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UniStar
NUCLEAR ENERGY

10 CFR 50.4
10 CFR 52.79

February 28, 2013

UN#13-015

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

Subject: UniStar Nuclear Energy, NRC Docket No. 52-016
Revised Partial Response to Request for Additional Information for the Calvert Cliffs Nuclear Power Plant, Unit 3,
RAI 372, Emergency Planning

References:
1) Michael Canova (NRC) to Paul Infanger (UniStar Nuclear Energy), "CCNPP3 - FINAL RAI 372 NSIR 6711," dated September 26, 2012

2) UniStar Nuclear Energy Letter UN#12-109, from Mark T. Finley to Document Control Desk, U.S. NRC, Response to Request for Additional Information for the Calvert Cliffs Nuclear Power Plant, Unit 3, RAI 372, Emergency Planning, dated October 26, 2012

3) UniStar Nuclear Energy Letter UN#13-006, from Mark T. Finley to Document Control Desk, U.S. NRC, Updated RAI Closure Plan, dated January 30, 2013

The purpose of this letter is to provide a revised partial response to the request for additional information (RAI) identified in the NRC e-mail correspondence to UniStar Nuclear Energy, dated September 26, 2012 (Reference 1). This RAI addresses Emergency Planning, as discussed in Section 13.3 of the Final Safety Analysis Report (FSAR), as submitted in Part 2 of the Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 Combined License Application (COLA), Revision 8.

In a January 23, 2013 meeting on Emergency Preparedness, the NRC provided comments on the RAI 372, Question 13.03-52, -53, -54, -55, and -57 responses which were transmitted in the original RAI 372 response (Reference 2).

Reference 3 indicated that a revised response to RAI No. 372, Questions 13.03-52, -54, -55, and -57, would be provided to the NRC by February 28, 2013 and that a revised response to RAI 372, Question 13.03-53 would be provided by April 30, 2013.

D096
NRO

Enclosure 1 provides our revised response to RAI No. 372, Questions 13.03-52, -53, -54, -55, -56, -57, and -58 and includes revised COLA content. The RAI 372 Question 13.03-58 response and COLA impact are unchanged from the Reference 2 transmittal but is resubmitted herein for completeness. The revised response to Question 13.03-53 is partial at this time; the shift staffing evaluation will be completed as previously committed, by April 30, 2013.

A Licensing Basis Document Change Request has been initiated to incorporate these changes into a future revision of the COLA. Enclosure 2 provides a table of changes to the CCNPP Unit 3 COLA associated with this RAI 372 response.

This letter supersedes the RAI 372, Questions 13.03-52, -53, -54, -55, -56, -57, and -58 response transmitted on October 26, 2012 (Reference 2) in its entirety.

The RAI 372, Question 13.03-54 response made changes to COLA Part 10, Appendix A, License Condition 8 as previously provided in an earlier RAI response. The details of this change are provided in the Table of Changes in Enclosure 2.

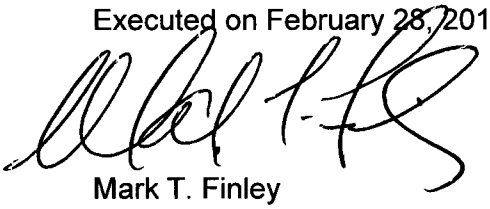
A condition report regarding the incorrect Emergency Plan information in COLA Revision 8, as discussed in Enclosure 1 response to RAI 372 Question 13.03-56, has been entered into the UNE corrective action program for disposition.

There are no regulatory commitments identified in this letter. This letter does not contain any proprietary or sensitive information.

If there are any questions regarding this transmittal, please contact me at (410) 369-1907, or Mr. Wayne A. Massie at (410) 369-1910.

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

Executed on February 28, 2013



Mark T. Finley

Enclosures:

1) Revised Response to NRC Request for Additional Information RAI No. 372, Questions 13.03-52, -53 (Partial), -54, -55, -56, -57, and -58, Emergency Planning, Calvert Cliffs Nuclear Power Plant, Unit 3

2) Table of Changes to CCNPP Unit 3 COLA Associated with the Revised Response to RAI No. 372, Questions 13.03-52, -53, -54, -55, -56, -57, and -58, Calvert Cliffs Nuclear Power Plant, Unit 3

cc: Surinder Arora, NRC Project Manager, U.S. EPR Projects Branch
Laura Quinn-Willingham, NRC Environmental Project Manager, U.S. EPR COL Application
Amy Snyder, NRC Project Manager, U.S. EPR DC Application, (w/o enclosures)
Patricia Holahan, Acting Deputy Regional Administrator, NRC Region II, (w/o enclosures)
Silas Kennedy, U.S. NRC Resident Inspector, CCNPP, Units 1 and 2,
David Lew, Deputy Regional Administrator, NRC Region I (w/o enclosures)

UN#13-015

Enclosure 1

Revised Response to NRC Request for Additional Information RAI No. 372, Questions 13.03-52, -53 (Partial), -54, -55, -56, -57, and -58, Emergency Planning, Calvert Cliffs Nuclear Power Plant, Unit 3

RAI No. 372

Question 13.03-52

Subject: Impediments to the Development of Emergency Plans

FSAR Section 2.2, "Nearby, Industrial, Transportation, and Military Facilities," of the CCNPP Unit 3 COL application concludes that based on the analysis of the effects of Design-Basis Events which describes the hazards surrounding the site in Chapter 2.0, "Site Characteristics," and Chapter 2.2, no impediment was found to hamper, limit, or not allow an adequate physical security plan to be developed for CCNPP Unit 3. This conclusion does not exist in the FSAR for development of the CCNPP Unit 3 Emergency Plan. Section 1.3, "Preliminary Activities," of the Evacuation Time Estimate Report states, in part, that the entire highway system within the Emergency Planning Zone (EPZ) and for some distance outside, was driven while characteristics of each section of the highway were recorded. These characteristics include unusual characteristics such as narrow bridges, sharp curves, poor pavement, flood warning signs, and inadequate delineations.

