepancy between text identifying the Shift Manager as the Site Emergency Director and the Footnote 2 use of the term Emergency Coordinator.

D. Figure II-1, "Emergency Response Organization Interrelationships" of the BLN Emergency Plan is a block diagram that illustrates the interrelationships of all the organizations participating in emergency response. However, the diagram does not show specific State and local agencies or the U.S. Department of Energy (DOE), and the relationships are only shown by organization and not by position or title. Please clarify these aspects of the diagram. Provide the specific positions or titles that will interact during an emergency in Figure II-1. In addition, explain the meaning of the line and arrow coming from the Nuclear Regulatory Commission to the Field Monitoring teams in Figure II-1.

E. Appendix 7, "Certification Letters" of the BLN Emergency Plan includes copies of certification letters established between Tennessee Valley Authority (TVA) and the State and local government agencies and private sector organizations supporting the emergency response effort. Letters of Agreements are not provided in the BLN Emergency Plan. Discuss when the Letters of Agreement will be available and incorporated into the BLN Emergency Plan.

**SITE-2:** Onsite emergency response organization assignments

Basis: 10 CFR 50(b)(2), Appendix E.IV.A.2.b; NUREG-0654/FEMA-REP-1, Evaluation Criterion B.1, Evaluation Criterion B.3, Evaluation Criterion B.5, Evaluation Criterion B.7, Evaluation Criterion B.8, Evaluation Criterion B.9  
SRP ACCEPTANCE CRITERIA: Requirement A; Acceptance Criteria 1 and 18

A. BLN FSAR, Table 13.1-201, "Generic Position/Site Specific Position Cross Reference" provides generic titles and functions. Section II.B, Figure II-2, "BLN Emergency Response Organization –TSC/OSC Only" and Figure II-3, "BLN Augmented Emergency Response Organization" in the BLN Emergency Plan show the high level organizations that will be located in the Emergency Response Facilities (ERFs), but without the actual functions and titles of staff that will be located in these blocks on the diagrams. To explain how all functions in the ERFs are adequately covered, provide details of the actual functions and titles of staff that will be located in the blocks on the diagrams in Figures II-2 and II-3.

B. Section II.B.4, "Site Emergency Director Responsibilities" identifies that the SED directs the activation and notification of the onsite and offsite ERFs during an emergency. Figure II-3 is a diagram of the Central Emergency Control Center (CECC) organization but does not indicate the specific job titles for the purpose of assessing staffing. Provide additional information regarding the organization of the CECC that will be included in the Emergency Plan Implementing Procedures (EPIPs), or propose an ITAAC or license condition to track the need to develop these EPIPs.

C. Subsection II.B.8, "Support from Contractor and Private Organizations" of the BLN Emergency Plan identifies information on the principal organizations in the private sector that are part of the overall response organization. However, specific organizations are not defined and only generic references to local volunteer fire departments and engineering and technical support services are listed. Section II.B.9, "Local Emergency Response Support," of the BLN Emergency Plan identifies that TVA has established and maintains agreements for local emergency response support services, including firefighting, rescue squad, medical and hospital services. Sections of this plan outline what the basic commitments of these local agencies are and these are also addressed in the certification letters in Appendix 7, "Certification Letters." Provide the names of the volunteer fire departments, designated engineering/technical services support firms and other consultants and vendors, as well as the supporting agreements, that might be requested to provide support during an emergency, or propose an associated ITAAC in place of the agreements.

D. Subsection 5, "Plant Emergency Response Staff," of Section II.B, "On-site Emergency Organization," states that the minimum emergency response staffing in Table II-2, "Plant Staff Emergency Functions," of the BLN Emergency Plan is based upon guidance provided in Table B-1, "Minimum Staffing Requirements for NRC Licensees for Nuclear Power Plant Emergencies," of NUREG-0654. In addition, the justification provided in Subsection 5 states that the 60 and 90 minute goals for emergency response staff augmentation are consistent with those implemented for existing TVA nuclear facilities. However, Table B-1 identifies the need for a capability for additional staff within 30 and 60 minutes while Table II-2 of the BLN Emergency Plan identifies a capability for additional staff within 60 and 90 minutes. Provide a justification for extending augmentation times.

E. Table II-2, "Plant Staff Emergency Functions," in the BLN Emergency Plan indicates that the STA will perform the technical support tasks on shift at all times. However, footnote 1 states that shift staffing may vary with one or more units in cold shutdown or refueling mode as provided in FSAR Table 13.1-202, "Minimum On-duty Operations Shift Organization for Two-unit Plant." Note (1) in Table 13.1-202 states that the shift manager or another SRO on shift may also serve as the STA. The footnote also states that the combined SRO/STA position is addressed as Option 1 in NRC Generic Letter 86-04, "Policy Statement on Engineering Expertise on Shift." Discuss how the individual filling the SRO/STA combined position can handle the response tasks expected to be performed by an SRO and an STA during an emergency.

F. Table II-2, "Plant Staff Emergency Functions," in the BLN Emergency Plan indicates that there will be one health physics/chemistry technician and one individual with senior radiation protection expertise on shift at all times. However, footnote (4) states that a radiation protection technician need only be on site when there is fuel in a reactor and footnote (5) states that a chemistry technician needs to be on site during plant operation in modes other than shutdown and refueling as provided in FSAR Table 13.1-202, "Minimum On-duty Operations Shift Organization for Two-unit Plant." In light of the staffing levels specified in Table II-2, discuss the need for footnotes (4) and (5) in Table 13.1-202.

G. Table II-2, "Plant Staff Emergency Functions," in the BLN Emergency Plan indicates that there will be two non-licensed operators (NLOs) on each shift, whereas FSAR Table 13.1-202, "Minimum On-duty Operations Shift Organization for Two-unit Plant" identifies a minimum number for NLOs as three. Discuss the rationale for not having three NLOs in Table II-2.

H. Table II-2, "Plant Staff Emergency Functions," in the BLN Emergency Plan states in footnote 2 that for each unaffected unit in operation, maintain one Control Room Supervisor, one Reactor Operator, and one Non-licensed Operator. FSAR Table 13.1-202, "Minimum On-duty Operations Shift Organization for Two-unit Plant" shows that with one unit in operation eight individuals are needed on-duty. Discuss what functions the remaining eight individuals at the unaffected unit will perform in the event of an emergency at the other unit.

I. Pursuant to 10 CFR 50.47(b)(2), the emergency plans must meet standards concerning licensee staff augmentation methodology; additional guidance and information is provided in NUREG-0654 and NEI 99-01, Revision 4. In footnote 1 on page II-2 of the BLN Emergency Plan, deviations from staff augmentation are discussed, which appear to allow latitude to not augment the staff in some cases. Explain how the actions represented by this footnote satisfy acceptable or appropriate precautionary actions in accordance with regulations, and whether they are consistent with guidance such as sections 3.12, "Classifying Transient Events," and 3.13, "Operating Mode Applicability," of NEI 99-01, Revision 4, "Methodology for the Development of Emergency Action Levels."

J. The terms "operational" and "activated" are not defined in the BLN Emergency Plan, but appear to have specific relevance regarding emergency response facility functional capabilities. Define these terms in regard to facility functional capabilities. Discuss CECC, TSC and OSC activation, operation, and full operation time capabilities with respect to staffing levels.

K. The requirements of 10 CFR 50.47(b)(9) address dose assessment capability and use in determination for radiological protective action decision-making; further guidance is provided in NUREG-0654. Clarify whether that function is assigned to on-shift or early response personnel, as well as how this specific functional capability discussion is consistently described in the BLN Emergency Plan (for example, pages II-8 and II-17). Explain how on-shift capability for dose assessment in the determination of emergency classification, on-site protective action, and offsite protective action recommendations are specifically addressed. Provide additional information on the specific emergency responder assignments for dose assessment on-shift, and how on-shift and augmented staff functional assignments for this activity meet or exceed NUREG-0654 augmentation guidance, as indicated on page II-12.

L. In Table II-1, "Responsibility for Emergency Response Functions," on page II-8 of the BLN Emergency Plan, explain how emergency response functions are consistently described in comparison to NUREG-0654 functional capabilities. For example, functions for firefighting, rescue, and security are missing from the table, but appear under functional capabilities in Table II-2, "Plant Staff Emergency Functions," on page II-17. Additionally, some functional capabilities listed in Table II-1 in relation to facility and classification do not appear to agree with Table II-2 functional capabilities based on personnel availability. Provide information on how these two tables describe a consistent description for functional capabilities.

M. Explain how Section II.B.1, "On-site Emergency Organization," of the BLN Emergency Plan agrees with the on-shift personnel availability or functional capabilities described in Table II-2, "Plant Staff Emergency Functions." Provide information on how the narrative in Section II.B.1 applies to personnel assignments and capabilities listed in Table II-2.

