

Greg Gibson
Senior Vice President, Regulatory Affairs

750 East Pratt Street, Suite 1600
Baltimore, Maryland 21202



10 CFR 50.4
10 CFR 52.79

May 19, 2011

UN#11-154

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

Subject: UniStar Nuclear Energy, NRC Docket No. 52-016
Response to Request for Additional Information for the
Calvert Cliffs Nuclear Power Plant, Unit 3,
RAI 299, SRP Section 13.03 – Emergency Planning

References: 1) Surinder Arora (NRC) to Robert Poche (UniStar Nuclear Energy), "FINAL
RAI 299 NSIR EP 5497" email dated March 18, 2011
2) UniStar Nuclear Energy Letter UN#11-137, from Greg Gibson to Document
Control Desk, U.S. NRC, Submittal of Response to RAI No. 299, SRP
Section 13.03 – Emergency Planning, dated April 18, 2011

The purpose of this letter is to respond to the request for additional information (RAI) identified in the NRC e-mail correspondence to UniStar Nuclear Energy, dated March 18, 2011 (Reference 1). This RAI addresses SRP Section 13.03 – Emergency Planning, as discussed in Part 5 of the Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 Combined License Application (COLA), Revision 7.

Reference 2 provided a response date of May 23, 2011 for Questions 13.03-43 through 13.03-50.

The Enclosure provides our response to RAI No. 299 Questions 13.03-43 through 13.03-50, and includes revised COLA content. A Licensing Basis Document Change Request has been initiated to incorporate these changes into a future revision of the COLA.

A handwritten signature in black ink, appearing to read "D. Poche" with "NRC" written below it.

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) 470-4205, or Mr. Wayne A. Massie at (410) 470-5503.

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

Executed on May 19, 2011


for Greg Gibson

Enclosure: Response to NRC Request for Additional Information RAI No. 299, Questions 13.03-43 through 13.03-50, SRP Section 13.03 – Emergency Planning, Calvert Cliffs Nuclear Power Plant, Unit 3

cc: Surinder Arora, NRC Project Manager, U.S. EPR Projects Branch
Laura Quinn, NRC Environmental Project Manager, U.S. EPR COL Application
Getachew Tesfaye, NRC Project Manager, U.S. EPR DC Application
Charles Casto, Deputy Regional Administrator, NRC Region II
Silas Kennedy, U.S. NRC Resident Inspector, CCNPP, Units 1 and 2
U.S. NRC Region I Office

UN#11-154

Enclosure

**Response to NRC Request for Additional Information RAI No. 299,
Questions 13.03-43 through 13.03-50, SRP Section 13.03 – Emergency Planning,
Calvert Cliffs Nuclear Power Plant, Unit 3**

RAI No. 299

NRC Question 13.03-43

Subject: Shift Staffing

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

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

The expectations for on-shift and augmented staffing within 30 and 60-minutes of a declared emergency are identified in Table B-1, "Minimum Staffing Requirements for NRC Licensees for Nuclear power Plant Emergencies," of NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1. Revision 2 to Regulatory Guide 1.101, "Emergency Response Planning and Preparedness for Nuclear Power Reactors," endorsed NUREG-0654/FEMA-REP-1, Revision 1, as providing specific acceptance criteria for complying with the standards established in 10 CFR 50.47, including those standards related to staffing of the emergency response organization. Except in those cases in which the applicant proposes an acceptable alternative method for complying with the Commission's regulations, NUREG-0654/FEMA-REP-1, Revision 1, will be used to evaluate Calvert Cliffs' Emergency Plan.

In consideration of industry experience for operating reactors, including use of the S.M.A.R.T template developed in coordination between NEI and the NRC (ADAMS Accession No. ML 042530011), and the applicant's technical justification in support for the elimination of 30-minute ERO responders, the applicant should consider additional on-shift compensation to perform the functions and major tasks identified in Table B-1 of NUREG-0654/FEMA-REP-1. The NRC staff requests the applicant to either provide additional compensation on-shift, or provide additional justification in support for the elimination of 30-minute responders to aid in the staff's reasonable assurance determination. Specifically:

Radiological Accident Assessment (Offsite Dose Assessment)

In response to Supplemental RAI 13.03-42(A), the applicant states, in part, that dose assessment is performed by on-shift personnel as a collateral duty and the use of computerized dose assessment applications allow shift personnel to rapidly perform basic dose assessment calculations. In addition, shift personnel qualified to perform dose assessment would be required to maintain this function within the 30 minute gap prior to the arrival of the 60 minute response position qualified to perform dose assessment.

Discuss in the CCNPP Unit 3 Emergency Plan which on-shift emergency responders identified in Table B-1a, "Shift Emergency Response Organization," of the CCNP Emergency Plan will be qualified to perform the major task of dose assessment should the need arise prior to staff augmentation at 60 minutes. Also, include in the response a listing of, and supporting discussion on, any collateral duties or potentially competing priorities that may impact the individual's ability to perform their primary emergency response functions.

Radiological Accident Assessment (Offsite and Onsite Surveys)

The applicant's response to Supplemental RAI 13.03-42(A) states that a 30-minute responder is not needed for the major tasks of offsite and onsite surveys in support of Radiological Accident Assessment because it is extremely unlikely that a release of radioactivity would occur within the first 60 minutes of a declared event. However, the guidance provided in NUREG-0654/FEMA-REP-1, Revision 1, Table 2, "Guidance on Initiation and Duration of Release," states that the span of time from the initiating conditions of an event to the beginning of an atmospheric release can vary from one-half hour to one day.

