



September 13, 2016

NG-16-0167
10 CFR 50.90

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

Duane Arnold Energy Center
Docket No. 50-331
Renewed Facility Operating License No. DPR-49

Subject: License Amendment Request (TSCR-149), Revision to Staff
Augmentation Times in the Duane Arnold Energy Center Emergency Plan

Pursuant to 10 CFR 50.90, NextEra Energy Duane Arnold, LLC (hereafter, NextEra Energy Duane Arnold) hereby requests an amendment to the Duane Arnold Energy Center (DAEC) Emergency Plan. NextEra Energy Duane Arnold proposes to increase staff augmentation times for Emergency Response Organization (ERO) response functions. NextEra Duane Arnold has evaluated the proposed amendment and has determined that it does not involve a significant hazards consideration pursuant to 10 CFR 50.92, and there are no significant environmental impacts associated with the change.

Enclosure 1 provides a technical and regulatory evaluation of the proposed changes. Attachments 1 and 2 to Enclosure 1 provide the Emergency Plan page markups and clean typed pages, respectively. Enclosure 2 provides a comparison of NUREG-0654, the last NRC approved DAEC Emergency Plan, the current DAEC Emergency Plan and the proposed changes. Enclosure 3 is a copy of the Letter of Consultation and Concurrence from Off-site Response Organizations.

Approval of the proposed amendment is requested by December 29, 2017. NextEra Energy Duane Arnold will implement the amendment within 180 days of issuance due to the training and significant number of procedure changes required to support implementation.

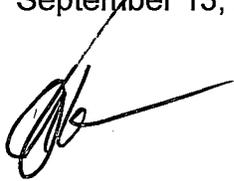
This letter makes no new commitments or changes to any existing commitments.

In accordance with 10 CFR 50.91, NextEra Energy Duane Arnold is notifying the State of Iowa of this LAR by transmitting a copy of this letter and enclosures to the designated State Official.

AX45
NRR

If there are any questions or if additional information is needed, please contact
J. Michael Davis, Licensing Manager, at 319-851-7032.

I declare under penalty of perjury that the foregoing is true and correct. Executed on
September 13, 2016.



T. A. Vehec
Vice President, Duane Arnold Energy Center

Enclosures

cc: NRC Region III
NRC Project Manager
NRC Resident Inspector
State of Iowa

ENCLOSURE 1 to NG-16-0167

DUANE ARNOLD ENERGY CENTER

Evaluation of the Proposed Changes

License Amendment Request (LAR) for Revision to Staff Augmentation Times in the
Duane Arnold Energy Center Emergency Plan

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ATTACHMENTS:

- 1. Marked-Up Copy Pages of Emergency Plan, Sections A, B, E, H and Appendix 6
- 2. Clean Copy Pages of Emergency Plan, Sections A, B, E, H and Appendix 6

30 pages to follow

1.0 SUMMARY DESCRIPTION

NextEra Energy Duane Arnold, LLC (DAEC) proposes revisions to the Duane Arnold Energy Center Emergency Plan. DAEC completed a new staffing analysis of on-shift responsibilities resulting from impacts associated with the proposed changes. Additionally, a functional analysis of the augmented Emergency Response Organization (ERO) positions based on an extended response time and completion of Major Tasks as outlined in NUREG-0654/FEMA-REP-1, Revision 1 was completed. The analyses determined that changes can be made to increase the staff augmentation times for ERO response functions from 30 and 60 minutes to 60 and 90 minutes while maintaining the site's ability to protect public health and safety. An additional change includes the definition for facility activation to better align with NRC guidance.

The increase in the ERO augmentation response times results in an increase in facility activation times for the DAEC Emergency Response Facilities (ERFs). Therefore, the changes in staff augmentation response times are considered a reduction in Emergency Plan effectiveness as defined in 10 CFR 50.54(q)(1)(iv). In accordance with 10 CFR 50.54(q)(4), changes to a licensee's emergency plan that reduce the effectiveness of the plan may not be implemented without prior Nuclear Regulatory Commission (NRC) approval and are submitted as license amendment requests (LAR) in accordance with 10 CFR 50.90.

2.0 DETAILED DESCRIPTION

2.1 Proposed Changes

Brief descriptions of the associated Emergency Plan proposed changes are provided below. The justification for each change is discussed in Section 3.2. The specific wording changes are provided in Attachments 1 and 2 to this enclosure as marked-up and clean copy Emergency Plan pages, respectively.