Explain the significance of the unusual characteristics of the highway system identified within the EPZ and for some distance outside of the EPZ, and how they impact access to or from the proposed CCNPP Unit 3 site. In addition, address whether any unusual characteristics unique to the proposed site could pose a significant impediment to the development of the CCNPP Unit 3 Emergency Plan.

Revised Response

As discussed in Section 1.3 of the Evacuation Time Estimates (ETE) report, a road survey was conducted wherein the entire highway system within the Emergency Planning Zone (EPZ) and for some distance outside (approximately 5 miles to the boundary of the Shadow Region) was driven. This survey was conducted in June 2007 (documented in Appendix K of the ETE report) by senior traffic engineers familiar with roadway design and those factors (lane width, grade, pavement quality, geometric design, etc.) that impact roadway capacity – the number of vehicles that can be serviced by a roadway per lane, per hour. Roadway capacity is an input to the Dynamic Network Evacuation (DYNEV) evacuation model that was used to compute ETE for the Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 EPZ. DYNEV is described in Section 1.3 and Appendix C of the ETE report.

Section 1.3 of the ETE report identifies five roadway characteristics:

1. Narrow Bridges – there are only two bridges in the study area:
   i. The Thomas Johnson (TJ) Bridge – Maryland Route 2/4 crossing the Patuxent River from Lusby, Maryland (MD) to California, MD. This bridge is within the EPZ. The bridge is a single lane in each direction. The lanes are 11 feet wide with a 3 foot shoulder. This would not constitute a narrow bridge. The lane width on the approach to the bridge is also 11 feet.
   ii. The Benedict Bridge – Maryland Route 231 crossing the Patuxent River from Prince Frederick, MD to Benedict, MD. This bridge is in the Shadow Region, about 2.5 miles west of the EPZ boundary. The bridge is a single lane in each direction. The lanes are 10 feet wide with a 1 foot shoulder. Although narrower

than the TJ Bridge, this would still not constitute a narrow bridge. The lane width on the approach to the bridge is 12 feet.

As discussed on the bottom of page 1-5 of the ETE report, Exhibit 20-5 in the Highway Capacity Manual (HCM) indicates that a reduction in lane width from 12 feet ("the base" value) to 10 feet can reduce free flow speed by 1.1 mph – not a material difference – for two lane (one lane in each direction) highways. Exhibit 12-15 in the HCM shows no sensitivity for the estimates of Service Volumes at Level of Service (LOS) E (near capacity), with respect to free flow speed. Essentially the narrowing of the travel lane would have no impact on the egress from or ingress to the site or the EPZ.

2. Sharp Curves – as shown in Figures K-1 through K-14 of the ETE report, none of the roads in the EPZ are overly winding. Therefore, sharp curves are not a concern.
3. Poor Pavement – Exhibit 17-7 of the 2010 Highway Capacity Manual discusses pavement condition ratings from 0.0 to 5.0. Speed does not begin to decrease until pavement condition rating drops below 2.0. None of the roadways driven during the road survey had such poor pavement condition.
4. Flood Warning Signs – there were no flood warning signs observed during the road survey and none of the areas in the EPZ are low-lying and prone to flooding.
5. Inadequate Delineations – Lane delineations and channelizations were clearly marked along all major evacuation routes and at all intersections in the study area.

Thus, the final bullet on page 1-5 of the ETE report discussing "unusual characteristics" along the roadways in the study area is not applicable as there are no narrow bridges, sharp curves, poor pavement, flood warning signs or inadequate delineations. Section 1.3 of the ETE report has been revised to clarify that the final bullet on page 1-5 is not applicable for the study area.

Maryland Route 2/4 is the main roadway providing access to the CCNPP Unit 3 site. It is a well-designed, well maintained state route with 2 wide lanes in each direction and a serviceable shoulder on the right side of the road. There are no unusual characteristics on this route (or elsewhere in the study area) which could impact access to or from the proposed CCNPP Unit 3 site.

As shown in Table 7-1D of the ETE report, the entire EPZ (Region R03) can be evacuated in less than 7½ hours for non-special event scenarios and 11½ hours for the special event – the airshow at the Patuxent Naval Air Base. In November, 2011 the Institute of Nuclear Power Operations (INPO) published a timeline of the nuclear accident at the Fukushima Daiichi Nuclear Power Station. According to the timeline, the earthquake took place at 2:46pm on March 11, 2011. Forty-one minutes later (3:27pm) the site was inundated by a 49 foot tsunami resulting in a loss of power at the site and the loss of core cooling. Venting to the atmosphere of Unit 1 containment began at 9:15am on March 12, 2011. Thus, there was a span of 17 hours and 48 minutes from the loss of power at the site before the first release to the atmosphere. In the highly unlikely event of a similar accident at the proposed CCNPP Unit 3 site, the entire EPZ could have been completely evacuated well before any radiological release. The existing roadway system in the CCNPP EPZ is adequate to evacuate those people who may be at risk and poses no impediment to the development of the CCNPP Unit 3 Emergency Plan.