Discuss which on-shift emergency responders identified in Table B-1a, "Shift Emergency Response Organization," will perform the major tasks of "offsite and onsite surveys" should the need arise prior to staff augmentation at 60 minutes. Include in the response a listing of, and supporting discussion on, any collateral duties or competing priorities that may impact the individual's ability to perform their primary emergency response functions, and the training provided or qualifications necessary to perform this function. If on-shift responders do not exist to perform this function, revise the CCNP Emergency Plan to include 30-minute responders to perform the major tasks of offsite and onsite surveys.

Repair and Corrective Actions

In response to 13.03-42(A), the applicant states, in part, that 30 minute responders are not needed for the Electrical Maintenance or I&C Technician positions since on-shift auxiliary operators typically perform these functions as a collateral duty. The auxiliary operators are cross-trained to perform equipment repair tasks. In addition, the applicant states that Electrical and I&C repair activities are not necessary for up to several hours depending on the event and the 30-minute gap in augmentation of this function within the first hour of an event is not considered significant or necessary.

- 1. Discuss the collateral duties (e.g., fire brigade and shift communicator) of the on-shift auxiliary operators, if any, and how performing these collateral duties will not challenge the performance of their primary emergency response function of plant operations and assessment.**
- 2. Provide additional justification to support the conclusion that Electrical and I&C repair activities are not necessary for up to several hours depending on the event.**

RESPONSE

It is recognized that a formal detailed analysis will be performed for the on-shift ERO personnel in accordance with the upcoming change to 10 CFR 50 Appendix E Section IV.A.9. Until the time that station procedures are written and a detailed analysis can be performed to develop the specific technical bases for the on-shift staffing, the basis will be associated with the on-shift staffing of NUREG-0654 and industry operating experience.

Radiological Accident Assessment (Offsite Dose Assessment)

The CCNPP Unit 3 Emergency Plan and station annex do not currently specify the on-shift position that is responsible for performing the task of dose assessment. The on-shift individual qualified to perform the task of dose assessment can be an RP Technician.

The on-shift RP individual is assigned the primary emergency response task of in-plant surveys under the function of radiological accident assessment. Collateral tasks assigned under the function of in-plant protective actions are access control, radiological coverage for dispatched response teams, personnel monitoring and dosimetry. At this time, operational and response procedures have not been developed for CCNPP Unit 3. Therefore, in the absence of specific procedures, the basis for determining that the tasks currently assigned to the on-shift RP individual do not contain overlapping actions that prevent their accomplishment is that it meets the minimum shift staffing of NUREG-0654.

A line has been added to the Unit 3 Emergency Plan Annex Table B-1 to document that the function of on-shift dose assessment can be assigned as a collateral duty to RP Technician.

Radiological Accident Assessment (Offsite and Onsite Surveys)

As provided in the response to RAI 13.03.42-1, this function is not provided for by on-shift personnel.

An additional RP Technician will be added to the on-shift staffing to perform the tasks of offsite surveys and an additional RP Technician will be added to the on-shift staffing to perform the tasks of onsite surveys.

Repair and Corrective Actions

1. The on-shift Auxiliary Operators listed in the Emergency Plan Annex Table B-1a as control room staff are not assigned to be the Shift Communicator as a collateral responsibility. As specified in note 'e' of Table B-1a, an individual assigned to the position of Shift Communicator shall not be assigned other emergency response responsibilities. While the Shift Communicator could be an Auxiliary Operator, it would be a separate individual from the two Auxiliary Operators filling the positions for control room staff.

On-shift Auxiliary Operators listed in the Emergency Plan Annex Table B-1a as control room staff may be assigned to the fire brigade per the fire protection plan or to first aid and rescue operations. On-shift staffing will be sufficient so that an Auxiliary Operator assigned to the primary function of plant operations will not be given a function on the fire brigade.

An additional Mechanical Maintenance Technician will be added to the on-shift staffing to perform the tasks of repair and corrective actions so that an Auxiliary Operator assigned to the primary function of plant operations will not be given the function of repair and corrective actions – Mechanical Maintenance as a collateral duty.

2. There is no technical basis for the conclusion that Electrical and I&C repair activities are not necessary for up to several hours depending on the event. Continuity of normal plant operations is not a priority of the response during a declared emergency, therefore any repair or corrective actions taken by on-shift personnel at that time can be limited to those needed to support plant restoration to a safe condition. These types of actions will be specified in operations response procedures when developed and validated under the requirements of that program.

An additional Electrical / I&C Technician will be added to the on-shift staffing to perform the tasks of repair and corrective actions so that an Auxiliary Operator assigned to the primary function of plant operations will not be given the function of repair and corrective actions – Electrical / I&C as a collateral duty.

COLA Impact

The Unit 3 Emergency Plan Annex on-shift staffing table will be revised as follows:

**Table B-1a
 Shift Emergency Response Organization**

Functional Area	Major Tasks	Emergency Positions	Minimum Shift Size
1. Plant Operations and Assessment of Operational Aspects	Control Room Staff	{Shift Supervisor} <u>Shift Manager</u> (CR)	1
		Control Room Supervisor (CR)	1
		Reactor Operator (CR)	2
		Equipment Operator	2
2. Emergency Direction and Control	Command and Control /Emergency Operations	{Shift Supervisor} {Interim Emergency Director} <u>Shift Manager</u> (CR)	1 ^(a)
3. Notification & Communication	Emergency Communications	Shift Communicator ^(e) (CR)	1
4. Radiological Accident Assessment and Support of Operational Accident Assessment	<u>Dose Assessment</u>	<u>RP Technician</u>	1 ^(b)
	<u>Offsite Surveys</u>	<u>RP Technician</u>	1
	<u>Onsite Surveys</u>	<u>RP Technician</u>	1
	<u>In-plant Surveys</u>	<u>RP Technicians</u>	1
	<u>Chemistry</u>	<u>Chemistry Personnel Technician</u>	1
5. Plant System Engineering, Repair and Corrective Actions	Technical Support	Shift Technical Assistant (STA) ^(e) (CR)	1
	Repair and Corrective Actions	Mechanical Maintenance Tech Electrical / Instrument & Control <u>I&C Tech</u>	1 ^(b) 1 ^(b)
6. In-Plant Protective Actions	Radiation Protection	RP Personnel	2 ^(b)
7. Fire Fighting	--	Fire Brigade	(c)
8. First Aid and Rescue Operations	--	Plant Personnel	2 ^(b)
9. Site Access Control and Personnel Accountability	Security & Accountability	Security Team Personnel	(d)
TOTAL:			10 15