- a. Section A, "Assignment of Responsibilities," Section 2.5 (2), was revised to describe facility activation criteria.
- b. Section A, "Assignment of Responsibilities," Section 2.5 (3), was revised to describe the activation criteria for the Technical Support Center (TSC) and Operational Support Center (OSC) from an Alert or higher classification and the Emergency Operations Facility (EOF) and Joint Information Center (JIC) from a Site Area Emergency or higher classification.
- c. Section B, "Emergency Response Organization," Section 2.2, positions were revised to reflect response times in the TSC from 30 to 60 and in the EOF from 60 to 90 minutes.
- d. Section B, "Emergency Response Organization," Section 2.2.6 was revised to remove the Emergency Coordinator (EC) duties from the Technical and Engineering Supervisor as a result of the EC becoming a minimum staff position for the TSC.

- e. Section B, "Emergency Response Organization", Section 2.2.9 was added to include the TSC Ops Liaison position to align with the changes in Figure B-1.
- f. Section B, "Emergency Response Organization," Section 2.2.13(1) was revised to reflect that on-shift staffing as noted in Table B-1 was validated by an On-Shift Staffing Analysis.
- g. Section B, "Emergency Response Organization," Section 2.2.14(1)(a) was revised to remove the reference to initial notification support by Security personnel.
- h. Section B, "Emergency Response Organization," Table B-1 changes include the updated response times for responders. This change also reflects the current 4 On-Shift Fire Brigade Members within the on-shift staffing totals.
- i. Section B, "Emergency Response Organization," Figure B-1 was updated to reflect the positions designated as minimum staff within the Emergency Response Facilities.
- j. Section E, "Notification Methods and Procedures," Section 2.2(2)(b) deleted references to 30 and 60 minute response positions.
- k. Section H, "Emergency Facilities Staffing, Activation and Equipment," Sections 2.1 (2) and 2.2 (2), were revised to describe the facility activation criteria.
- l. Appendix 6, "Definitions," updated to include the definition of Facility Activation per IP 71114, Attachment 03, "Emergency Response Organization Staffing and Augmentation System."

2.2 Reason for the Proposed Changes

The proposed change is needed to address concerns regarding limitations on the number of ERO staff augmentation personnel capable of responding to the site in 30 minutes. Significant increases in the number of ERO positions have occurred over the past several years. Some plant personnel live far enough away from the plant that they may be precluded from being assigned to the augmented ERO. Expanding augmentation times will increase the number of eligible plant personnel available to fill critical ERO positions and add valuable expertise. The proposed change does not reduce the number of personnel expected to respond and will not be applied as permission to delay response to an event.

The last DAEC Emergency Plan reviewed and approved by the NRC in the areas of staffing was Revision 2, documented by NRC Safety Evaluation Report (SER) dated December 27, 1982. The DAEC Emergency Plan, Revision 2, Table B-1, "On-Shift Staffing and Staff Augmentation Assignments", provided the site commitment to meet the guidance for on-

shift staffing and augmentation goals including 30 minute and 60 minute responders established in Table B-1 of NUREG-0654, Revision 1.

The ERO in Revision 2 of the Emergency Plan consisted of 23 positions which were augmented to support site response to an emergency. Primary and alternate contacts were identified for response to onsite facilities, making the ERO a total of approximately 46 individuals. Today, the ERO consists of 59 positions which are filled by personnel assigned to one of three ERO teams. This represents a 384% increase in the number of individuals required in order to meet existing Emergency Plan requirements.

Maintaining an appropriate number of on-shift personnel, crediting additional on-shift staff positions, technological advances available for on-shift responders and changing the augmentation timeliness response times to 60 and 90 minutes are practical and prudent alternate methods of ensuring effective and timely emergency response augmentation.

Details associated with the on-shift ERO, revised augmented ERO and revised key responsibilities and tasks as identified in NUREG-0654 Revision 1, are included in Section 3.2 of this enclosure.