COLA Impact

COLA, Part 5, ETE Study Report, Section 1.3 has been revised as follows:

• Number of lanes	• Posted speed
• Pavement Width	• Actual free speed
• Shoulder type & width	• Abutting land use
• Intersection configuration	• Control devices
• Lane channelization	• Interchange geometries
• Geometrics: Curves, grades	• Street parking
• Unusual characteristics: None Identified. Based on the observations made during the road survey, there are no narrow bridges, sharp curves, evacuation routes with poor pavement, flood warning signs, inadequate delineations, or any other unusual characteristics within the Calvert Cliffs EPZ.~~Narrow bridges, sharp curves, poor pavement, flood warning signs, inadequate delineations, etc~~.	

RAI No. 372

Question 13.03-53

Subject: Onsite Emergency Organization

Based on the staff's review of the applicant's prior responses to RAIs (i.e., Question 13.03-40(B)) and the language contained in the CCNPP Unit 3 Emergency Plan (e.g., Section H.4 and Table B-1b footnote), the staff concludes that the applicant did not provide an adequate basis for the elimination of 30-minute responders proposed in Table B-1b. Specifically, the applicant's justification for the elimination of 30-minute responders includes several statements that do not provide the staff with assurances that minimum on-shift and augmented staffing can be activated timely following the declaration of an emergency at CCNPP Unit 3. These statements include references to the "unlikelihood of a radiological event occurring," the "unlikelihood of fuel damage or a radiological release," the "lack of significance of performing a function at the onset of an event with no threat," and an inability to augment staffing in 60 minutes due to weather conditions and traffic.

The staff expects the applicant for the proposed CCNPP Unit 3 site to provide an adequate description of its augmentation capability in its emergency plan and responses to RAIs, without regard to the likelihood whether an event will occur, radiological conditions, time of day, weather conditions, and availability of personnel. With that said, the staff recognizes that circumstances not under the applicant's control may occasionally cause a delay in gathering the required minimum number of staff. However, the persistent inability to meet the minimum staffing commitment by the applicant within the specified timeframes during drills, exercises, and actual events, for whatever cause, is a regulatory concern that warrants corrective action.

Provide an adequate justification for the elimination of 30-minute responders and revise the cited language to clearly reflect the basis for the augmentation capability.

Revised Response

Justification for the Elimination of 30-Minute Responders

The justification for the elimination of 30-minute responders is provided in the on-shift staffing analysis report. The on-shift staffing analysis report follows the methodology of NEI 10-05 using a functional assessment of personnel assignments. The on-shift staffing analysis report will be added to the CCNPP Unit 3 Emergency Plan as an annex, in accordance with 10 CFR 50 Appendix E IV.A.9. As indicated in Reference 3, a discussion of Shift Staffing, including a discussion regarding on-shift responders and capabilities, will be provided as an update to this RAI 372 Question 13.03-53 response by April 30, 2013.

Revision of the Cited Language to Clearly Reflect the Basis for the Augmentation Capability

Section H.3 currently divides the augmentation process into staffing at 60 minutes and facility activation 15 minutes later, where facility activation ends with personnel being prepared to perform their functions. The Emergency Plan has been revised to remove reference to a response goal and explicitly state that ERO augmentation will be capable of relieving the on-shift staff of their emergency response responsibilities within 75 minutes from the time of event declaration.

Table B-1b has been revised to explicitly state a 75 minute minimum staffing augmentation time without footnote constraint.

COLA Impact

1. The on-shift staffing analysis report will be added to the CCNPP Unit 3 Emergency Plan as an Annex. As indicated in Reference 3, a discussion of Shift Staffing, including a discussion regarding on-shift responders and capabilities, will be provided as an update to this RAI 372 Question 13.03-53 response by April 30, 2013.

2. The CCNPP Unit 3 Emergency Plan, Table B-1b, Minimum Staffing, has been revised as follows:

   75~~*60~~ Minute Augmentation

3. The CCNPP Unit 3 Emergency Plan, Table B-1b footnote has been deleted as follows:

   ~~* Response time is based on optimum travel conditions.~~

4. The CCNPP Unit 3 Emergency Plan, Section H.4, Activation, has been revised as follows:

   ~~The Licensee~~CCNPP Unit 3 has put into place plans and procedures to ensure timely activation of its emergency response facilities. The {Shift Manager} (as {Interim Emergency Director}) will initiate an ERO augmentation call-out in accordance with the implementing procedures. The ERO augmentation process ~~identifies individuals who are capable of fulfilling the specific response functions~~contacts qualified members of the ERO that are listed in ~~Table B-1a (located in {Unit 3 Annex}) and~~ Table B-1b and instructs them to respond in the appropriate manner for the event. ~~This table was developed based on the functions listed in NUREG-0654, Table B-1.~~

   ~~Although the response time will vary due to factors such as weather and traffic conditions, {a goal of 60 minutes} for minimum staffing~~The ERO augmentation process is capable of activating the EOF, TSC and OSC with the required minimum staffing and relieving the shift of the applicable response tasks within 75 minutes of the event.~~following the declaration of an Alert or higher emergency classification, has been established for the ERO personnel responding to the site emergency facilities and the EOF. TSC, OSC and EOF activation will occur within 15 minutes after the facility has achieved minimum staffing, the facility is capable of performing its functions and personnel are briefed on the event.~~ Additionally, ~~plans~~ processes have been developed to ensure timely ~~functional~~ activation and staffing of the JIC when the emergency classification level of ~~Site Area Emergency~~Alert or higher is declared, or at the direction of the {Emergency Director}.

   {The Director in charge of a particular Emergency Response Facility may elect to activate their facility without meeting minimum staffing; if it has been determined that sufficient personnel are available to fully respond to the specific event (this would not constitute a successful minimum staff response).}

Question 13.03-54

Subject: Emergency Action Levels

A. Upon the staff's review of the application contents related to the Emergency Classification System, the staff has determined that the justification for revision of the initiating conditions for SU3, SA4, and SS6 regarding loss of safety system annunciation/indication needs to be enhanced in order for the staff to reach an independent decision of reasonable assurance.