- (a) The {Shift Supervisor} shall function as the {Interim Emergency Director} prior to TSC activation.
- (b) May be provided by personnel assigned other functions. Personnel can fulfill multiple functions.
- (c) Per Station Fire Protection Plan
- (d) Per Station Security Plan
- (e) An Individual shall be designated as {Shift Communicator} and an Individual shall be designated as {STA} for a classified event. Once assigned these individuals shall not be assigned other responsibilities.

RAI No. 299

NRC Question 13.03-44

Subject: Letters of Certification

Basis: 10 CFR 52.79(a)(22)(i)

SRP ACCEPTANCE CRITERIA: Requirement E; Acceptance Criterion 18

Part 11H "State and Local Emergency Plans" of the CCNPP COL application includes State and county letters of certification with: The State of Maryland, The Commonwealth of Virginia, The State of Delaware, St. Mary's County, Maryland, Dorchester County, Maryland, Calvert County, Maryland, and The District of Columbia. Regulation 10 CFR.52.79(a)(22)(i) specifically states that all emergency plan certifications that have been obtained from State and local government agencies with emergency planning responsibilities must state that: the proposed emergency plans are practicable; the agencies are committed to participating in any further development of the plans, including any required field demonstrations; and the agencies are committed to execute their responsibilities under the plans in the event of an emergency. The staff was unable to locate where the Letters of Certification stated that "the proposed emergency plans are practicable."

Discuss whether the Letters of Certification obtained from the State of Delaware, the District of Columbia, and local counties of St. Mary's, Dorchester, and Calvert, include the language referenced in the citation of the regulation as stated above. If they do not, provide revised Letters of Certification for each State and local government authority, which states that: (1) the proposed emergency plans are practicable; (2) these agencies are committed to participating in any further development of the plans, including any required field demonstrations; and (3) these agencies are committed to executing their responsibilities under the plans in the event of an emergency.

RESPONSE

Revised Letters of Certification have been obtained with the language referenced in the citation, and will replace the current letters for the State of Delaware, the District of Columbia, and the local counties of St. Mary's, Dorchester, and Calvert.

COLA Impact

The following letters will replace the existing letters for the respective government agencies (State of Delaware, the District of Columbia, and local counties of St. Mary's, Dorchester, and Calvert) in Part 11H of the COLA:



November 5, 2008

Mr. George Wrobel
UniStar Nuclear Energy
Director, Licensing
750 East Pratt Street
14th Floor
Baltimore, MD 21202

Reference: UniStar Nuclear Energy Services LLC Combined License (COL) Application

Dear Mr. Wrobel:

For the UniStar Nuclear Energy Services LLC (UNES) proposed U.S. Evolutionary Power Reactor to be located adjacent to the Calvert Cliff Power Station Units 1 and 2 in Lusby, MD, the State of Delaware certifies the proposed emergency plan is practicable. Delaware is committed to participating in the future development of the emergency response plan, including any field demonstrations if found to be needed. Delaware will work with UniStar Nuclear to identify any needed changes to our current commitment to execute our responsibilities under the existing emergency response plan in the event of an emergency.

Sincerely,

James E. Turner, III
Director

State of Delaware, Department of Safety and Homeland Security

165 Brick Store Landing Road • Smyrna, DE • 19977
302 • 659 • DEMA (3362) / 877 • SAY • DEMA (877-729-3362) (In-State Only)
Fax: 302 • 659 • 6855 <http://dema.delaware.gov>

**GOVERNMENT OF THE DISTRICT OF COLUMBIA
Homeland Security and Emergency Management Agency**

Adrian M. Fenty
Mayor



Darrell L. Darnell
Director

R.M. Kritch
Senior Vice President, Regulatory Affairs
UniStar Nuclear Development, LLC

October 17, 2008

The District of Columbia Homeland Security and Emergency Management Agency (HSEMA) approves your request to submit the District's emergency response plan to the U.S. Nuclear Regulatory Commission as part of your application for a US ERP nuclear power plant to be located adjacent to the Calvert Cliffs Nuclear Power Plant in Lusby, MD.

In accordance with 10 CFR 52.79 (22)(i)(A-C), HSEMA asserts that (A) this proposed emergency plan is practicable; (B) HSEMA is committed to participating in any further development of the plans, including any required field demonstrations; and (C) HSEMA is committed to executing its responsibilities under the plan in the event of an emergency. Furthermore, HSEMA is willing to work with UniStar Nuclear to identify any needed changes to execute our responsibilities under the existing emergency response plan in the event of an emergency.

If you have any questions, please contact me or Steve Kral of my team at (202) 727-6161.

Sincerely,

A handwritten signature in cursive script, appearing to read "Darrell Darnell".