2.3 DAEC Emergency Plan Background

DAEC has four Emergency Response Facilities (ERFs) augmenting the on-shift staff: the Technical Support Center (TSC), the Operational Support Center (OSC), the Emergency Operations Facility (EOF) and the Joint Information Center (JIC). During an emergency, the Shift Manager initially assumes the responsibility as Emergency Coordinator (EC). Emergency response by on-shift staff is directed by the EC from the control room (CR) until relieved by an augmenting staff with the subsequent activation of ERFs.

DAEC uses four standard levels of emergency classification as described in NUREG-0654, Revision 1. Augmentation of the on-shift staff for an Unusual Event is optional and is left to the discretion of the EC. At the Alert or higher emergency classification levels, the TSC and OSC are activated. The EOF and JIC are activated at a Site Area Emergency or higher classification. The associated augmenting personnel are notified to report to their assigned facilities.

3.0 TECHNICAL EVALUATION

3.1 Technical Analysis

The following section discusses technical changes in plant systems, dose assessment, procedures and training which have been completed in order to better support on-shift functions and ease operator burden. An on-shift analysis utilizing NEI 10-05, Assessment of On-Shift Emergency Response Organization Staffing and Capabilities, methodology was completed and determined that the proposed changes did not result in conflicting duties for on-shift personnel.

3.1.1 Plant Computer System

The Plant Process Computer (PPC) system provides for the Safety Parameter Display System functions discussed in the following paragraph as well as data collection and processing, accounting, alarming and logging functions. An auxiliary function of the PPC is to transmit plant data to remote locations, including the Technical Support Center (TSC) and the Emergency Operations Facility (EOF).

The Safety Parameter Display System (SPDS) provides a concise display of critical plant variables to the control room personnel to aid them in rapidly and reliably determining the safety status of the plant. The SPDS is operated during normal plant operations, as well as during abnormal and emergency conditions. The principal purpose and function of the SPDS is to aid the control room personnel during abnormal and emergency conditions in determining the safety status of the plant.

Parameters displayed by the SPDS are the quantitative and qualitative measures to indicate the accomplishment or maintenance of critical safety functions. Information needed to assess the status of the plant safety parameters is obtained by the measurement of key plant variables. The safety parameters utilized by the SPDS to assess the maintenance or accomplishment of the critical safety functions as required by NUREG-0737, Supplement 1, Section 4, are:

1. Reactivity control.
2. Reactor core cooling and heat removal.
3. Reactor coolant system integrity.
4. Containment conditions.
5. Radiation control.

In general, the ranges of parameters monitored by the SPDS are identical to those ranges monitored by existing control room instrumentation. Ranges displayed by the SPDS are adequate to cover plant responses analyzed in UFSAR Chapter 15, "Plant Safety Analysis".

Benefits of the current level of computer capabilities include:

- Improved plant monitoring capability for Emergency functions.
- Real time plant data available through graphical displays.
- PPC PI functions available to any desktop computer through the plant's site-wide network.
- Programming capability for automated response such as

indication of critical parameter alarms.

- Easier interface when switching between graphical displays.
- Robust power supplies for the PPC and SPDS.
 - The PPC is powered by Turbine Building Non-essential Load Center as the normal supply, with the Low Level Radwaste Processing and Storage Facility load center as the backup supply, and the TSC Diesel as the emergency supply.
 - SPDS panels are powered by Instrument AC and normally fed by inverters. Should the plant experience a Loss of Offsite Power (LOOP) event, 125 VDC batteries will continue to power the inverters until the connected battery charger is re-energized.

3.1.2 Dose Assessment

MIDAS has been utilized at DAEC since the mid-1990s. The original software had accessibility limitations and lengthy processing times. Computer displays of plant, radiological effluent, area radiation monitor, and meteorological information were available only from SPDS software and on proprietary SPDS displays.

Over the years, modifications and upgrades have vastly improved the availability, speed and reliability of MIDAS as a dose projection tool. In 2008, the VAX-based version of MIDAS was replaced with a Microsoft (MS) Windows version that can be installed on any company standard MS Windows based computer. It is currently installed on laptops located in the TSC, the control room and the EOF which can run projection calculations simultaneously. Chemistry Technicians are trained and proficient in the use of the software. Procedural guidance for running a version of the software with a simplified interface that requires a minimal amount of data entry has been provided for operations personnel.