Please revise Section D of the CCNPP Unit 3 Emergency Plan accordingly or provide justification of why this is not necessary.

B. Section D of the application submittal states, in part, that new loss of digital I&C EALs have been developed by AREVA for the U.S. EPR.

Provide the proposed new EALs, or EAL sets, in the same format as NEI 07-01, which include (as applicable) the initiating condition, operating modes, notes, EAL threshold(s), basis information, and developer guidance for how a particular set-point is (or will be) determined associated with digital I&C. Please revise accordingly or provide justification of why this is not necessary.

C. There are two generic EAL scheme development guidance documents currently endorsed by the NRC for industry to use in the development of their site-specific EAL schemes; NEI 99-01 which is applicable to non-passive reactor designs, and NEI 07-01 which is applicable to the AP1000 and ESBWR reactor designs. Licensees/applicants cannot simultaneously commit, or even reference, both documents. As CCNPP has developed its EAL scheme consistent NEI 99-01 revision 5, Section D of the application submittal states, in part, the new loss of digital I&C EALs have been developed consistent with NEI 07-01, Revision 0, digital I&C EALs for passive reactor designs.

Please revise the Emergency Plan to reflect the EALs developed in accordance with NEI 99-01 revision 5.

D. Section D.3, "Offsite Classification System," of the CCNPP Unit 3 Emergency Plan states that the initial EALs will be discussed with and agreed upon by the State and local authorities and approved by the NRC. Thereafter, the content of the EALs shall be reviewed with the State and local authorities on an annual basis. Part 10 of the CCNPP Unit 3 COL application, "Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) and ITAAC Closure," License Condition 8, "Emergency Action Levels," states the following:

Calvert Cliffs 3 Nuclear Project, LLC and UniStar Nuclear Operating Services, LLC} shall submit a complete set of plant-specific Emergency Action Levels (EALs) for {CCNPP Unit 3} in accordance with NEI 99-01 Revision 5 to the NRC for confirmation at least 180 days prior to initial fuel load. The submitted EALs will be written with no deviations other than those attributable to specific U.S. EPR reactor design considerations.

Please revise proposed license condition 8 in Part 10 of the CCNPP Unit 3 COL application to include State and local government review and approval of the final (complete) EALs to be submitted to the NRC.

Revised Response

A. Section 3 of the CCNPP Unit 3 Emergency Plan Annex is the location where the Emergency Action Levels (EALs) will be documented. Section 3 of the CCNPP Unit 3 Emergency Plan Annex will be revised to include the loss of control room indication and containment fission product barrier EAL deviations from NEI 99-01 Revision 5. Unistar is committed to develop EALs using NEI 99-01, Revision 5. The two deviations that CCNPP Unit 3 is taking with NEI 99-01, Revision 5 have been addressed by NEI in NEI 99-01, Revision 6.

B. Unistar has coordinated with NEI to use the industry standard NEI 99-01, Revision 6, Loss of Control Room Indication EAL for the EPR. CCNPP Unit 3 EALs for loss of control room indication are provided as part of response 13.03-54 Item A.

C. The CCNPP Unit 3 Emergency Plan, Revision 7, Section D, does not reference NEI 07-01. CCNPP Unit 3 EALs will be developed in accordance with NEI 99-01, Revision 5.

D. Part 10 of the CCNPP Unit 3 COL application, "Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) and ITAAC Closure," License Condition 8, "Emergency Action Levels," has been revised for consistency with the Emergency Plan wording, consistent with NEI 99-01, Revision 5.

COLA Impact

A. Section 3.1 of the CCNPP Unit 3 Emergency Plan Annex will be revised to include the following wording, taken from NEI 99-01 Revision 6, to document the EAL deviations from NEI 99-01 Revision 5:

3.1 Emergency Action Levels (EALs)

An Emergency Action Level scheme based on Revision 5 of NEI 99-01, "Methodology for Development of Emergency Action Levels," currently approved for use by NRC letter from Christopher G. Miller to NEI dated 02/22/08, is used for {CCNPP Unit 3}. The submittal EALs will be written with no deviations other than those attributable to specific U.S. EPR reactor design considerations as follows:

3.1.1 Containment Potential Loss Threshold 4.C Deviation

The U.S. EPR containment volume, condensation surface area, and heat capacities are such that the containment design pressure is not exceeded during design basis Loss of Coolant Accident (LOCA) and Main Steam Line Break (MSLB) events.

In addition, the containment pressure decreases to less than 50% of the accident analysis values in less than 24 hours, thus ensuring that radiological dose consequences are acceptable.

Mass and energy releases to the containment during LOCA and MSLB events were calculated using the NRC approved RELAP5/MOD2 (B&W) methodology. Containment pressure responses were calculated using the NRC approved GOTHIC code methodology.

An automatically actuated containment spray system is not required to mitigate the consequences of a Design Basis Accident for the U.S. EPR; therefore, there is no automatic actuation setpoint for this potential loss fission product barrier threshold.

3.1.2 Loss of Indication EAL Deviations

ECL: ALERT SA2

Initiating Condition: UNPLANNED loss of Control Room indications for 15 minutes or longer with a significant transient in progress.

Operating Mode Applicability: Power Operation, Startup, Hot Standby, Hot Shutdown

Example Emergency Action Levels:

Note: The Emergency Director should declare the Alert promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.