N. Table II-2, "Plant Staff Emergency Functions," describes the proposed staff augmentation capabilities for listed emergency functions.

N.1. Discuss specifically how the on-shift/per unit personnel numbers would be assigned without collateral duty assignments. Of specific interest are the repair and corrective action and radiation protection functions. Identify the total number of personnel that are not assigned collateral duties.

N.2. Describe how a 60 minute timeliness to fulfill the dose assessment function is in accordance with regulations and meets or exceeds NUREG-0654 guidance.

N.3. Clarify in the BLN Emergency Plan whether the activation time clock initiates upon declaration of the emergency classification or some other initiator.

N.4. Provide information on whether the "aide to the SED" position is a required on-shift position (or which on-shift position otherwise fulfills the notification function).

O. Appendix 2, "Radiological Monitoring and Assessment," to the BLN Emergency Plan does not describe the emergency response facilities (including the control room) where the capability to perform dose assessment resides. Provide additional information on where this capability exists and align other references accordingly in the emergency plan, in tables such as Tables II-1 and II-2.

**SITE-3:** Requesting, using and accommodating emergency response support resources

Basis: 10 CFR 50.47(b)(3); Planning Standard C; NUREG-0654/FEMA-REP-1; Evaluation Criterion C.1.a; Evaluation Criterion C.1.b; Evaluation Criterion C.3, Evaluation Criterion C.4  
SRP ACCEPTANCE CRITERIA: Requirement A; Acceptance Criteria 1 and 18

A. Section II.C, "Emergency Response Support and Resources," of the BLN Emergency Plan describes arrangements for Federal emergency response support and resources. Explain the criteria for when the federal assets [Federal Coordination Agency, DOE Radiological Assistance Program, Radiation Emergency Assistance Center/Training Site (REAC/TS)] will be requested and summarize the process for the requests.

B. Section II.A.1.b, "Concept of Operations - DHS/FEMA," of the BLN Emergency Plan addresses the National Response Plan, rather than the National Response Framework (NRF) that has now been implemented. Address the implementation of the NRF in the BLN Emergency Plan.

C. Section II.C.3, "Radiological Laboratories," of the BLN Emergency Plan states that the station has mobile monitoring and assessment capabilities in addition to fixed facilities for gross counting and spectral analysis. There is no additional detail on the location and abilities of the fixed facilities. The BLN Emergency Plan also states that other Tennessee Valley Authority (TVA) facilities could provide additional support within 1-4 hour, but those facilities are not identified nor are the criteria for when the support would be requested or how it would be requested. Summarize the location and capabilities for the fixed radiological facilities located at the BLN site. In addition, provide a list of the facilities within the TVA system that may be used during an emergency at BNL as well as the process for requesting the additional support.

D. Section II.C.4, "Other Supporting Organizations," of the BLN Emergency Plan identifies additional emergency response support from: INPO Fixed Nuclear Facility Voluntary Assistance Agreement signatories, \*Huntsville Hospital, \*Hollywood Volunteer Fire Department, \*Highlands Medical Center Emergency Medical Services, Westinghouse and REAC/TS. Certification letters are provided for the organizations marked with an "\*" in Appendix 7, "Certification Letters." No letters of agreement were found for Institute of Nuclear Power Operations (INPO), Westinghouse or REAC/TS. (Note: Section II.A.1.b, "DHS/FEMA," states that "...responsibilities of many Federal agencies are established in the National Response Plan and therefore no certification letters are required..." and Section II.L.1, "Hospital and Medical Support," states "TVA maintains an agreement with REAC/TS in Oak Ridge, TN...") Provide letters of agreement or other appropriate supporting documentation related to the emergency assistance provided by INPO, Westinghouse and REAC/TS.

E. Subsection 1.a, "Federal Response Capability," of Section II.C "Emergency Response Support and Resources" states: "The EOF Director or Radiological Assessment Manager may request FRMAC assistance directly or through the NRC (Federal Coordinating Agency)." However, requesting federal assets such as the FRMAC should be coordinated through the state based on the situation and on other factors such as a state and federal disaster declaration or similar action. In accordance with the National Response Framework, the request process for federal assistance should be as follows: utility to state; state to FEMA; FEMA to DOE; DOE to FRMAC, with all information to the NRC. If there is no disaster declaration, the NRC, as the Coordinating Agency under the Nuclear /Radiological Incident Annex of the National Response Framework, would

contact DOE. The decision to deploy the FRMAC is coordinated between DOE and FEMA. Discuss whether paragraph subsection C.1.a should be revised, and if not, why.

**SITE-4: Emergency Classification System**

Regulatory Basis: 10 CFR 50.47(b)(4) and Sections IV.B. and C. of Appendix E to 10 CFR Part 50. Reference: NUREG-0654/FEMA-REP-1 Evaluation Criterion D.1  
SRP ACCEPTANCE CRITERIA: Requirement 2; Acceptance Criterion 3

A. Section II.D, "Emergency Classification System," of the BLN Emergency Plan states that the initiating conditions include the conditions provided in NEI 07-01, Rev. 0, "Methodology for Development of Emergency Action Levels, Advanced Passive Light Water Reactors" (NEI 07-01). However, NEI 07-01 was submitted for NRC review and endorsement in March 2008, and currently remains under review by the NRC staff. Emergency Action Levels (EALs) and initiating conditions (ICs), based upon the September 2007 draft of NEI 07-01, are included in the BLN Emergency Plan as Appendix 1, "Emergency Action Levels." Since NEI 07-01 has not been endorsed by the NRC, and the staff cannot cross-check EAL Recognition Categories (RCs) and Initiating Conditions (ICs) as currently referenced, justify why this reference should be retained.

B. The Letters of Certification with state and local governments that are included in Appendix 7, "Certification Letters," of the BLN Emergency Plan state that the signature on the letter indicates that the parties concurred with the emergency classification system, initiating conditions, and emergency action levels for Bellefonte. EALs and initiating conditions, based upon the September 2007 draft of NEI 07-01, are included in the BLN Emergency Plan as Appendix 1, "Emergency Action Levels." However, NEI 07-01, "Methodology for Development of Emergency Action Levels, Advanced Passive Light Water Reactors," Rev. 0, has not been endorsed by the NRC. Discuss when the final version of the initial emergency action levels will be discussed with, and agreed upon, with state and local governmental authorities.

C. Discuss when the content of subsection 5.3, "Site-specific Implementation," in Section 5.0, "Emergency Action Levels," of Appendix 1 to the BLN Emergency Plan will be provided. Will an ITAAC or License Condition be developed to track the submittal of this information?

**SITE-5: Activation and notification processes**

Basis: 10 CFR 50.47(b)(5); 10 CFR 50, Appendix E.IV.C; 10 CFR 50, Appendix E.IV.D.1; NUREG-0654/FEMA-REP-1; Evaluation Criterion E.3; Evaluation Criterion E.4; Evaluation Criterion E.7  
SRP ACCEPTANCE CRITERIA: Requirements A and B; Acceptance Criteria 1, 2 and 6

A. Clarify the second paragraph of Section II.E, "Notification Methods and Procedures," of the BLN Emergency Plan. The first sentence states that elected local officials are responsible for off-site radiological emergency response. The fourth sentence indicates that the State agency providing direction and control initiates action to ... provide guidance and assistance to local governments. This implies that the State is notified first [unless it is a General Emergency (GE)] and then the State involves the local governments. Explain why this is a conservative approach for rapid mobilization and implementation of protective actions. The third paragraph states "... the Station communicates via the Operations Duty Specialist (ODS) with the State (and in the event

of an initial General Emergency classification, with the affected counties)...” It is not clear whether the ODS ever communicates with the counties during a non-GE. Clarify the notification process(es) to the State and counties detailing how effective and timely implementation of protective actions is achieved if the licensee is not communicating directly with the local governments.

B. Section II.E of the BLN Emergency Plan outlines communication procedures, mobilization, message content, and follow-up messages but does not address the administrative or physical means for notifying local, State and Federal officials and agencies. Provide a list of officials by title and agency located in the Emergency Planning Zones (EPZs). Provide the local governments and position titles that will be notified by BLN when a radiological emergency occurs at the plant. Describe the procedure for and physical means for making notifications to offsite agencies.

C. In Section II.E of the BLN Emergency Plan, include potentially affected areas and populations as listed in NUREG-0654, FEMA-REP-1; Evaluation Criterion E.3. Describe the content of the applicable messages and/or notification forms.