Darrell L. Darnell
Director

ST. MARY'S COUNTY GOVERNMENT
DEPARTMENT OF PUBLIC SAFETY
Robert Kelly, Director
301-475-4200, Ext. 1013 / FAX 301-475-4512



BOARD OF COUNTY COMMISSIONERS:
Francis Jack Russell, President
Lawrence D. Jarboe, Commissioner
Cynthia L. Jones, Commissioner
Todd B. Morgan, Commissioner
Daniel L. Morris, Commissioner

April 28, 2011

Mr. Greg Gibson, Senior Vice President, Regulatory Affairs
UniStar Nuclear Energy
750 East Pratt Street
14th Floor
Baltimore, MD 21202

Reference: UniStar Nuclear Operating Services, LLC, Combined License Application (COLA)

Dear Mr. Gibson:

For the UniStar Nuclear Operating Services, LLC, proposed U. S. Evolutionary Power Reactor (reference) to be located adjacent to the Calvert Cliffs Nuclear Power Plant Units 1 and 2 in Lusby, MD, the St. Mary's County Department of Public Safety, Division of Emergency Management certifies that the proposed emergency plan is practicable. St. Mary's County is committed to participating in the future development of this emergency response plan, including any field demonstrations found to be necessary. St. Mary's County Emergency Management will work with UniStar Nuclear Operating Services, LLC, to identify any needed changes to the current commitment to allow St. Mary's County to execute our responsibilities under the existing emergency response plan in the event of an emergency.

Sincerely,

Robert Kelly
Director of Public Safety



**Dorchester County
Emergency Management Agency**

M. Wayne Robinson, Director
829 Fieldcrest Road
Cambridge, Maryland 21613

Tel: 410-228-1818

E-Mail: dema@docogonet.com

Fax: 410-228-1216

May 3, 2011

Mr. Greg Gibson, Senior Vice President, Regulatory Affairs
UniStar Nuclear Energy
750 East Pratt Street
14th Floor
Baltimore, MD 21202

Reference: UniStar Nuclear Operating Services, LLC, Combined License Application (COLA)

Dear Mr. Gibson:

For the UniStar Nuclear Operating Services, LLC, proposed U. S. Evolutionary Power Reactor (reference) to be located adjacent to the Calvert Cliffs Nuclear Power Plant Units 1 and 2 in Lusby, MD, the Dorchester County Emergency Management Agency certifies that the proposed emergency plan is practicable. Dorchester County is committed to participating in the future development of this emergency response plan, including any field demonstrations found to be necessary. Dorchester County Emergency Management will work with UniStar Nuclear Operating Services, LLC, to identify any needed changes to the current commitment to allow Dorchester County to execute our responsibilities under the existing emergency response plan in the event of an emergency.

Sincerely,

M. Wayne Robinson

M. Wayne Robinson
Director, Dorchester County Emergency Management Agency



**DEPARTMENT OF PUBLIC SAFETY
DIVISION OF EMERGENCY MANAGEMENT**

January 30, 2009

Mr. George Wrobel, Licensing Director
Unistar Nuclear Energy
750 East Pratt Street
14th Floor
Baltimore, MD 21202

Reference: UniStar Nuclear Energy Services LLC, Combined License Application (COLA)

Dear Mr. Wrobel:

For the UniStar Nuclear Energy Services LLC proposed U. S. Evolutionary Power Reactor to be located adjacent to the Calvert Cliffs Nuclear Power Plant Units 1 and 2 in Lusby, MD, the Calvert County Department of Public Safety, Division of Emergency Management certifies that the proposed emergency plan is practicable. Calvert County is committed to participating in the future development of this emergency response plan, including any field demonstrations found to be necessary. Calvert County Emergency Management will work with UniStar Nuclear to identify any needed changes to the current commitment to allow Calvert County to execute our responsibilities under the existing emergency response plan in the event of an emergency.

Sincerely,

John R. Fenwick, Division Chief
Calvert County, MD Emergency Management Division

RAI No. 299

NRC Question 13.03-45

Subject: Emergency Action Levels

Basis: 10 CFR 50.47(b)(4); NUREG-0654/FEMA-REP-1, Evaluation Criterion D.1. and D.2.; Appendix E, Section IV.B and C

SRP ACCEPTANCE CRITERIA: Requirement A and B; Acceptance Criterion 3

In response to RAIs 13.03-04 and 13.03-10, the applicant withdrew its prior submittal of a partial set of EALs contained in enclosures (A-C) to the emergency plan, and provided a revised overview of its emergency action level scheme including definitions of four emergency classifications (e.g., Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency), with a general list of licensee actions at each emergency classification level. In addition, the applicant proposed a license condition to create a fully developed set of EALs in accordance with NEI 99-05, Revision 5, and submit to the NRC for confirmation at least 180 days prior to fuel load, which will include the following deviations:

- NEI 99-01 Revision 5 EALs (SU3, SA4 and SS6), loss of safety system annunciation/indication are not applicable to the U.S. EPR plant design and are therefore deleted.
- New loss of digital I&C EALs have been developed by AREVA for the U.S. EPR consistent with the proposed NEI 07-01 Revision 0 digital I&C EALs for passive reactor designs.
- NEI 99-01 Revision 5 PWR containment potential loss fission product barrier 2.C is not applicable to the U.S. EPR plant design and is therefore deleted.

The EALs will reside in a technical basis document by which the applicant has committed to control consistent with the Emergency Plan pursuant to 10 CFR 50.54(q).

In response to Supplemental RAI 13.03-40(A), the applicant provided a brief explanation of the deviations proposed in the COL application. The applicant stated, in part, that the second bullet (described above) was not intended to depict a deviation, but rather describe how the U.S.EPR will replace the loss of annunciator EALs with digital I&C EALs based on NEI 07-01, Revision 0. Bullet one describes the design based deviation from NEI 99-01, Revision 5, EALs SU3, SA4, and SS6, while bullet three describes the deviation from the NEI 99-01, Revision 5, PWR containment potential loss fission product barrier 2.C.

1. Provide site-specific EALs (applicable operational modes) representative of the EPR design, consistent with the format of NEI 99-01, Revision 5, for loss of digital I&C.
2. Provide additional justification to support the decision to delete the fission product barrier EAL initiating condition 2.C.
3. Revise the proposed license condition to remove the below language since deviations from NEI 99-01, Revision 5, are being proposed, and include language to facilitate State and local government review, or provide justification of why it is not needed:

“The submitted EALs will be written with no deviations other than those attributable to specific U.S. EPR reactor design considerations.”