1. a. An UNPLANNED event results in the inability to monitor one or more of the following parameters from within the Control Room for 15 minutes or longer.
    - Reactor Power
    - RCS Level
    - RCS Pressure
    - Core Exit Temperature
    - Level in at least one steam generator
    - Steam Generator Auxiliary Feed Water Flow

AND

b. ANY of the following transient events in progress:
    - Automatic or manual runback greater than 25% thermal reactor power
    - Electrical load rejection greater than 25% full electrical load
    - Reactor trip
    - ECCS (SI) actuation

Basis:

This Initiating Condition (IC) addresses the difficulty associated with monitoring rapidly changing plant conditions during a transient without the ability to obtain SAFETY SYSTEM parameters from within the Control Room. During this condition, the margin to a potential fission product barrier challenge is reduced. It thus represents a potential substantial degradation in the level of safety of the plant.

As used in this EAL, an "inability to monitor" means that values for one or more of the listed parameters cannot be determined from within the Control Room. This situation would require a loss of all of the Control Room sources for the given parameter(s). For example, the reactor power level cannot be determined from any analog, digital and recorder source within the Control Room.

An event involving a loss of plant indications, annunciators and/or display systems is evaluated in accordance with 10 CFR 50.72 (and associated guidance in NUREG-1022) to determine if an NRC event report is required. The event would be reported if it significantly impaired the capability to perform emergency assessments, in particular, emergency assessments necessary to implement abnormal operating procedures, emergency operating procedures, and emergency plan implementing procedures addressing emergency classification, accident assessment, or protective action decision-making.

This EAL is focused on a selected subset of plant parameters associated with the key safety functions of reactivity control, core cooling and RCS heat removal. The loss of the ability to determine one or more of these parameters from within the Control Room is considered to be more significant than simply a reportable condition. In addition, if all indication sources for one or more of the listed parameters are lost, then the ability to determine the values of other SAFETY SYSTEM parameters may be impacted as well. For example, if the value for reactor vessel level cannot be determined from PICS or SICS, the availability of other parameter values may be compromised.

Fifteen minutes was selected as a threshold to exclude transient or momentary loss of indication.

ECL: UNUSUAL EVENT SU2

Initiating Condition: UNPLANNED loss of Control Room indications for 15 minutes or longer.

Operating Mode Applicability: Power Operation, Startup, Hot Standby, Hot Shutdown

Example Emergency Action Levels:

Note: The Emergency Director should declare the Unusual Event promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.

1. a. An UNPLANNED event results in the inability to monitor one or more of the following parameters from within the Control Room for 15 minutes or longer.
    - Reactor Power
    - RCS Level
    - RCS Pressure
    - Core Exit Temperature
    - Level in at least one steam generator

- Steam Generator Auxiliary Feed Water Flow

Basis:

This IC addresses the difficulty associated with monitoring normal plant conditions without the ability to obtain SAFETY SYSTEM parameters from within the Control Room. This condition is a precursor to a more significant event and represents a potential degradation in the level of safety of the plant.

As used in this EAL, an "inability to monitor" means that values for one or more of the listed parameters cannot be determined from within the Control Room. This situation would require a loss of all of the Control Room sources for the given parameter(s). For example, the reactor power level cannot be determined from any analog, digital and recorder source within the Control Room.

An event involving a loss of plant indications, annunciators and/or display systems is evaluated in accordance with 10 CFR 50.72 (and associated guidance in NUREG-1022) to determine if an NRC event report is required. The event would be reported if it significantly impaired the capability to perform emergency assessments, in particular, emergency assessments necessary to implement abnormal operating procedures, emergency operating procedures, and emergency plan implementing procedures addressing emergency classification, accident assessment, or protective action decision-making.

This EAL is focused on a selected subset of plant parameters associated with the key safety functions of reactivity control, core cooling and RCS heat removal. The loss of the ability to determine one or more of these parameters from within the Control Room is considered to be more significant than simply a reportable condition. In addition, if all indication sources for one or more of the listed parameters are lost, then the ability to determine the values of other SAFETY SYSTEM parameters may be impacted as well. For example, if the value for reactor vessel level cannot be determined from PICS or SICS, the availability of other parameter values may be compromised.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of indication.

D. Part 10 of the CCNPP Unit 3 COL application, "Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) and ITAAC Closure," License Condition 8, "Emergency Action Levels," has been revised for consistency with the Emergency Plan wording as follows:

{Calvert Cliffs 3 Nuclear Project, LLC and UniStar Nuclear Operating Services, LLC} shall submit a complete set of plant-specific Emergency Action Levels (EALs) for {CCNPP Unit 3} in accordance with NEI 99-01 Revision 5 to the NRC for confirmation at least 180 days prior to initial fuel load. The submitted EALs will be written with no deviations other than those attributable to specific U.S. EPR reactor design considerations. The initial EALs will be discussed with and agreed upon by State and Local authorities prior to submittal to the NRC for approval.

Question 13.03-55

Subject: Notification Methods and Procedures

Section E.6, "Notification of the Public," of the CCNPP Unit 3 Emergency Plan describes the capabilities for prompt notification of the general public within the Plume Exposure Pathway emergency planning zone and states, in part, that the Public Alert and Notification System (PANS) consists of fixed sirens and "may" also include Tone Alert Radio, Reverse 911 calling, and vehicles with PA systems.

Clarify in the Emergency Plan whether the capability to alert the public of an emergency at CCNPP Unit 3 exists and will be implemented through the use of tone alert radios, reverse 911 calling, and vehicles with PA systems, in addition to a system of fixed sirens.