D. Section II.E.4, “Follow-up Messages to Off-site Authorities,” of the BLN Emergency Plan states that there are dedicated communications for continuous communication allowing regular updates. Explain where the communication system is located and who provides the communication. Provide information identifying the communicators, where they will be located during an emergency and how they will obtain the necessary information for the follow-up messages.

E. Section II.E.7, “Written Messages to the Public,” of the BLN Emergency Plan states that TVA will assist with the development of the messages to the public. Identify the person who will assist and in what Emergency Plan Implementing Procedure (EPIP) the procedure for providing assistance will be located. Provide details on how the supporting information for written messages to the public will be provided. Discuss what position in the Emergency Response Organization (ERO) will provide this assistance and summarize the information from the EPIP on how this assistance will be provided.

**SITE-6: Communication processes**

Basis: 10 CFR 50.47(b)(6), Appendix E.IV.E; 10 CFR 50, Appendix E.IV.E.9.c; 10 CFR 50, Appendix E.IV.E.9.d; NUREG-0654/FEMA-REP-1; Evaluation Criterion F.1.a; Evaluation Criterion F.1.c; Evaluation Criterion F.1.d

SRP ACCEPTANCE CRITERIA: Requirements A and B; Acceptance Criteria 1 and 2

A. Section II.F.3, “Communication System Reliability,” of the BLN Emergency Plan states “Communications with BLN field assessment teams are tested annually.” Section II.F.1.f, “Description of Communication Links,” uses the term “off-site monitoring teams” and NUREG-0654/FEMA-REP-1; Evaluation Criterion F.1 uses the term “radiological

monitoring teams”. Clarify or define “off-site monitoring teams” and “BLN field assessment teams.”

B. Section II.N.2.a, “Communications Drills,” states that “TVA (Tennessee Valley Authority) tests communications with Federal emergency response organizations and States within the EPZ (Emergency Planning Zone) quarterly.” Explain the departure from the guidance specifying monthly tests in NUREG-0654, Evaluation Criteria N.2.a. Clarify the testing frequency from the licensee to the NRC Headquarters and the appropriate NRC Regional Office Operations Center.

C. Section II.F of the BLN Emergency Plan states that responsibilities of designated personnel for the communication systems can be found in State and local plans and in the emergency plan implementing procedures (EIPs). Provide a summary of these responsibilities in the BLN Emergency Plan. Provide information on who is designated to use communication systems and what responsibilities they have for using those communication systems.

**SITE-7: Distribution of public information**

Basis: 10 CFR 50.47(b)(7); 10 CFR 50, Appendix E.IV.D.2; NUREG-0654/FEMA-REP-1; Evaluation Criterion G.1; Evaluation Criterion G.2; Evaluation Criterion G.3.b; Evaluation Criterion G.4.b

SRP ACCEPTANCE CRITERIA: Requirements A and B; Acceptance Criteria 1 and 2

A. Section II.G, “Public Education and Information,” of the BLN Emergency Plan states that Tennessee Valley Authority (TVA) commits to coordinating with the state and local authorities to disseminate information to the public on responding to a radiological emergency at the BLN site. Section II.G.2, “Distribution and Maintenance of Public Information,” gives a list of how written information may be provided to permanent residences and transient populations. Provide information on who at TVA will be responsible for coordinating with the State and local authorities and what responsibilities this individual will have. In addition, provide more specific information on how the public information will be distributed and who is responsible for creating and distributing the material.

B. Section II.G.2, “Distribution and Maintenance of Public Information,” of the BLN Emergency Plan lists how written information may be provided to permanent residences and transient populations; explain the method and times necessary for public notification. Section II.G.1, “Public Information Program,” states that information provided to the public includes educational information and information addressing special needs of the handicapped; address the specific information that will be in the material. A general statement is made in Section II.G.2 that information for transient populations may be provided; explain why these methods are appropriate for the type of transient populations that will occur in the Bellefonte Emergency Planning Zone (EPZ). Provide additional information related to method and times for public notification, detailed information to be included in public educational materials, and the specific methods of dissemination of information to determine if it is appropriate for the permanent populations and transient populations in the EPZ.

C. Describe how Section II.G.3, “News Media Coordination,” of the BLN Emergency Plan addresses arrangements for exchange of information among designated spokespersons. Appendix 9, “Justification for CECC (Central Emergency Control

Center),” states “State and utility staff at the JIC are responsible for providing timely and accurate information concerning an emergency to the media.” Explain how timely and accurate information is provided to the media. Provide detailed information regarding the timely exchanges of information and identification of designated spokespersons and details on how timely and accurate information is provided to the media during an emergency.

D. Regarding Subsection 1, “Public Information Program,” of Section G., “Public Education and Information,” of the Bellefonte Emergency Plan, explain how the public will be notified in an emergency and information for those who may need transportation assistance. Revision 1 of the Bellefonte Evacuation Time Estimate report states on page ES-3 that parents, relatives, and neighbors will be advised not to pick up their children at school prior to arrival of the buses dispatched for transporting the children to reception centers. Describe how the information planned to be distributed to the public addresses how they will be notified in an emergency. In addition to providing information related to special needs of the handicapped, describe how the information planned to be distributed to the public addresses information for individuals whose mobility may be impaired, such as those without transportation, in nursing homes, in day care centers, etc. Discuss the method that will be used to advise parents, relatives, and neighbors not to pick up their children at school prior to arrival of the buses dispatched for transporting the children to reception centers.

**SITE-8: Emergency facilities and equipment**

Basis: 10 CFR 50(b)(8), Appendix E.IV.E.4; 10 CFR 50, Appendix E.VI. Emergency Response Data System; 10 CFR 50.47(b)(8), 10 CFR 50.34(f)(2)(xxv), 10 CFR 50.55a(h); NUREG-0654/FEMA-REP-1; Evaluation Criterion H.4; Evaluation Criterion H.6; Evaluation Criterion H.9; Evaluation Criterion H.10; Evaluation Criterion H.11; and NUREG-0696 and Supplement 1 to NUREG-0737

SRP ACCEPTANCE CRITERIA: Requirements A and B; Acceptance Criteria 1, 2, 4, 5, and 12

A. The BLN Emergency Plan does not state that the Technical Support Center (TSC) will be the primary communications center during an emergency. Discuss whether the TSC is the primary communications center during an emergency.

B. The ability to retrieve plant data and displays available in the control room, coupled with the sophisticated communications systems, preclude the need for frequent face-to-face interchange between the TSC and control room personnel. Appendix 6, “Emergency Equipment and Supplies,” provides a general list of equipment located in the emergency response facilities (ERFs); provide additional information to describe how the supplies are adequate. Provide additional information on the protective equipment located in the TSC.

C. Address whether there are security barriers between the TSC and the Main Control Rooms (MCRs) and provide additional information regarding any such security barriers.

D. Appendix 10, “Technical Support Center Description,” discusses the availability of portable radiation monitors to staff in the TSC. The presence of trip levels is not discussed, but a statement is made that system allows for detailed analysis of plant conditions. Section II.I.9, “Measuring Radioiodine Concentrations,” states that field teams have portable air samplers capable of detecting radioiodine at the specified

levels. Clarify whether they are also used in the TSC. Clarify whether the TSC has continuous monitoring with trip levels to notify staff of inhabitable conditions and clarify whether the TSC will have portable air samplers for detecting radioiodine.

E. Section II.H.1, "On-Site Emergency Response Facilities," of the BLN Emergency Plan states that in the event that all off-site and on-site AC power is unavailable, the TSC could be evacuated and the TSC management function transferred to a location unaffected by the radiation release. Discuss the potential locations to be considered if the TSC must be moved.

F. Section II.H.1, "On-site Emergency Response Facilities," states that the display capability in the TSC includes a workstation that, at a minimum, is capable of displaying the parameters that are required of a Safety Parameter Display System (SPDS). The Bellefonte Emergency Plan states that the SPDS function is described in Section 18.4, "Functional Requirements Analysis and Allocation," of the Tier 2 Material in AP1000 DCD, Revision 16, but it is actually described in 18.8.2, "Safety Parameter Display System (SPDS)," of the AP1000 DCD, Revision 16. Discuss the appropriateness of the reference to Section 18.4 in this section of the BLN Emergency Plan.

G. The introductory information contained in Section II.H, "Emergency Facilities and Equipment," of the BLN Emergency Plan states that the Control Rooms, OSCs and TSC were designed to meet the intent of the guidance in NUREG-0737, Supplement 1, "Clarification of TMI Action Plan Requirements." Provide a summary of the information in the BLN Emergency Plan that describes how the plan meets the intent of the guidance in NUREG-0737, Supplement 1.

H. Section II.H., "Emergency Facilities and Equipment," of the BLN Emergency Plan states that the Main Control Rooms and OSCs were designed to meet the intent of the guidance in NUREG-0696, "Functional Criteria for Emergency Response Facilities." Provide a summary of the information in the BLN Emergency Plan to describe how the plan meets the intent of the guidance in NUREG-0696.