Because the MIDAS software is installed on laptop computers, in the event that the habitability of the TSC, Control Room or EOF is compromised, these computers can be relocated and manual data entry used to determine dose projections. If plant effluent and meteorological data is not available, MIDAS software includes a feature that allows for the calculation of dose projections based on radiological data reported by field teams.

The transfer of data from the effluent monitoring system and the meteorological tower to the current MIDAS software has proven to improve performance when compared to the VAX computer

predecessor. Data transfer is accomplished by an automated file transfer between the PPC and MIDAS.

The computing power of modern computer processors allow for calculation of dose projections that take seconds rather than minutes.

3.1.3 Automated Call-Out Systems

Enhancements in automated call-out and paging systems have resulted in streamlined processes for activation of the ERO. A single phone call initiates rapid notification of ERO members in lieu of individual calls to fill the 59 positions included in today's Emergency Plan. The system includes a primary activation system as well as remote back-up capability to ensure uninterrupted operation.

3.1.4 Procedure Improvements

3.1.4.1 EOPs

Since the original emergency plan approval, Emergency Operating Procedures (EOPs) have been improved through industry initiatives, primarily through station involvement with Boiling Water Reactor Owners Group (BWROG). BWR EOPs are symptom based which demands less assessment and interpretation of plant conditions by the Operating crews. In addition, the EOPs are flowcharted, better human factored, and have an improved layout allowing for more consistent implementation. Parametric trend curves are generated by SPDS to graphically display plant conditions relative to EOP limits or required actions.

3.1.4.2 EIPs

In 2012, DAEC updated the classification methodology to NEI 99-01, "Methodology for Development of Emergency Action Levels," Revision 5. DAEC EALs now incorporate guidance that has simplified the classification process, including the use of an overview matrix of EAL initiating conditions and threshold values that streamlines the process of evaluating EALs against plant conditions in the applicable EIPs.

3.1.5 Training Improvements

3.1.5.1 Operations Training

Training is used to strategically drive improved performance at DAEC. Since NRC approval of the DAEC Emergency Plan, the application of the Systematic Approach to Training (SAT) has resulted in developing a task list for Operations personnel. The SAT process ensures training is conducted to industry-accepted standards and has led to accreditation of the Operations Training Programs by the National Academy for Nuclear Training.

A dynamic simulator is routinely used during Operations Training. "As found" simulator evaluations that include emergency response scenarios, several of which are 90 minutes in length, are part of the requalification segment. Simulator scenarios are designed to be realistic and reflect a wide range of plant conditions, including emergency conditions. During evaluated simulator sessions, the control room staff is taken from normal operation to accident conditions resulting in declaration of at least one event, which can range from Unusual Event up to a General Emergency. The crew performs critical tasks, classification, accident mitigation, response prioritization, and communications without augmentation from additional responders. The proficiency of the control room staff to perform these functions while maintaining situational awareness, without additional support is assessed during evaluated simulator sessions.

The Licensed Operator Continuing Training (LOCT) Program includes licensed crew performance evaluations that are to consider the scenario guidance attributes of INPO Operations Department Standing Instruction, ODSI-3, "Operations Department Guidance."

Attachment C of ODSI-3 provides guidance on the realistic integration of the emergency response into crew performance evaluations. The purpose is to ensure the additional challenges the emergency plan responsibilities add to the crew's ability to manage an event are realistically represented in the crew performance evaluations. Representing the event as realistically as possible, which includes the additional challenges of emergency plan responsibilities, helps promote the situational awareness necessary during a real event.

3.1.5.2 Shift Technical Advisor (STA) Training

The INPO Guidelines describe the role of the STA and are reflected in Operation Department Procedures, OP-AA-100-1000, "Conduct of Operations" and ACP 1410.1, "Operations Working Standards". The STA performs independent assessments of plant operating

concerns, appropriateness of corrective actions, analysis of events and their effects, effectiveness of response(s) to emergent conditions, classifications of emergencies, development of recommendations to protect the public and any other actions related to critical safety functions and plant safety during abnormal and emergency situations. By routine monitoring of equipment and plant operations, the STA can focus on preventive actions in order to mitigate the consequences of an accident and protect public health and safety.