Revised Response:

The system will include tone alert radios, reverse 911, mobile public address, or other means to augment the Emergency Alert System. UniStar will work cooperatively with Federal Emergency Management Agency (FEMA) for review and approval of the Alert and Notification System (ANS) design certification package, and will be consistent with the methods used by the existing operating units at the site following their implementing of the new rule requirements.

COLA Impact

The CCNPP Unit 3 Emergency Plan Section E.6, Notification of the Public, has been revised as follows:

...

6. Notification of the Public

The capability exists for the prompt notification of the general public within the Plume Exposure Pathway Emergency Planning Zones (EPZs) for the Licensee sites covered under this plan.

This notification capability consists of two principal elements: (1) the {Public Alert and Notification Systems (PANS)} and (2) the Emergency Alerting System (EAS) radio stations.

- The {Public Alert and Notification System (PANS)} consists of fixed sirens. It ~~may~~will also include subsystems such as Tone Alert Radios, Reverse 911 Calling and vehicles with public address (PA) systems {and the Emergency Alert System}. Activation of the PANS sirens by the civil authorities will alert the public to turn on their radios to a local EAS radio station for detailed information on the emergency situation.

- The Emergency Alerting System (EAS) is a network of local radio stations prepared to transmit or relay emergency information and instructions from the civil authorities to the general public.

...

Question 13.03-56

Subject: Emergency Facilities and Equipment

A. In response to Question 13.03-13(B), the applicant proposed to revise the CCNPP Unit 3 Emergency Plan Section H.2, "Emergency Operations Facility (EOF)," to include the name of the facility to be shared with CCNPP Units 1 and 2, and its physical location in relation to CCNPP Unit 3. Specifically, the applicant committed to revise Section H.2 to include a statement that the EOF is located about twelve miles from the site, in Calvert Industrial Park, Skipjack Road at Hallowing Point Road. The NRC staff could not verify that this proposed revision was completed in Revision 7 to the CCNPP Unit 3 Emergency Plan.

   Provide a revision to the CCNPP Unit 3 Emergency Plan with the proposed changes as included in response to Question 13.03-13(B).

B. Section H.12, "Collection Point for Field Samples," of the CCNPP Unit 3 Emergency Plan states that the onsite chemistry lab is the central point for the receipt and analysis of radiological field monitoring samples. Section C.3, "Radiological Laboratories," of the CCNPP Unit 3 Emergency Plan states the onsite laboratory is the central point for receipt and analysis of all onsite samples.

   Clarify in the CCNPP Unit 3 Emergency Plan the central location for the receipt and analysis of all field monitoring data (onsite and offsite) and coordination of sample media.

A condition report regarding this deletion has been entered into the UNE corrective action program for disposition.

Revised Response:

A. The information provided in response to Question 13.03-13(B) was included in the CCNPP Unit 3 Emergency Plan, Revision 6, but was inadvertently deleted in Revision 7. A condition report regarding this deletion has been entered into the UNE corrective action program for disposition. The CCNPP Unit 3 Emergency Plan has been amended to include the response to Question 13.03-13(B).

B. The CCNPP Unit 3 Emergency Plan Section C.3 is addressing evaluation criteria C.3 of NUREG-0654. NUREG-0654 contains the following criterion:

   > Each organization shall identify radiological laboratories and their general capabilities and expected availability to provide radiological monitoring and analyses services which can be used in an emergency.

   The CCNPP Unit 3 Emergency Plan Section C.3, Radiological Laboratories, provides the following to specifically address criterion C.3 of NUREG-0654:

> Support of the radiation monitoring and analysis effort is provided by an onsite laboratory. The onsite laboratory is the central point for receipt and analysis of all onsite samples and includes equipment for chemical analyses and for the analysis of radioactivity.
>
> Additional facilities for counting and analyzing samples can be provided by the CCNPP Unit 1/2 chemistry laboratory located in the CCNPP Unit 1/2 Auxiliary Building. This laboratory can act as backup in the event that the CCNPP Unit 3 counting room and laboratory become unusable or the offsite radiological monitoring and environmental sampling operation exceeds the CCNPP Unit 3 laboratory capacity during an emergency. Additionally, a fixed counting laboratory in the Fort Smallwood Road Shops Complex can be utilized to assist with environmental analysis. Outside analytical assistance may also be requested from state and federal agencies.
>
> The laboratories have the capability of analyzing terrestrial, marine, and air samples. Their common instrumentation includes a multi-channel analyzer used to determine the isotopic content in a sample, a liquid scintillation counter for tritium analyses, and gas proportional counter for gross alpha, and gross beta activity.

This description of the capability of the radiological laboratories in the CCNPP Unit 3 Emergency Plan Section C.3 appropriately addresses the evaluation criterion C.3 of NUREG-0654.

The CCNPP Unit 3 Emergency Plan Section H.12 addresses evaluation criteria H.12 of NUREG-0654. NUREG-0654 contains the following criterion:

> Each organization shall establish a central point (preferably associated with the licensee's near-site Emergency Operations Facility), for the receipt and analysis of all field monitoring data and coordination of sample media.

The CCNPP Unit 3 Emergency Plan Section H.12, Collection Point for Field Samples, provides the following to specifically address criterion H.12 of NUREG-0654:

> The onsite chemistry lab has been designated as the central point for the receipt and analysis of radiological field monitoring samples. Sampling and analysis equipment is available for activity determination of these samples. Sufficient field monitoring equipment is maintained at the site for initial sampling. Instrumentation and equipment utilized for sample activity determination are routinely calibrated to ensure timely availability.

Both of these sections in the CCNPP Unit 3 Emergency Plan specifically address their corresponding NUREG-0654 evaluation criteria and do not warrant further editing.