I. Section II.H., "Emergency Facilities and Equipment," of the BLN Emergency Plan states that the TSC was designed to meet the intent of the guidance in NUREG-0696, "Functional Criteria for Emergency Response Facilities." Provide a summary of the information in the BLN Emergency Plan to describe how it meets the intent of the guidance in NUREG-0696. For example, explain how the following items from NUREG-0696 related to the TSC are addressed in the BLN Emergency Plan: (a) Address training of TSC staff to follow procedures; (b) Address management plans, facility staffing and task assignments of TSC personnel; (c) Provide a detail staffing plan for the TSC to address the overall management of licensee resources and the continuous evaluation and coordination of licensee activities during and after an accident; (d) Provide the TSC staff assignments to address that TSC management of licensee onsite and offsite radiological monitoring, to perform radiological evaluations, and to interface with offsite officials. Address whether the personnel assigned to the TSC varies according to the emergency class; (e) Address procedures for and training of personnel to use the data systems and instrumentation and include limitations of instrumentation; (f) Address how TSC staff maintain proficiency (participation in drills); and (g) Address whether there are means for facsimile transmission capability between the CECC, TSC and NRC Operations Center.

J. In accordance with SRP Section 15.0.3 (Acceptance Criterion 3) the staff reviews whether the total calculated radiological consequences in the TSC for the postulated fission product releases fall within the exposure acceptance criteria specified in GDC 19 of 5 rem TEDE (0.05 Sv) for the duration of the design basis accidents (DBAs). Provide the radiological consequence analyses for the Bellefonte TSC for the postulated DBAs. The DBAs are listed and evaluated in Chapter 15 of the certified AP1000 DCD, Revision 15 and in the AP1000 Design Certification Amendment Application (AP1000 DCD, Revision 16). The radiological analyses should include, but are not limited to, the following parameters:

1. TSC ventilation air inlet and recirculation flow rates
2. HEPA filter and charcoal adsorber fission product removal efficiencies
3. TSC unfiltered air in-leakage rate
4. Atmospheric dispersion factors ( $\chi/Q$  values) at TSC air intake
5. TSC occupancy factors
6. TSC free air volume
7. Occupant breathing rate
8. Description of the ventilation design

K. Explain how the following items from NUREG-0696 that are related to the CECC are addressed in the BLN Emergency Plan: (a) Address training of CECC staff to follow procedures; (b) Address management plans, facility staffing and task assignments of CECC personnel; (c) Provide a detail staffing plan for the CECC to address the overall management of licensee resources and the continuous evaluation and coordination of licensee activities during and after an accident; (d) Provide the CECC staff assignments to address that CECC management of licensee onsite and offsite radiological monitoring, to perform radiological evaluations, and to interface with offsite officials.

Address if the personnel assigned to the CECC varies according to the emergency class; (e) Address procedures for and training of personnel to use the data systems and instrumentation and include limitations of instrumentation; (f) Address how CECC staff maintain proficiency (participation in drills); (g) Address the size of the working space in the CECC; and (h) Address whether there are means for facsimile transmission capability between the CECC, TSC and NRC Operations Center.

L. A general list of the types of radiological monitoring equipment provided for field monitoring team use is included in Appendix 6, "Emergency Equipment and Supplies." Provide additional information regarding the radiological equipment for field team use to explain its adequacy to support the field monitoring capability described in Section II.I.7, "Field Monitoring Capability."

M. Protective clothing and respirators are discussed in section II.J, "Protective Response." Communication is covered in sections II.E, "Notification Methods and Procedures," and II.F, "Emergency Communications." Provide additional information to explain the adequacy of protective clothing and respirators and communication equipment in the OSC.

N. Guidance provided in Section 2.2, "Location," in NUREG-0696 states that the walking time from the TSC to the control room should not exceed 2 minutes. In addition, the 2-minute travel time does not include time required to put on any radiological protective gear, but it does include the time required to clear any security checkpoints. Section H., "Emergency Facilities and Equipment," of the BLN Emergency Plan states that a single TSC for both units will be located in the basement of the Maintenance Support Building. Appendix 10, "Technical Support Center Description," states that the TSC may not be within a two-minute walk of either units' control room. In addition, Appendix 10 states that the ability to retrieve plant data and displays available in the control room coupled with the sophisticated communications systems preclude the need for frequent face-to-face interchange between the TSC and control room personnel. Provide a figure/drawing that shows the proximity of the TSC with respect to the control room. Discuss the time it would take to walk from the TSC to the control room.

O. The introductory paragraph in Appendix 9, "Justification for CECC," of the BLN Emergency Plan, states that since the early 1980's, TVA has used a centralized concept for providing the Emergency Operations Facility (EOF) function. Consistent with this approach, the BLN Emergency Plan relies on the use of the Central Emergency Control Center (CECC) as the EOF for the Bellefonte Nuclear Plant. On March 19, 1981, the NRC approved the CECC concept with certain provisions. In a letter to Mr. H.G. Parris, Manager of Power, dated March 19, 1981, the NRC informed TVA of the need to provide certain details regarding the near-site EOF for each site. The details related to the EOF trailer(s) and the need for TVA to submit specific elements according to Action Plan III.A.1.2. (relates to NUREG-0737, "Clarification of TMI Action Plan Requirements," action items). Specifically, (1) The EOF trailer(s) should be able to be

positioned and operational within two hours of being notified that the NRC Regional Director (now Regional Administrator) and site team are departing for a site. (2) There should be a discussion of the location(s) where the trailer(s) will be stored and where the trailer(s) will be positioned and operational. In the latter case, discuss the relationship of the location to projected release dispersion patterns. (3) There should be a description of the data availability and the communication capability in the EOF trailer(s). (4) There should be adequate space available (on the order of 1500 square feet) to accommodate the NRC site team and a FEMA liaison individual with an appropriate TVA complement. The space should be configured to provide for: a work area for EOF personnel; EOF data system equipment needed to receive and transmit data from/to other locations; performing repair, maintenance, and service equipment, displays and instrumentation; ready access to communications equipment by all EOF personnel who need communications capabilities to perform their functions; and ready access to functional displays of EOF data and to displays of plant records and historical data. Discuss the justification provided in Appendix 9 with respect to the provisions related to the CECC concept contained in the NRC letter dated March 19, 1981.

P. Section II.H.6.a, "Access to Data from Monitoring Systems," Section II.H.8, "Meteorological Instrumentation and Procedures," and Appendix 2, "Radiological Assessment and Monitoring," of the BLN Emergency Plan briefly discuss meteorological data acquisition and evaluation. There is a more detailed discussion in BLN FSAR Section 2.3.3, "Onsite Meteorological Measurement Programs." Please describe the distribution of meteorological data to the emergency response facilities, to the NRC and to the States. In addition, discuss whether there is an on-site backup meteorological data system to provide wind speed and direction when data are not available from the primary system. Also, describe how the National Weather Services is to be contacted, what data are to be requested, and how the data should be interpreted to get information that is representative of the BLN site. In sum: provide information on the acquisition and distribution of meteorological information representative of the BLN site to emergency response facilities, the NRC, and the states and a discussion on obtaining and evaluating meteorological information in the event data from the primary meteorological data system is unavailable.

Q. BLN Design Control Document (DCD), Tier 2, Chapter 7.7, "Control and Instrumentation Systems," discusses most of the plant control and instrumentation systems. BLN Final Safety Analyses Report (FSAR), Chapter 2.3.3, "Onsite Meteorological Measurement Programs," and Section II.H.8, "Meteorological Instrumentation and Procedures," of the BLN Emergency Plan discuss meteorological data collection, instrumentation, inspection, maintenance and other capabilities. DCD Tier 2, Chapter 11.5, "Radiation Monitoring," and Section II.I.2, "Plant Monitoring Systems," of the BLN Emergency Plan discuss radiation monitoring and plant monitoring systems. DCD Tier 2, Chapter 7, "Instrument and Controls," discusses containment parameter monitoring. BLN DCD Tier 1 Chapter 3.5, "Radiation Monitoring," describes area radiation monitors and their locations. Provide information to: 1) Verify that data points can be transmitted for reactor core and coolant system conditions; reactor containment conditions; radioactivity release rates; and plant meteorological tower data; 2) Verify that a separate data feed will be provided for each reactor unit. If the emergency response data system (ERDS) is to communicate with a safety system, verify that appropriate isolation devices will exist at these interfaces; 3) Verify that the system is capable of transmitting ERDS parameters in no more than 60 seconds or no less than 15 seconds; 4) Verify that the link control and data transmission is established

in a compatible format with Nuclear Regulatory Commission (NRC) receiving equipment; 5) Verify that any hardware or software changes that affect the transmitted data points identified in the ERDS Data Point Library will be submitted to the NRC within 30 days after the changes are completed; 6) Verify that hardware and software changes that could affect the transmission format and computer communication protocol to the ERDS will be provided to the NRC at least 30 days prior to the modification; 7) Verify that an ERDS implementation program plan has or will be submitted to the NRC.