Response

1. Site-specific U.S. EPR EALs will not be provided at this time in accordance with RAI 81 (UN#09-163¹), RAI 155 (UN#09-446²) and ITAAC Appendix A, which specify that the EALs and associated technical bases manual would be provided after COL approval and at least 180 days prior to fuel load.

NEI 99-01 Rev 5 EALFAQ #33 was submitted to provide for incorporation of digital I&C EALs, with the NRC response as follows:

This EALFAQ is DENIED due to the ongoing issues related to the design of the I&C system for the EPR. Once the I&C system for the EPR has been approved by the NRC, consideration can then be given for having detailed EALs for licensees utilizing the EPR. In the interim, applicants using the EPR, which includes digital I&C, must consider the deletion and addition of EALs to be DEVIATIONS in accordance with RIS 2003-18, including supplements.

The staff would encourage the development of an EPR specific addendum to the approved guidance which would capture all the DEVIATIONS from the guidance for the EPR design.

The EPR design should use the applicable wording from NEI 07-01 for SA7 and SS7, in addition to CU7 and CA7. The staff agrees that SU3 is not applicable to the EPR design.

While the specific nomenclature and detail may be improved when the design is approved, in the interim these EALs will serve to capture the intent of the EAL scheme for a loss of I&C.

NEI provided guidance for EPR-related digital I&C EALs in 99-01 Rev 6 which was submitted for NRC review in January 2011. It is expected that once endorsed, EPR EALs would use this document as a basis for the deviations from 99-01 Rev 5 with regards to digital I&C.

¹ UniStar Nuclear Energy Letter UN#09-163, from Greg Gibson to Document Control Desk, U.S. NRC, Response to Request for Additional Information for the Calvert Cliffs Nuclear Power Plant, Unit 3, RAI No. 81, Emergency Planning, dated April 14, 2009

² UniStar Nuclear Energy Letter UN#09-446, from Greg Gibson to Document Control Desk, U.S. NRC, Response to Request for Additional Information for the Calvert Cliffs Nuclear Power Plant, Unit 3, RAI No. 155, Emergency Planning, dated November 19, 2009

2. NEI 99-01 Rev 5 EALFAQ #19 was submitted to provide for elimination of the automatic containment depressurization actuation setpoint, with the NRC response as follows:

The staff agrees that the proposed revision is based upon the unique design characteristics of the EPR design. However the staff considers this to be a DEVIATION in accordance with RIS 2003-18 (with supplements). Also, the staff recommends an addendum to NEI 99-01 be developed that discusses the EAL differences specifically for the EPR design once the EPR design has been certified. In the meantime, new reactor applicants can use this EALFAQ in the development of their application to ensure consistency.

In addition to the EPR having no containment depressurization actuation setpoint to base an EAL on, NRC staff agreement with the FAQ provides additional justification to support containment fission product barrier criteria 2.C as not applicable (thus a deviation). NEI provided guidance for EPR-related fission product barrier criteria in 99-01 Rev 6 which was submitted for NRC review in January 2011. It is expected that once endorsed, EPR EALs would use this document as a basis for the deviations from 99-01 Rev 5 with regard to containment fission product barrier criteria.

3. The statement recommended for removal, *"The submitted EALs will be written with no deviations other than those attributable to specific U.S. EPR reactor design considerations."*, is contained in the Emergency Plan Annex and remains correct and appropriate until the EALs are submitted and approved. It is consistent with the NRC language for option 2, critical element #2 provided in the CCNPP Unit 3 response to RAI 81 question 13.03-4¹. That response was:

Critical Element 2 – Applicant proposes to develop the remainder of its EAL scheme by using a specified NRC endorsed guidance document. In the development of its EALs, the proposed EALs should be developed with few or no deviations or differences, other than those attributable to the specific reactor design. NEI 07-01, if endorsed, will be applicable to the AP1000 and ESBWR (passive) reactor designs, and NEI 99-01 is applicable to all (nonpassive) reactor designs. If applicable, EALs related to digital instrumentation and control must be included. The NRC must find in the Safety Evaluation Report that this approach is acceptable for each site.

The response to RAI 123³ included an evaluation of the CCNPP Unit 3 Emergency Plan against NUREG-0800, Standard Review Plan, Section 13.3. In the evaluation, Section II.3 included the following:

³ UniStar Nuclear Energy Letter UN#09-346, from Greg Gibson to Document Control Desk, U.S. NRC, Response to Request for Additional Information for the Calvert Cliffs Nuclear Power Plant, Unit 3, RAI No. 123, Emergency Planning, dated August 13, 2009

Acceptance Criteria	Section Reference/Comments
<i>Section IV.B. "Assessment Actions," of Appendix E to 10 CFR Part 50 also requires that the initial emergency actions be discussed and agreed on by the State and local governmental authorities. The applicant should provide some form of confirmation of the agreement, such as a letter signed by State and local governmental authorities, in the emergency plan, if the applicant provides emergency action levels different from those for the existing reactor(s) on the site.</i>	<i>Part 5 Enclosure D of the submittal includes signed letters from MEMA and the EPZ counties that provide agreement with the EAL scheme developed in accordance with NEI 99-01 Rev 5. [Refer to ML103620419 for copies of those letters.]</i>

Section IV.B to 10 CFR Part 50, Appendix E requires licensees to obtain State and local governmental authority agreement when EALs are initially implemented. RIS 2003-18 provides instructions for EAL submittal documentation that includes State/Local government official agreement documentation. This language for obtaining to the State and local governmental authority agreement when EALs are initially implemented provides the manner in which State and local government review is facilitated.

COLA Impact

The COLA EP will not be revised as a result of this response.