COLA Impact

A. The CCNPP Unit 3 Emergency Plan Section H.2, Emergency Operations Facility (EOF), has been revised as follows:

The EOF is located about twelve miles from the site, in Calvert Industrial Park, Skipjack Road at Hallowing Point Road. It is a Co-located Licensee controlled and operated facility. An agreement between Constellation Energy Nuclear Group (Units 1&2) and Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services (Unit 3) is currently being sought which will serve to document facility use and maintenance. The EOF is the location where the {Emergency Director} will direct the ERO in evaluating and coordinating the overall company activities involved with an emergency. Its location provides optimum functional and availability characteristics for carrying out overall strategic direction of the Licensee onsite and support operations, determination of public protective actions to be recommended to offsite officials, and coordination with Federal, ~~{Commonwealth}~~State and local organizations. Activation of the EOF is mandatory upon declaration of an Alert or higher classification. The EOF provides for:

...

Question 13.03-57

Subject: Accident Assessment

A. Section I.4, "Effluent Monitor Data and Dose Projection," of the CCNPP Unit 3 Emergency Plan states, in part, that a computerized dose assessment program with similar capabilities and outputs as the NRCs Radiological Assessment System for Consequence Analysis (RASCAL) program will be used. In addition, Section I.4 of the CCNPP Unit 3 Emergency Plan states that monitored effluent points and system flow rates, release point samples, monitoring team data, and meteorological information will be used to estimate doses by computer methods. The methods used to project offsite doses are included. The computer applications are evaluated against the Environmental Protection Agency, EPA-400 plume exposure protective action guidelines (PAGs) for the early phase of an accident to determine the necessity for offsite protection action recommendations (PARs).

   1. **Clarify in the CCNPP Unit 3 Emergency Plan whether the computerized dose assessment program results versus computer applications are evaluated against EPA-400 to determine whether PARs are necessary.**

   2. **Describe in the CCNPP Unit 3 Emergency Plan the specific computerized dose assessment program or platform to be used by dose assessment personnel, including its suitability for the specific climatological and terrain conditions representative at the CCNPP Unit 3 site (consistent with the guidance in NUREG-0654/FEMA-REP1, Appendix 2 – pp 2-2 & 2-3).**

B. The Unit 3 CCNPP Emergency Plan, as proposed, contains references to procedures in Section I, "Accident Assessment," and Appendix 2, "Procedure Cross-Reference to NUREG-0654," that will be used by dose assessment personnel during an emergency to rapidly assess radiological hazards onsite and offsite, including the capability to continuously assess the consequences of an accident thereafter.

   Since these procedures have not been written, describe in the emergency plan the information that will be contained in these procedures to demonstrate the applicant's compliance with NRC regulation (10 CFR 50.47(b)(9)).

C. Section I.8, "Monitoring Teams," of the CCNPP Unit 3 Emergency Plan states, in part, that radiological survey and sample data is transmitted to the emergency facilities. Vendor/contractor support can be used to perform collection, shipment, and analysis of environmental sample media as described in Section B.8.c. describes the roles and responsibilities of the American Nuclear Insurers.

   Revise the CCNPP Unit 3 Emergency Plan to reference Section B.8.d, "Environmental Monitoring Services," or provide justification for why this change is not necessary.

Revised Response:

A.1 CCNPP Unit 3 will have a single computer application for performing dose assessment and projection calculations. The computerized dose assessment program is a computer application. Section I.4 of the CCNPP Unit 3 Emergency Plan has been revised to remove any confusion with regard to the use of the synonymous terms.

A.2 CCNPP Unit 3 does not have a site-specific computerized dose assessment program as specific plant parameter inputs, such as effluent release point (spatial coordinates and elevation), process flow rates, instrument calibration factors and ORIGEN source term values, are not yet available. Section I.4 of the CCNPP Unit 3 Emergency Plan has been revised to specify that the model, when developed, will reflect the specific climatological and terrain conditions representative at the CCNPP Unit 3 site.

B. The CCNPP Unit 3 Emergency Plan sets forth and describes the means by which the NUREG-0654 evaluation criteria are met. The purpose of addressing each of the NUREG-0654 demonstration criteria is to provide the information necessary to demonstrate compliance with NRC regulation 10 CFR 50.47(b)(9), and the other planning standards. The procedures are written to implement the content of the particular element committed by the Emergency Plan. Thus, the content of the plan provides the information that will be contained in the implementing procedure, but does not contain the actual actions and steps of those procedures.

The Emergency Plan as currently written establishes and governs the information that will be contained in the implementing procedures.

C. The CCNPP Unit 3 Emergency Plan, Section I.8 reference to Section B.8.c is an error. Section I.8 has been revised to reflect the correct referenced section of B.8.d.

COLA Impact

A.1 The CCNPP Unit 3 Emergency Plan Section I.4, Effluent Monitor Data and Dose Projection, has been revised as follows:

The computerized dose assessment program results ~~applications used to provide dose calculations~~ are evaluated against the EPA-400 plume exposure Protective Action Guides (PAGs) applicable for the early phase of an accident. These evaluations place an emphasis on determining the necessity for offsite protective action recommendations. Dose assessment actions will be performed in the following sequence:

A.2 The CCNPP Unit 3 Emergency Plan Section I.4, Effluent Monitor Data and Dose Projection, has been revised as follows:

Dose assessment or projection represents the calculation of an accumulated dose at some time in the future if current or projected conditions continue. During an accident, the Unit's Parameter Display System and personal computers will provide the ERO with the timely information required to make decisions. Radiological and meteorological instrumentation readings are used to project dose rates at predetermined distances from the site, and to determine the integrated dose received. A computerized dose assessment program with similar capabilities and outputs as the NRCs Radiological Assessment System for Consequence Analysis (RASCAL) program, designed to reflect the specific climatological and terrain conditions representative at the CCNPP Unit 3 site will be used. Dose assessment methods used by the ERO to project offsite doses include:

C. The CCNPP Unit 3 Emergency Plan Section I.8, Monitoring Teams, has been revised as follows:

The expertise necessary to conduct limited offsite environmental survey and sampling exists onsite 24 hours a day. A minimum of two offsite Monitoring Teams are notified and activated at an Alert or higher classification. Teams composed of two individuals are assembled to test and inventory dedicated survey and sampling equipment and are then dispatched in company or personal vehicles into the surrounding area when a release is or is expected to occur. {This capability exists upon EOF activation.} Radiological survey and sample data is transmitted to the emergency facilities. Vendor/contractor support can be used to perform collection, shipment and analysis of environmental sample media as described in Section B.8.~~c~~d.

Question 13.03-58

Subject: Supporting Plans

In Question 13.03-09(A), the staff requested the applicant revise the CCNPP Unit 3 Emergency Plan to reflect the change to the National Response Plan (NRP) currently known as the National Response Framework (NRF). In response, the applicant committed to revise Sections A.1 and C.1 of the emergency plan to reflect this change. However, upon the staff's review of Revision 7 to the CCNPP Unit 3 Emergency Plan, it appears that Section P.6, "Supporting Emergency Response Plans," makes reference to the NRP rather than the corrected NRF.

Please revise the CCNPP Unit 3 Emergency Plan accordingly, or provide justification for why this change is not necessary.

Response

The information provided in response to Question 13.03-09(A) was included in the CCNPP Unit 3 Emergency Plan, Revision 6, but was inadvertently deleted in Revision 7. The CCNPP Unit 3 Emergency Plan has been corrected to include the response to Question 13.03-09(A).

COLA Impact

CCNPP Unit 3 Emergency Plan Section P.6, Supporting Emergency Response Plans has been revised as follows:

- National Response Framework~~Plan~~

Enclosure 2

Table of Changes to CCNPP Unit 3 COLA Associated with the Revised Response to RAI No. 372, Questions 13.03-52, -53, -54, -55, -56, -57, and -58, Calvert Cliffs Nuclear Power Plant, Unit 3

Table of Changes to CCNPP Unit 3 COLA Associated with the Revised Response to RAI No. 372

Change ID #	Subsection	Type of Change	Description of Change
Part 5 – Emergency Plan			
CC3-13-0047	Report entitled, "Development of Evacuation Time Estimates"	Incorporate COLA markups associated with the response to RAI 372 Questions 13.03-52, -53, -54, -55, -56, -57, and -58.	The RAI 372 Question 13.03-52 response involves a change to Section 1.3 of the Evacuation Time Estimates (ETE) report.
CC3-13-0047	Emergency Plan, Section E.6	Incorporate COLA markups associated with the response to RAI 372 Question 13.03-55.	The RAI 372 Question 13.03-55 response involved a change to Section E.6, "Notification of the Public" of the Emergency Plan.
CC3-13-0047	Emergency Plan Table B-1b, Section H.4	Incorporate COLA markups associated with the response to RAI 372 Questions 13.03-52, -53, -54, -55, -56, -57, and -58.	The RAI 372 Question 13.03-53 response involves changes to Emergency Plan Table B-1b, and Section H.4.
CC3-13-0047	Emergency Plan, Section H.2	Incorporate COLA markups associated with the response to RAI 372 Question 13.03-56.	The RAI 372 Question 13.03-56 response involved a change to Section H.2, "Emergency Operations Facility (EOF)" of the Emergency Plan.
CC3-13-0047	Emergency Plan, Section H.2	Incorporate COLA markups associated with the response to RAI 372 Questions 13.03-52, -53, -54, -55, -56, -57, and -58.	The RAI 372 Question 13.03-56 response involves changes to Emergency Plan Section H.2.
CC3-13-0047	Emergency Plan, Section I.4 and I.8	Incorporate COLA markups associated with the response to RAI 372 Questions 13.03-52, -53, -54, -55, -56, -57, and -58.	The RAI 372 Question 13.03-57 response involves changes to Emergency Plan Sections I.4 and I.8.
CC3-13-0047	Emergency Plan, Section P.6	Incorporate COLA markups associated with the response to RAI 372 Questions 13.03-52, -53, -54, -55, -56, -57, and -58.	The RAI 372 Question 13.03-58 response involves changes to Emergency Plan Section P.6, Supporting Emergency Response Plans.
CC3-13-0047	Emergency Plan Annex, Section 3.1	Incorporate COLA markups associated with the response to RAI 372 Question 13.03-54.	The RAI 372 Question 13.03-54 response involved a change to Section 3.1, "Emergency Action Levels (EALs)" of the Emergency Plan Annex.

Change ID #	Subsection	Type of Change	Description of Change
Part 10 – Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) and ITAAC Closure			
GN-12-0182	Appendix A, License Condition 8	Incorporate COLA markups associated with the response to RAI 372 Questions 13.03-52, -53, -54, -55, -56, -57, and -58.	The RAI 372 Question 13.03-54 response involved a change to Part 10, Appendix A, License Condition 8 (Emergency Action Levels).
09-0100	Appendix A, License Condition 8	Incorporate COLA markups associated with the response to RAI 81 Question 13.03-4	The RAI 81 Question 13.03-4 response involved a change to Part 10, Appendix A, License Condition 8 (Emergency Action Levels). The RAI 372 Question 13.03-54 response added a sentence to the Proposed License Condition text of License Condition 8.