R. BLN DEP18.8-1 states that the Operational Support Center (OSC) location will be described in the applicant's emergency plan. In section H.1, "On-site Emergency Response Facilities," of the BLN Emergency Plan, it states that the OSCs are located in the space designated in the AP 1000 DCD for the TSC. Section 1.2.5, "Annex Building," of the AP1000 DCD refers to the Annex Building as being as described in Figures 1.2-17 through 1.2-20. However, these figures are blank in Revision 16. Provide figure/drawing(s) of the location of the OSC in the Annex Building(s). This figure/drawing, or a similar one, should also be included in the BLN Emergency Plan.

S. Discuss the intended role of the TSC with regard to its location and mitigation strategies for events that could potentially result in the loss of large areas of the plant due to explosion or fire.

**SITE-9: Plant systems and instrumentation**

Basis: 10 CFR 50.47(b)(9); NUREG-0654/FEMA-REP-1; Evaluation Criterion I.1; Evaluation Criterion I.2; Evaluation Criterion I.3; Evaluation Criterion I.4; Evaluation Criterion I.5; Evaluation Criterion I.6; Evaluation Criterion I.7; Evaluation Criterion I.8; Evaluation Criterion I.10; Supplement 1 to NUREG-0737, Section 6.1.b. - Control Room; Post-accident sampling capability  
SRP ACCEPTANCE CRITERIA: Requirement A; Acceptance Criteria 1, 4, 5, 27 and 28

A. Section II.I of the BLN Emergency Plan does not specifically call out Type A, B, etc. variables or reference Regulatory Guide 1.97. Provide a summary of emergency preparedness-related instrumentation found in the Control Room that is available for use in emergency classification, dose assessment, and post-accident sampling and analysis.

B. Appendix 2, "Radiological Assessment and Monitoring," of Section 3.0, "Design Description: Atmospheric Transport and Diffusion Assessment," of the BLN Emergency Plan lists five basic release types. Four of the release types have fixed radionuclide composition; the user can specify the composition for the fifth type. The radionuclide composition for the four types having fixed composition is claimed to be consistent with the radionuclide mixes used by the RASCAL 2.1 code (NUREG/CR-5247, 1994) and the release fractions are claimed to be consistent with NUREG-1465 (Draft for comment 1992). Note that several updates to the RASCAL code have been published since 1994 and the final version of NUREG-1465 was published in 1995. Justify the application's use of the older information and systems in the estimation of source terms for a new reactor.

C. Appendix 2, Section 3.0 of the BLN Emergency Plan describes the dose assessment programs. Three codes are used for dose assessment. While these codes meet established criteria for dose assessment codes, they are outdated. On page A2-8 of Appendix 2, there is a statement that the codes are programmed in VAX FORTRAN and that VAX FORTRAN exceeds American National Standards Institute (ANSI) Standards. The ANSI Standard referenced is a 1978 standard. Further, the codes have to be run using a VAX emulator and code output is displayed using software to emulate a Tektronix Color Graphics Terminal. Explain why these dose assessment codes will be used.

D. Section II.I.7, "Field Monitoring Capability," of the BLN Emergency Plan briefly describes the field monitoring capability. Implementing procedures provide guidance for field monitoring teams' performance of monitoring activities; however, the procedures are not available for review. Section II.I.8, "Assessing Hazards through Liquid or Gaseous Release Pathways," of the BLN Emergency Plan states that actual or potential magnitude and locations of radiological hazards are assessed by field teams consistent with the procedures of Section II.I.7. Implementing procedures provide guidance for field monitoring teams' performance of monitoring activities. However, the procedures are not available for review. Describe the capability to maintain monitoring teams in the field in the event of a protracted release and assessing hazards. Describe the maximum response capability and time required to reach this capability. List procedures related to field teams and summarize each.

E. Section II.I.10, "Relating Measured Parameters to Dose Rates," of the BNL Emergency Plan states that details of the capability to measure parameters to dose rates are set forth in Appendix 2, "Radiological Assessment and Monitoring," and involve use of the dose assessment models and procedures generally described in that appendix. Provide a specific list of procedures used to relate measured parameters to dose rates for key isotopes and for comparing integrated dose estimates with U.S. Environmental Protection Agency (EPA) protective action guides.

F. Appendix 2, "Atmospheric Transport and Diffusion Assessment," states on page A2-5 that plume rise is estimated using the guidance in Regulatory Guide 1.111 (1977). However, Regulatory Guide 1.111 is intended for routine releases. Regulatory Guide 1.145 (1983) sets forth guidance for evaluating atmospheric dispersion for accidental releases. Discuss the use of RG 1.111 instead of 1.145 for estimating plume height during an accident.

**SITE-10:** Evacuation provisions and actions

Basis: 10 CFR 50.47(b)(10); NUREG-0654/FEMA-REP-1; Evaluation Criterion J.1; Evaluation Criterion J.2; Evaluation Criterion J.3; Evaluation Criterion J.5; Evaluation Criterion J.6; Evaluation Criterion J.10

SRP ACCEPTANCE CRITERIA: Requirement A; Acceptance Criterion 1

A. Address the time necessary to warn people outside the Protected Area. Provide a discussion on the time it will take to notify personnel and visitors outside the protected area but within the owner controlled area after identification of an emergency.

B. Section J.2, "Evacuation Routes and Transportation," states that evacuation routes are determined by Shift Manager/Site Emergency Director (SED), using available information on conditions. Provisions for evacuation of on-site individuals include

evacuation by private automobile (15-30 minute high traffic density is not expected). Since preplanned routes are not identified (considering contingencies based on plant and radiological conditions), coordination with the State and local governments was not arranged. The security force will arrange transportation for those without cars. Provide information on what type of transportation the security force will have available to transport people without cars. The designated relocation site will have decontamination and contamination control capability and equipment. If the relocation center is not within the control of Tennessee Valley Authority (TVA), state when the letters of agreement will be available. In adverse conditions affected individuals will be directed to a safe on-site area (as determined by the SED). Explain why prearranged routes, coordinated with the State and local governments were not identified in the BLN Emergency Plan. Provide information identifying where the relocation center will be established. Additionally, if the relocation center is not within the control of TVA, state when the letters of agreement will be available.

C. Section J.2 of the BLN Emergency Plan addresses decontamination and contamination control capability and equipment that are available. Appendix 6 is a general list of the types of equipment available; provide details on what type of equipment is actually available, where it is stored, how often it tested and inventoried. According to Section J.2, the SED directs contamination monitoring of personnel, vehicles, and personal property arriving at the relocation site. Provide a summary of the decontamination capabilities and equipment sufficient to assess their adequacy, and provide information on the procedures and criteria used for personnel and other monitoring.

D. Section J.6, "Protective Measures," of the BNL Emergency Plan states that measures are taken to minimize ingestion and or inhalation of radionuclides to minimize exposure. Identify the measures used. Section J.6 states that self contained breathing apparatus (SCBAs) are used in locations where there is low oxygen or a fire. Other respiratory protection is available and issued by Radiation Protection or Safety and Health Services. Address training for use of SCBAs or other respiratory protection equipment. In addition, address the number of respirators available and the maintenance of the equipment. The criteria for use of protective clothing (PCs) are given; provide the location of the equipment and inventory to ensure that the PCs are available when needed. The use of radioprotective drugs (potassium iodide [KI]) is mentioned in the BLN Emergency Plan; identify the criteria for issuance, how and where it is stored and inventoried, and who makes the decision on issuance. In sum: provide a summary of the measures to be used and explain the adequacy of the measures used to minimize exposure, provide additional information on training in the use of respiratory equipment as well as the inventory and maintenance of the equipment and on storage and inventory of PCs, and provide criteria for issuance of KI, how and where it is stored and inventoried, and who makes the decision on issuance.

E. Appendix 4, "Evacuation Time Estimate," of the BLN Emergency Plan provides maps of evacuation routes, evacuation areas, and assumed locations of shelter areas and reception centers. Identify pre-selected radiological sampling and monitoring point locations. Provide the specific locations of the shelter areas and the reception centers and the pre-identified monitoring locations or provide an Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) for when those locations will be identified.