RAI No. 299

NRC Question 13.03-46

Subject: Security-Based Considerations

Basis: 10 CFR 50.47; Appendix E to 10 CFR 50; Regulatory Guide 1.206, Section C.1.13.3.1

SRP ACCEPTANCE CRITERIA: Requirements A, B, and G: Acceptance Criterion 1, 2, 5, 25 and 30

1. In response to RAI 13.03-37, the applicant stated that the information contained in Section E.2.b.2 of the CCNPP Unit 3 Emergency Plan regarding notification to the NRC for a classified emergency (including security conditions or hostile actions) is consistent with the existing regulation and compatible with the language of NRC Bulletin 2005-02.

Section E.2.b.2 states, in part:

“an event will be reported to the NRC Operations Center immediately after notification of the appropriate State and local agencies, but not later than one hour after the time of initial classification...”

NRC Bulletin 2005-02 requests an accelerated call to the NRC, immediately after notification of local law enforcement agencies, or within about 15 minutes of the recognition of a security-based threat. This notification enables the NRC to quickly warn, or advise, other licensees and Federal agencies of the impending threat, pursuant to the National Response Framework.

Clarify in the CCNPP Unit 3 Emergency Plan whether notifications to the NRC are made immediately after notification of local law enforcement agencies, or within about 15 minutes of the recognition of a security-based threat, consistent with the guidance in NRC Bulletin 2005-02, or provide reference to where this information is contained (e.g., Security Contingency Plan or EIPs). If no clarification is deemed necessary to the Emergency Plan, provide justification for why this information is not needed.

2. Section J.4, “Evacuation,” of the CCNPP Unit 3 Emergency Plan states that evacuation is the primary protective action anticipated for onsite personnel who do not have emergency assignments. Evacuation shall commence in accordance with site procedures as directed by the Emergency Plant Manager (EPM) or designee unless a security threat is in progress, which would have an adverse impact on the personnel while leaving the site.

In response to RAI 13.03-6, the applicant stated, in part, that the onsite staffing, facilities, and procedures will be adequate to accomplish actions necessary in response to a security event, and the CCNPP Unit 3 Emergency Plan and/or procedures reflect the specific site needs. In addition, the applicant stated that the EPM can utilize judgment to direct other protective measures if personnel assembly, accountability, and evacuation result in undue hazards to site personnel.

The applicant's subsequent response to Supplemental RAI 13.03-38(B) stated, in part, that further specific detail with regards to the below bullets are appropriate for EIPs, which have not yet been developed for CCNPP Unit 3. However, EP ITAAC contained in Part 10, Table 2.3-1 of the COL application include criteria to confirm that each of the implementing procedures for the CCNPP Unit 3 Emergency Plan are submitted to the NRC no less than 180 days prior to fuel load.

Bullets in RAI response:

- evacuation of personnel from areas and buildings perceived as high-value targets;
- site evacuation by opening, while continuing to defend, security gates;
- dispersal of key personnel;
- on-site sheltering;
- staging of emergency response organization personnel in alternate locations pending restoration of safe conditions;
- implementation of accountability measures following restoration of safe conditions.

Clarify in the CCNPP Unit 3 Emergency Plan the title of the EPIP that contains a range of protective measures, other than evacuation, that can be utilized by the EPM during a security-based event consistent with NRC Bulletin 2005-02.

3. In response to RAI 13.03-35, the applicant stated that offsite assembly areas are positioned North and South of the station to protect arriving personnel from hostile action at the site. The applicant references the alternate mustering facility as described above and states that LOAs have been obtained (included in Appendix 3) consistent with CCNPP Units 1 and 2, to establish St. Leonard Volunteer Fire Department and Rescue Squad, and Solomon's Island Fire and Rescue, as alternate mustering locations for ERO responders. In addition, the applicant stated that if the decision is made to establish an OSC and/or a TSC away from the site, then the ERO at the assembly areas will be directed to the EOF to conduct response activities from that location. The EOF meets the attributes for the alternate facility described in NRC Bulletin 2005-02 as stated above.

Clarify whether the size of the EOF, and its equipment, are sufficient to support response to an emergency as an alternate location for the OSC and/or TSC, as well as an EOF.

Response

1. The CCNPP Unit 3 Emergency Plan Section E.2.b.2 states that the NRC Operations Center will be notified of any event immediately after notification of the appropriate State or local agencies. Priority of notification is given to the local response agencies over the NRC Operations Center. Notification to State/local agencies is required within 15 minutes of recognition of the event by regulation, and equipment, procedures, staffing, training and performance monitoring are provided to achieve this timeliness requirement. Though NRC notification may not be made within exactly 15 minutes of the recognition of a security-based threat depending on the specific circumstances of the event, the NRC notification will be made immediately after State and local agency notifications, which are to be made within 15 minutes. For this reason, additional information is not considered needed.
2. Appendix 2 of the CCNPP Unit 3 Emergency Plan lists EP-AN-610, Onsite Protective Actions, as the document that contains instructions for protective response. In addition to non-security event protective actions that include assembly, accountability and evacuation (local area, protected area and site), the procedure would contain other protective actions utilized by the ERO including those applicable to a security event.
3. From a size perspective, the EOF is not specifically designed to operate as a multi-response facility containing an EOF, TSC and OSC. Only in the situation where the existing onsite TSC and OSC, or their alternates, were not accessible or already staffed and the EOF was assigned to temporarily support TSC and OSC operations would that location be used. TSC and OSC personnel would be located primarily in conference areas and co-located with counterparts as the accommodations allowed. Specific staffing and location decisions would be made by senior ERO personnel at the time of the event depending on the specific circumstances.

From a functional perspective, the EOF is equipped to perform the major functions of assessment and response coordination if necessary. Actual dispatch and control of personnel into the plant would not occur until after plant access had been restored and local emergency response actions resumed.