**SITE-11:** Contamination control and dose limits

Basis: 10 CFR 50.47(b)(11); NUREG-0654/FEMA-REP-1; Evaluation Criterion K.1.a; Evaluation Criterion K.2; Evaluation Criterion K.3.a; Evaluation Criterion K.3.b; Evaluation Criterion K.5.a; Evaluation Criterion K.5.b; Evaluation Criterion K.6; Evaluation Criterion K.6.b; Evaluation Criterion K.6.c; Evaluation Criterion K.7  
SRP ACCEPTANCE CRITERIA: Requirement A; Acceptance Criterion 1

A. In Section II.K of the BLN Emergency Plan, provide details of the Radiation Protection Program (RPP). Provide a summary of the portions of the occupational radiation protection programs outlined in the Final Safety Analysis Report (FSAR), the Design Control Document (DCD), NEI 07-08, and NEI 07-03 that are relevant to radiation protection during emergencies at BLN. Describe BLN exceptions, clarifications, and extensions to the RPP related to emergency conditions. List applicable procedures or provide an ITAAC to track when the list will be available.

B. Section II.K.3, "Dosimetry and Dose Assessment," of the BNL Emergency Plan states that "Station procedures establish guidance for wearers to periodically read their self-reading dosimeters..." and "TVA (Tennessee Valley Authority) maintains individual dose records in accordance with the requirements of 10 CFR 20 and the radiation protection program and its supporting procedures". Discuss the maintenance of dose records. List the procedures related to reading dosimeters and the maintenance of emergency worker dose records. Identify and discuss contingency plans for accessing dose records should post-accident conditions preclude normal access.

C. Section II.K.5.a, "Decontamination Action Levels," of the BNL Emergency Plan states that TVA implements procedures and has supplies. State what the decontamination levels are and who decides how and when to decontaminate. Reference the RPP in this section and describe any procedures related to decontamination. Specify decontamination levels for personnel, equipment, and areas. Provide criteria for returning personnel and items to normal use.

D. Section II.K.5, "Decontamination Action Levels," of the BNL Emergency Plan states that TVA implements procedures for decontamination of on-site emergency personnel wounds, etc., and refers to the general list of decontamination supplies found in Appendix 6, "Emergency Equipment and Supplies," of the BLN Emergency Plan. Describe any procedures related to decontamination of wounds, etc. Provide a list of procedures that address means available for decontamination of surfaces, equipment, and personnel. Describe plant facilities that provide the means for decontamination. Describe the means of handling wastes resulting from decontamination. Where will the emergency equipment and supplies be stored?

E. Section K.6.a, "Contamination Control Measures," of the BLN Emergency Plan discusses access control in the event of an emergency by stating that requirements for site access control are established in the FSAR and Security Plan. Law enforcement agencies will control access to the owner controlled area consistent with State and local plans. Discuss the control of access to the protected area in the event of an emergency and provide a list of implementing procedures related to access control.

F. Section K.6.b, "Contamination Control Measures," of the BLN Emergency Plan states that Central Emergency Control Center (CECC) staff will make arrangements for transport of non-contaminated off-site supplies in event of contamination. Provide implementing procedures. Describe how uncontaminated water and food will be made

available onsite should onsite water and food become contaminated. List any procedures to be followed in obtaining and distributing uncontaminated food and water supplies.

**SITE-12:** Medical services for BLN workers and contaminated injured individuals  
Basis: 10 CFR 50.47(b)(12); NUREG-0654/FEMA-REP-1; Evaluation Criterion L.1;  
Evaluation Criterion L.2  
SRP ACCEPTANCE CRITERIA: Requirement A; Acceptance Criterion 1

A. Subsection O.1.a, "Off-site Emergency Response Training," of Section II.O, "Radiological Emergency Response Training", in the BLN Emergency Plan states that Tennessee Valley Authority (TVA) provides or supports training for affected hospital, ambulance/rescue personnel. Section II.N, "Exercises and Drills," of the BLN Emergency Plan state periodic drills, exercises, and material support are provided consistent with agreements to be developed with medical support providers. Provide information on when the agreements will be finalized between TVA and the medical support providers.

B. Appendix 6, "Emergency Equipment and Supplies" (pages A6-1/2), of the BLN Emergency Plan provides a brief description of first aid supplies/equipment. Provide a complete list of first aid supplies available for emergency response.

C. Section II.L.2, "On-Site First Aid Capability," of the BLN Emergency Plan discusses onsite first aid capability. Supplies are discussed in Appendix 6, "Emergency Equipment and Supplies." Address the location of the medical facilities (first aid stations), and provide a summary of the medical facilities available to respond to onsite medical emergencies.

**SITE-13:** Recovery and reentry actions  
Basis: 10 CFR 50.47(b)(13); NUREG-0654/FEMA-REP-1; Evaluation Criterion M.1;  
Evaluation Criterion M.2; Evaluation Criterion M.3; Evaluation Criterion M.4  
SRP ACCEPTANCE CRITERIA: Requirement A; Acceptance Criterion 1

A. In Section II.M, "Recovery and Re-Entry" (pages II-58/60), of the BLN Emergency Plan, identify the individual or organization responsible for recovery plans and procedures.

B. In Section II.M of the BLN Emergency Plan, provide the position/title and authority and responsibilities for the facility recovery organization.

C. In Section II.M of the BLN Emergency Plan, address the means for informing members of the onsite response organizations that a recovery operation has been initiated. The BLN Emergency Plan does state that the Central Emergency Control Center (CECC) Director will notify the Nuclear Regulatory Commission (NRC) Operations Center and the state and local Emergency Operation Center (EOC). Discuss the means for this notification; provide information regarding the notification of emergency response personnel onsite and emergency response organizations offsite that the emergency has been terminated and that a recovery organization has been implemented.

D. Section II.M.4, "Updating Total Population Exposure During Recovery Operations" (page II-60), and Appendix 2, "Radiological Assessment and Monitoring" (pages A2-1/8) of the BLN Emergency Plan, states that the Dose Assessment Team will determine population doses using exposure from ground contamination, inhalation of re-suspended radioactivity and ingestion of radioactivity in vegetables and milk. The results of this activity will be provided as recommendations for evacuation sector clearance and reentry. Provide information on who is responsible for communicating recommendations on evacuation sector clearance and reentry and who they will communicate with at the state and local level.

**SITE-14:** Drill and exercise evaluation and critiques

Basis: 10 CFR 50(b)(14); Appendix E.IV.F.2.g; NUREG-0654/FEMA-REP-1; Evaluation Criterion N.4; Evaluation Criterion N.5

SRP ACCEPTANCE CRITERIA: Requirements A and B; Acceptance Criteria 1 and 2

A. Section II.N.4, "Exercise and Drill Evaluation," of the BLN Emergency Plan states that qualified instructors/evaluators supervise and evaluate drills and exercises. The second paragraph states that "...areas to be evaluated by the facilitators are defined in...critique sheets." The third paragraph states that selected TVA, Nuclear Regulatory Commission (NRC), state, local and other participants and observers/evaluators attend the critique. However, it appears that only facilitators fill out and submit critique sheets. Provide clarification of instructors/evaluator and facilitator roles.

B. Section N.1.b. of the BLN Emergency Plan states that all major elements of the plan will be tested within a 6-year period. The guidance provided in Evaluation Criterion N.1.b of NUREG-0654 specifies that all major elements of the plan are to be tested within a 5-year period. Discuss the difference in the time periods for testing all major elements of the BLN Emergency Plan.

**SITE-15:** Training program for emergency responders, instructors and directors and coordinators

Basis: 10 CFR 50.47(b)(15); 10 CFR 50, Appendix E.IV. F.1; 10 CFR 50, Appendix E.IV.F.2.g; NUREG-0654/FEMA-REP-1; Evaluation Criterion O.1.a; Evaluation Criterion O.2; Evaluation Criterion O.3; Evaluation Criterion O.4; Evaluation Criterion O.4.a; Evaluation Criterion O.4.b; Evaluation Criterion O.4.c; Evaluation Criterion O.4.d; Evaluation Criterion O.4.e; Evaluation Criterion O.4.f; Evaluation Criterion O.4.g; Evaluation Criterion O.4.h; Evaluation Criterion O.4.i; Evaluation Criterion O.4.j

SRP ACCEPTANCE CRITERIA: Requirement A; Acceptance Criteria 1 and 2

A. Discuss training specifically related to radiological training for on-site personnel and explain who is responsible for ensuring that assigned emergency response personnel are adequately trained. Summarize the overall content and administration of the BLN

Emergency Plan training program. Describe both the knowledge-based and performance-based training.

B. Section II.O.3, "First Aid Team Training," of the BLN Emergency Plan states that Medical Emergency Response Team (MERT) members that would provide medical emergency treatment receive training from the Safety and Emergency Response Training Academy. Describe the equivalency between the training from the Safety and Emergency Response Training Academy and the Red Cross Multi-Media training.

**SITE-16:** Emergency preparedness program maintenance and implementing procedures

Basis: 10 CFR 50.47(b)(16); NUREG-0654/FEMA-REP-1; Evaluation Criterion P.7; Evaluation Criterion P.9; Evaluation Criterion P.10

SRP ACCEPTANCE CRITERIA: Requirement A; Acceptance Criterion 1

A. Appendix 5, "Emergency Plan Implementing Procedures-Topical List," of the BLN Emergency Plan provides a topical listing of emergency plan implementing procedures (EPIPs) that support the plan. However, the BLN Emergency Plan refers to procedures that do not appear to be listed in the topical list. Provide information about procedures that are discussed in the BLN Emergency Plan, but not listed in Appendix 5.

The following is an example list of areas within the BLN Emergency Plan that state or imply that a procedure will be available:

- ERO position, title, position functions and major tasks (II.B.1 and B.5)
- Procedure for verifying messages (E.1. and E.3)
- Monthly station/CECC and state/local warning points (II.F.1)
- Periodic test of onsite communications systems (II.F.3)
- Relocation of the OSC (II.H.1)
- Staffing and activation of emergency response facilities (II.H.4)
- Procedure specifying instrument types and capabilities used to indicate emergency conditions (II.I.1)
- Procedures for obtaining samples under accident conditions (II.I.2)
- Methods for assessing and monitoring actual or potential onsite and offsite consequences (II.I.4)
- Procedures for estimating release rates and projected doses when associated instrumentation is inoperable or off-scale (II.I.6)
- Procedures for field team monitoring activities (II.I.7)
- Procedures to estimate projected dose rates and doses from measured parameters (II.I.10)
- Procedure for notification of onsite personnel of emergency conditions (II.J.1)
- Procedure for maintaining dose records (II.K.3.a)
- Procedures for recovery and reentry (II.M.1 and M.2)
- Performance indicators for extending the audit frequency to 24 months (II.P.9)
- Establishing TSC ventilation (Appendix 10)
- Procedures to analyze reactor coolant for boron, containment atmosphere for hydrogen and fission products, and containment sump water (DCD Tier 2, 9.3.3.1.2.2)

B. NUREG-0654/FEMA-REP-1; Criterion P.9, states that the independent audit must be conducted at least every 12 months. Section II.P.9 states that the frequency of the periodic audits is based on an assessment of performance as compared to performance

indicators, but all elements of the emergency preparedness (EP) program must be reviewed at least once every 24 months. Discuss the performance indicators that will be used to extend the periodic audits to 24 months, provide an ITAAC to track their development, or add the assessment of performance to the list of planned EIPs.

**SITE-17: Plume Exposure EPZ**

Basis: 10 CFR 50.33(g), 10 CFR 52.77 and 10 CFR 50.47(c)

SRP ACCEPTANCE CRITERIA: Requirement A; Acceptance Criterion 10

Section C.2, "Emergency Planning Zones," in Part 5, "Emergency Plan," describes plume exposure pathway and ingestion pathway emergency planning zones (EPZs). The plume exposure pathway EPZ consists of an area about 10 miles in radius around the site. Figure I-1, "Plume Exposure Pathway Emergency Planning Zone," provides an illustration of the plume exposure pathway EPZ. The plume exposure pathway EPZ is also described to be the area where the principal sources of incident-related radiation exposures are likely to be whole body gamma radiation exposures and inhalation exposures from the passing radioactive plume. Discuss why the plume exposure pathway description does not include whole body external exposure to gamma radiation from deposited material as specified on page 9 of NUREG-0696/EPA 520/1-78-016, "Planning Basis for the Development of State and local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Reactors."

**SITE-18: Plume Exposure EPZ**

Basis: 10 CFR 50.33(g), 10 CFR 52.77 and 10 CFR 50.47(c)

SRP ACCEPTANCE CRITERIA: Requirement A; Acceptance Criterion 10

Section C.2, "Emergency Planning Zones," in Part 5, "Emergency Plan," describes plume exposure pathway and ingestion pathway emergency planning zones (EPZs). Discuss whether the exact sizes and configurations of the EPZs surrounding the plant were determined in relation to the local emergency response needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries.

**SITE- 19: Emergency Plan**

10 CFR 50.47 and Appendix E to 10 CFR Part 50, NUREG-0654 Evaluation Criterion P.7

SRP ACCEPTANCE CRITERIA: Requirement B; Acceptance Criteria 1 and 2

A. Discuss the purpose associated with including statements in the BLN Emergency Plan that various NUREG-0654 evaluation criteria do not apply to the licensee, but only apply to state and local plans. Discuss how the statements relate to the licensee's response to an emergency.

B. Discuss the purpose of adding the words "Appendix 8 of this plan provides a cross-reference to these provisions in State and local plans, as applicable." to various sections of the BLN Emergency Plan that are intended to describe the licensee's response to a radiological emergency.

C. The second page of Part 5, Emergency Planning," of the BLN COL Application is titled, "Explanatory notes regarding the Emergency Plan and Supplemental Information."

Appendix 4, "Evacuation Time Estimate," is included as part of the BLN Emergency Plan, while the "Evacuation Time Estimate Report," is included as Supplemental Information. The first paragraph of Appendix 4 states that the "Bellefonte ETE report, published separately, describes the analyses undertaken and the results obtained by a study to develop Evacuation Time Estimates for the proposed Bellefonte Nuclear Plant . . . ." Section IV, "Content of Emergency Plans," of Appendix E to 10 CFR Part 50 requires that the evacuation time estimate analysis be part of the licensee's emergency plan and therefore subject to the requirements of 10 CFR 50.54(q). Will the "Evacuation Time Estimate Report," be part of the BLN Emergency Plan?

**SITE-20:** Evaluation Against the SRP

Basis: 10 CFR 52.79(a)(41) and 10 CFR 50.34(h)

SRP ACCEPTANCE CRITERIA: Requirement A; Acceptance Criteria 1 and 11

Table 1.9-202, "Conformance with SRP Acceptance Criteria," in Part 2 of the COL Application states that the Section 13.3, "Emergency Planning," is acceptable from a design certification perspective. Identify all applicable differences between the BLN Emergency Plan and Chapter 13.3, "Emergency Planning," of NUREG-0800, Standard Review Plan," dated March 2007. Where differences exist, discuss how the proposed alternative provides an acceptable method of complying with applicable regulations, or portions of the regulations.

**SITE-21:** COL Information Items

Basis: 10 CFR 50.47 and Appendix E to 10 CFR Part 50

SRP ACCEPTANCE CRITERIA: Requirements A and B; Acceptance Criteria 1 and 2

A. COL Action Item 13.3-1 in NUREG-1793, "Final Safety Evaluation Report Relating to Certification of the AP1000 Standard Design," and the Tier 2 Material in the AP1000 DCD state in part that the COL applicants that reference the AP1000 certified design will address communication interfaces associated with the TSC. Explain how this aspect of the COL Action Item is captured in STD COL 13.3-1.

B. COL Action Item 13.3.3.3.5-1 in NUREG-1793, "Final Safety Evaluation Report Relating to Certification of the AP1000 Standard Design," and Section 13.3.1, "Combined License Information Item," of the Tier 2 Material in the AP1000 DCD state: "Combined license applicants referencing the AP1000 certified design will address activation of the emergency operations facility consistent with current operating practice and NUREG-0654/FEMA-REP-1." Section 13.3, "Emergency Planning," of Part 2, "FSAR," states in STD COL 13.3-2: "The emergency plan describes the plans for coping with emergency situations, including communication interfaces and staffing of the emergency operations facility." Discuss the relationship between the information in NUREG-1793 and the Tier 2 Material and STD COL 13.3-2. For example, while COL Action Item 13.3.3.3.5-1 addresses activation of the emergency operations facility, STD

COL 13.3-2 addresses staffing and communication interfaces of the emergency operations facility.

**ITAAC-22: ITAAC**

Regulatory Basis: 10 CFR 52.80(a)

SRP ACCEPTANCE CRITERIA: Requirement E; Acceptance Criterion 23

A. Some EP ITAAC will be completed for Unit 3 before those for Unit 4. To allow closure of the common ITAAC for both units when Unit 3 is constructed (so that the common ITAAC would not need to stay open until Unit 4 is constructed), was the development of separate ITAAC tables for each unit considered?