It is expected that these capabilities of the EOF (and the alternate facilities) will be reassessed and tested through drills and exercises within the implementation time requirements of the new rules for COL applicants.

COLA Impact

The COLA EP will not be revised as a result of this response.

RAI No. 299

NRC Question 13.03-47

Subject: Emergency Facilities and Equipment

Basis: 10 CFR 50.47(b)(8); Supplement 1 to NUREG-0737; NUREG-0654/FEMA-REP-1, Evaluation Criterion H.2

SRP ACCEPTANCE CRITERIA: Requirements A and B; Acceptance Criterion 1, 2, 5, and 25

Section 3, "Multi-Unit Site Considerations," of Part 5, "CCNPP Unit 3 Impact to CCNPP Units 1 & 2 Emergency Preparedness Program Evaluation," states that the existing EOF for Units 1 and 2 will also be used for Unit 3. Commitments made by the applicant in this evaluation that address EOF Human Factors for the addition of Unit 3 are as follows:

- A human factors evaluation will be performed to ensure that the shared systems used for event assessment are appropriately designed to distinguish Unit 3 from Units 1 and 2.
- A task analysis will be performed to ensure communications, accommodations and administrative resources in the EOF are appropriately laid out to support Unit 3 response requirements and address any impacts to the existing Units.
- Facility layout and furnishings will be evaluated and modified to the extent necessary to allow for combined use if concurrent events are declared at Units 1, 2, and 3, and activation of both EROs is required.
- A drill requiring mobilization and response activities of both EROs will be conducted prior to operation of Unit 3 to demonstrate the ability of all utility emergency facilities to support a concurrent event. This drill will evaluate the adequacy of space, furnishing, communications, monitoring systems, and shared resources to ensure response functions for either unit are not degraded (in capability or timeliness) when responding to a concurrent event.

Propose a license condition, or EP ITAAC, to address each commitment above, or provide justification of why this is not needed.

Response

The action items documented in the Emergency Response Plan - Unit 3 Impact to Units 1 and 2 Evaluation apply to the overlap in programs between the operating units and the new unit. A human factors EP ITAAC already exists (ITAAC Table 2.3-1 Item 6.2.2) to ensure the facilities are appropriately designed and equipped to support the licensing of CCNPP Unit 3. The remaining three items listed in the question above will be added to the EP ITAAC.

COLA Impact

ITAAC Table 2.3-1, Emergency Planning ITAAC, is being updated as follows:

6.0 Emergency Facilities and Equipment			
<p>10 CFR 50.47(b)(8) – Adequate emergency facilities and equipment to support the emergency response are provided and maintained.</p>	<p>6.1 The licensee has established a Technical Support Center (TSC) and onsite Operations Support Center (OSC). [H.1, H.9]</p>	<p>6.1 An inspection of the as-built TSC and OSC will be performed including a test of the capabilities.</p>	<p>6.1.1 The CCNPP Unit 3 TSC contains a minimum working space of 1875} square feet. 6.1.2 The CCNPP Unit 3 TSC is located on the same floor level as the Control Room. 6.1.3 The CCNPP Unit 3 TSC is located in the fully hardened Safeguards Building. It is also within the control room envelope (CRE) which maintains habitability during normal, off-normal and emergency conditions. 6.1.4 The CCNPP Unit 3 TSC communications capabilities are addressed by the ITAAC Acceptance Criterion 4.1.1. 6.1.5 The CCNPP Unit 3 TSC receives and displays the plant and environmental information for the parameters specified in the Calvert Cliffs Nuclear Power Plant Unit 3 U.S. EPR EAL Technical Basis Manual and listed in ITAAC Acceptance Criterion 2.1.1. 6.1.6 The capability to initiate emergency measures and conduct emergency assessment was successfully demonstrated during the pre-operational federally-evaluated exercise required in ITAAC 8.0. 6.1.7 The CCNPP Unit 3 Operations Support Center (OSC) is located in the CCNPP Unit 3 Access Building within the protected area separate from the {CCNPP Unit 3} Control Room and Technical Support Center. 6.1.8 The CCNPP Unit 3 U.S. EPR OSC communications capabilities are addressed by the Acceptance Criterion 4.1.1.</p>
	<p>6.2 The licensee has established an EOF. [H.2]</p>	<p>6.2.1 A test of the capabilities of the EOF will be performed. <u>NOTE:</u> The CCNPP EOF is a shared facility for CCNPP Units 1 & 2 and Unit 3 and was previously inspected for Units 1 & 2.</p>	<p>6.2.1.1 The CCNPP EOF has a at least 4,912 square feet and is large enough for required systems, equipment, records and storage. 6.2.1.2 The CCNPP EOF communications capabilities are addressed by the Acceptance Criterion 4.1.1. 6.2.1.3 The CCNPP EOF’s plant information system can retrieve and display the radiological, meteorological, plant system data for CCNPP Unit 3 for the parameters specified in the Calvert Cliffs Nuclear Power Plant Unit 3 U.S. EPR EAL</p>

		<p>6.2.2 An inspection of the implementation of the Human Factors Engineering Program EOF design requirements will be performed.</p>	<p>Technical Bases Manual and listed in ITAAC Acceptance Criterion 2.1.1.</p> <p>6.2.1.4 The capability to perform offsite protective measures was successfully demonstrated during the pre-operational federally-evaluated exercise required in ITAAC 10.0.</p> <p>6.2.2.1 The Human Factors Engineering Program design requirements for the CCNPP Unit 3 are incorporated in the EOF.</p> <p><u>6.2.2.2 Communications, accommodations and administrative resources in the EOF are appropriately laid out to support Unit 3 response requirements.</u></p> <p><u>6.2.2.3 Facility layout and furnishings allow for combined use if concurrent events are declared at Units 1, 2, and 3.</u></p> <p><u>6.2.2.4 A drill requiring mobilization and response activities of both EROs will be conducted prior to operation of Unit 3.</u></p>
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RAI No. 299