B. In Table 3.8-1, "Inspections, Tests, Analyses, and Acceptance Criteria," in Part 10 of the COL Application, Acceptance Criterion 6.3 ends with the words "for various radiological conditions." Table 14.3.10-1, "Emergency Planning Generic Inspections, Tests, Analyses, and Acceptance Criteria," of Section 14.3.10, "Emergency Planning Generic Inspections, Tests, Analyses, and Acceptance Criteria," of NUREG-0800, "Standard Review Plan," contains corresponding Acceptance Criteria 9.3 that ends with the words "for various meteorological conditions." Justify the wording difference between Acceptance Criterion 6.3 in the COL Application and corresponding Acceptance Criterion 9.3 in NUREG-0800.

C. Table 3.8-1, "Inspections, Tests, Analyses, and Acceptance Criteria," in Part 10 of the COL Application, each acceptance criterion is prefaced with the phrase "A report exists that confirms ...". The goal of ITAAC Acceptance Criteria is to be objective criteria that can be demonstrated to have been met prior to fuel load. The Acceptance Criteria must be specific and sufficiently objective, in order to clearly identify what the requirements are, and to provide the ability to determine whether they have been met. In RIS 2008-05, "Lessons Learned to Improve Inspections, Tests, Analyses, and Acceptance Criteria Submittal," February 27, 2008, the following guidance is provided in regard to the use of such a phrase:

If applicants use the phrase, "a report exists and concludes that ...," they should consider specifying the scope and the type of report. For example, they should explain whether the scope of the report includes the design, the as-built construction (as reconciled with the design), or any other information.

The use of the phrase "A report exists that confirms ..." in the Acceptance Criteria does not clearly describe how verification is actually conducted to confirm that the acceptance criteria are met. An area that might be appropriate for using a report to confirm that various ITAAC have been met is Planning Standard 8.0, "Exercises and Drills," for which an Exercise Report could serve to verify that various exercise-related ITAAC (e.g., exercise objectives) have been met.

Consistent with RIS 2008-05, discuss the type and scope of the reports cited in ITAAC Table 3.8-1, including how the report will serve to provide accurate and reliable confirmation that the Acceptance Criteria have been met, or consider removing the words "A report exists that confirms" from the Table, to create specific and sufficiently objective Acceptance Criteria and leave open the specific method(s) that the licensee will use to confirm that the ITAAC acceptance criteria have been met.

D. Table 3.8-1, "Inspections, Tests, Analyses, and Acceptance Criteria," in Part 10, "Proposed Combined License Conditions (Including ITAAC," of the COL Application provides four separate acceptance criteria for planning standard 8.0, "Exercises and Drills." Address the following questions pertaining to the full-participation exercise, and the applicable guidance provided in Regulatory Guide (RG) 1.206, Appendix B, Table C.II.1-B1, "Emergency Planning – Generic Inspection, Test, Analysis, and Acceptance Criteria (EP-ITAAC)."

- D.1 Table C.II.1-B1 acceptance criterion 14.1.3 addresses offsite exercise objectives associated with the full participation exercise. Explain why Table 3.8-1 does not include an acceptance criterion to reflect the offsite exercise objectives associated with the full participation exercise, and how this is consistent with the intent of this generic ITAAC. Either provide the appropriate acceptance criterion, or explain why it is not necessary.
- D.2 Table 2.3-1 acceptance criteria 8.1.2.1 and 8.1.2.2 appear to address Table C.II.1-B1 acceptance criterion 14.1.2. Explain why 8.1.2.2 does not include the word "successfully" in regard to emergency response personnel performing their assigned responsibilities.
- D.3 Table C.II.1-B1 acceptance criterion 14.1.2 includes the bracketed statement that "[t]he COL applicant will identify responsibilities and associated acceptance criteria." Explain why Table 3.8-1 (acceptance criteria 8.1.2.1 and/or 8.1.2.2) does not identify any responsibilities and associated acceptance criteria, in relation to onsite emergency response personnel successfully performing their assigned responsibilities. Either provide the appropriate acceptance criterion, or explain why it is not necessary.
- D.4 Table C.II.1-B1 acceptance criterion 14.1.1 includes the bracketed statement that "[t]he COL applicant will identify exercise objectives and associated acceptance criteria." Table 3.8-1 acceptance criterion 8.1.1.2 states that exercise objectives, including acceptance criteria, address each of the 8 listed emergency planning program elements. However, Table 3.8-1 does not identify (in the acceptance criteria) what the exercise objectives and associated acceptance criteria are (as called for in Table C.II.1-B1) in order to clearly identify what the requirements are, and to provide the ability to determine whether they have been met. For the full participation exercise acceptance criteria in Table 3.8-1, provide specific exercise objectives and associated acceptance criteria, consistent with Table C.II.1-B1. Either provide the appropriate acceptance criterion, or explain why it is not necessary.

E. EP Program Element 3.2 of Table 3.8.1, "Inspections, Tests, Analyses, and Acceptance Criteria," states that the means exists for communications from the control room, TSC, and EOF to 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. The "Inspection, Tests, and Analysis" for the EP Program Element is a note that states that the ITAAC for these communications systems are addressed in Table 3.1-1, "Inspections, Tests, Analyses, and Acceptance Criteria," of the Tier 1 Material in the AP1000 Design Control Document, Rev.16. However, ITAAC number 2 in Table 3.1-1, "Inspections, Tests,

Analyses, and Acceptance Criteria," states that the TSC has voice communication equipment for communication with the control room, EOF, OSC, and NRC. Provide additional details regarding the establishment of communications with the regional NRC EOC and ERDS between the onsite computer and the NRC Operations Center.

F. Table C.II.1-B1, " Emergency Planning-Generic Inspection, Test, Analysis, and Acceptance Criteria (EP-ITAAC)," in Appendix C.II.1-B, "Development Guidance for Emergency Planning ITAAC," to RG 1.206 contains the generic EP-ITAAC table. The table lists 17 Planning Standards and the accompanying EP Program Elements, Inspection, Tests, Analysis, and Acceptance Criteria. Explain how the COL application EP-ITAAC addresses the following generic ITAAC Planning Standards:

1. Assignment of Responsibility-Organizational Control--10 CFR 50.47(b)(1) An inspection of the implementing procedures or staffing rosters will be performed.
2. Onsite Emergency Organization--10 CFR 50.47(b)(2) An inspection of the implementing procedures or staffing rosters will be performed.
3. Emergency Response Support and Resources--10 CFR 50.47(b)(3) Provide letters of agreement or other documentation that demonstrates arrangement have been made for requesting and effectively using assistance resources, arrangements to accommodate local and state staff at the licensee's near site Emergency Operations Facility have been made, and other organizations capable of augmenting the planned response have been identified.
4. Radiological Exposure Control--10 CFR 50.47(b)(11) A test will be performed of the capabilities
5. Medical and Public Health--10 CFR 50.47(b)(12) A test will be performed of the capabilities
6. Recovery and Reentry Planning and Post Accident Operations --10 CFR 50.47(b)(13) A report exists that confirms the Recovery and Reentry and Post Accident Operations plans have been demonstrated.
7. Radiological Emergency Response Training--10 CFR 50.47(b)(15) An inspection will be performed to verify the emergency response training program meets the applicable standards for those who may be called upon to assist in an emergency and that procedures for the conduct and evaluation of the training program exist and records of training offered and conducted exists.
8. Responsibility for Planning Effort: Development, Periodic Reviews, and Distribution of Emergency Plan --10 CFR 50.47(b)(16) An inspection of the Emergency Plan distribution will be performed to insure all agencies identified in the Emergency Plan have been provided a copy of the final, approved plan and any subsequent revisions, changes, supplements, or amendments.
9. Implementing Procedures: 10 CFR Part 50, Appendix E.V. An inspection of the submittal letter will be performed to insure all required implementing procedures are adequately addressed.

Discuss why ITAAC were not developed for the above Planning Standards, or propose an ITAAC.

G. Table C.II.1-B1, " Emergency Planning-Generic Inspection, Test, Analysis, and Acceptance Criteria (EP-ITAAC)," in Appendix C.II.1-B, "Development Guidance for Emergency Planning ITAAC," to RG 1.206 contains the generic EP-ITAAC table. EP Planning Standard 5.0, "Notification Methods and Procedures," states in associated Acceptance Criteria 5.3:

"The means for notifying and providing instructions to the public are demonstrated to meet the design criteria as stated in the emergency plan. (The COL applicant will identify specific capabilities.)

The BLN COL Emergency Plan states in Chapter II.E.6, "Instructions to the Public in the Plume Exposure EPZ," states:

"The Alert Notification System includes an outdoor warning system, measures for notifying special facilities, and notification of the public. This system is designed to meet the acceptance criteria of Section B of Appendix 3, NUREG-0654/FEMA REP-1."

Provide additional information regarding the alert notification system design to meet the guidance provided in Appendix 3 to NUREG-0654/FEMA REP-1, or propose an ITAAC.

DRAFT