NRC Question 13.03-48

Subject: Accident Assessment

Basis: 10 CFR 50.47(b)(9); Supplement 1 to NUREG-0737; NUREG-0654/FEMA-REP-1, Evaluation Criterion I.8

SRP ACCEPTANCE CRITERIA: Requirements A and B; Acceptance Criterion 1, 2, 5, and 30

Section I.8, "Monitoring Teams," of the CCNPP Unit 3 Emergency Plan states, in part, that the licensee monitoring teams are dispatched when radioactive material may be released from the plant. Monitoring teams are composed of two individuals that collect radiological survey and sample data, which is used to define affected area boundaries, assess magnitude, and verify or modify PARs. Data from teams are transmitted to the emergency facilities. This capability exists onsite 24 hours a day.

Clarify in the Emergency Plan how the capability to conduct offsite surveys and sampling exists 24 hours a day, when Table B-1a of the Emergency Plan does not specify any on-shift ERO responders as performing this activity, or provide justification for why this information is not needed.

Response

The Emergency Plan states that the capability to conduct offsite environmental survey and sampling, while available onsite 24 hours per day, is limited, and not designed to be available and capable for all declarations. Monitoring teams are activated at an Alert or higher declaration. Prior such a declaration, existing on-shift resources are available to perform appropriate environmental monitoring actions inside or outside the protected area fence as directed and prioritized by the Shift Manager.

The CCNPP Unit 3 Emergency Plan Section I.8 states:

Monitoring Teams are dispatched by the Licensee to perform a variety of functions during conditions that may involve significant releases of radioactive materials from the plant. Radiological survey and sample data is used to define affected area boundaries, verify or modify dose projections and protective action recommendations, and assess the actual magnitude, extent, and significance of a liquid or gaseous release.

In addition to contamination and dose rate measurements, the change out of TLDs and air sampler cartridges can be performed. Other actions may include soil, water and vegetation sampling.

The initial environmental surveys involve simple-to-perform measurements to quickly confirm or modify the dose projections based on plant parameters. Subsequent environmental monitoring efforts will be aimed at further defining the offsite consequences including instituting an expanded program to enable prompt assessments of any subsequent releases from the plant.

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.

COLA Impact

The COLA EP will not be revised as a result of this response.

RAI No. 299

NRC Question 13.03-49

Subject: Offsite Medical Services

Basis: 10 CFR 50.47(b)(11); Appendix E.IV.E.7 to 10 CFR Part 50, NUREG-0654/FEMA-REP-1, Evaluation Criterion L.1

SRP ACCEPTANCE CRITERIA: Requirements A and B; Acceptance Criterion 1, 2, and 18

Section L.3, "Medical Service Facilities," of the CCNPP Unit 3 Emergency Plan states that the licensee maintains an agreement with local hospitals and physicians trained in radiological emergency response. A team of physicians, nurses, health physicists, and necessary support personnel are on-call to provide assistance at the Calvert Memorial Hospital (CMH), or at the accident site.

Clarify in the CCNPP Unit 3 Emergency Plan, whether letters of agreement have been established with local hospitals and medical transportation services for backup transportation and treatment of potentially contaminated injured personnel, or provide justification for why this information is not needed. Provide Letters of Agreement, as appropriate, for these services.

Response

The Emergency Plan does not contain letters of agreement. These will be obtained no less than 180 days prior to fuel load as established in ITAAC Table 2.3.1, Section 9.0, Medical and Public Health Support.

COLA Impact

The COLA EP will not be revised as a result of this response.

RAI No. 299

NRC Question 13.03-50

Subject: Emergency Preparedness Drills and ITAAC

Basis: 10 CFR 50.47(b)(14); NUREG-0654/FEMA-REP-1, Evaluation Criterion N.1.b; 10 CFR 52.80(a)

SRP ACCEPTANCE CRITERIA: Requirements A and B; Acceptance Criterion 23 and 24

The applicant proposed EP ITAAC 10.2 to ensure an off-hours/unannounced drill will be conducted prior to full power operation to test mobilization of the onsite ERO. However, EP ITAAC are scheduled to be completed prior to fuel load.

Revise EP ITAAC 10.2 to eliminate the phrase, “prior to full power operation,” or provide justification for why this is not necessary.

Response

The EP ITAAC will be revised to conduct the ERO mobilization drill prior to fuel load.

COLA Impact

ITAAC Table 2.3-1, Emergency Planning ITAAC, is being updated as follows:

10.0 Exercises and Drills			
<p>10 CFR 50.47(b)(14) – Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills are (will be) corrected.</p>	<p>10.1 Licensee conducts a full participation exercise to evaluate major portions of emergency response capabilities, which includes participation by each State and local agency within the plume exposure EPZ, and each State within the ingestion control EPZ. [N.1]</p>	<p>10.1 A full participation exercise (test) will be conducted within the specified time periods of Appendix E to 10 CFR Part 50.</p> <p>10.2 An off-hours/unannounced drill will be conducted prior to full power operation fuel <u>load</u> to test mobilization of the onsite ERO.</p>	<p>10.1.1 See Note</p> <p>10.1.2 The exercise is completed within the specified time periods of Appendix E to 10 CFR Part 50, offsite exercise objectives are met, and there are no uncorrected offsite exercise deficiencies in accordance with Federal Register 20-580, "FEMA Radiological Emergency Preparedness: Exercise Evaluation Methodology," and agreed to Extent of Play.</p> <p>10.2 Onsite emergency response personnel are mobilized in sufficient numbers to fully staff and activate the TSC, OSC, EOF and JIC and command and control turnover from the Shift Supervisor <u>Manager</u>.</p>