3.1.6 Increases in On-Shift Staffing

There has been an increase in on-shift staffing from that required in the NRC approved Plan in order to ensure adequate performance of the major emergency plan functions and tasks. A total of 16 persons are identified for on-shift staffing which is an increase from the regulatory guidance provided by NUREG-0654 Revision 1 total of 10 persons and the DAEC Emergency Plan, Revision 2 approved staffing of 9 persons. A comparative chart depicting on-shift and augmented staffing based on NUREG-0654 Revision 1, Revision 2 of the DAEC Emergency Plan, the current Emergency Plan and proposed revisions is included in Enclosure 2.

3.1.7 Improvement Summary

The improvements to staffing, equipment, procedures and training that have occurred since initial approval of the DAEC Emergency Plan have resulted in a significant increase in the on-shift capabilities and knowledge. Based on these improvements, it is concluded that there would be no significant degradation or loss of any functional task as a result of the proposed augmentation times.

3.2 Functional Analysis

This analysis evaluates the impact of extending the augmentation times on the ability of the on-shift staff to perform the major tasks for the major functional areas of the DAEC Emergency Plan. The analysis demonstrates that no degradation or loss of function would occur as a result of the change.

The following is the result of the functional analysis performed for the areas as described in NUREG-0654 Revision 1, Table B-1.

3.2.1 Plant Operations and Assessment of Operational Aspects Function

NUREG-0654 Revision 1 assumes the on-shift staff will provide these functions throughout the emergency. Compared to NUREG-0654 Revision 1, the current plan maintains the on-shift staffing as described in NUREG-0654 Table B-1 to support this function and to support any of the major tasks such as repair and corrective actions or operational accident assessments. Also, included in the current

plan is the designation of a dedicated Shift Communicator who completes initial notifications to offsite agencies. This improves availability of Operations personnel to perform specified functions.

In accordance with the current DAEC Emergency Plan, the on-shift staffing is in excess of the requirements of NUREG-0654 Revision 1 Table B-1, as well as that prescribed in the last approved Plan from 1982. Additional personnel have been included in the existing on-shift complement for a total on-shift staffing of 16 personnel. This represents an increase of 6 when compared to the regulatory guidance stated in NUREG-0654 Revision 1, Table B-1 and an increase of 7 when compared to the last NRC approved Plan in 1982. The additional on-shift staff ensures prompt response to emergency events without requiring immediate augmentation.

Therefore, the proposed increase in augmentation times will not detract from the capability of on-shift personnel to support plant operations or the assessment of operational aspects at the start of an event and until the on-shift staff is augmented.

3.2.2 Emergency Direction and Control Function

NUREG-0654 Revision 1 guidance indicates that the Shift Manager assumes this function as a collateral duty, where responsibility for overall direction of facility response may be transferred when ERFs are fully staffed.

According to the Revision 2 of the DAEC Emergency Plan, the Shift Supervising Engineer would assume the duties of Emergency Coordinator (EC) and would be responsible for emergency response efforts until relieved by the Chief Engineer/Emergency Coordinator at an Alert or higher classification. There were no time requirements established with the relief process. The Chief Engineer/EC would assume duties related to overall response, as well as all off-site responsibilities including Protective Action Recommendations (PARs) and emergency notifications until relieved of those functions by the Emergency Response and Recovery Director (ER&RD) in the EOF. The ER&RD was a 60 minute response position. In Revision 12 of the DAEC Plan, the Chief Engineer (Plant Manager) position was identified as a 30 minute responder capable of providing relief to the Shift Supervisor in advance of the 60 minute senior manager response commitment.

The current revision of the DAEC Plan maintains the commitment for relief of the Shift Supervisor within 30 minutes of an Alert or higher classification. The current Plan also maintains the requirement for 60 minute augmented response for ER&RD position in the EOF.

Additionally, the current Plan includes the requirement for a Shift Technical Advisor (STA) on-shift to support operations functions.

Under the proposed Plan, the Plant Manager/EC response time would be extended from 30 minutes to 60 minutes and the response time for the ER&RD in the EOF would be extended from 60 minutes to 90 minutes. This change would require the Shift Supervisor/EC maintain responsibility for Emergency Direction and Control for an additional 30 minutes. As described earlier, the advances in technology, training and procedures, as well as the additional on-shift Operations personnel, adequately compensate for any additional burden imposed on the Shift Manager by the retention of the EC function for an additional 30 minutes.

The proposed revision to DAEC Emergency Plan Section A, section 2.5, defines a facility as 'activated' by its respective manager once minimum required staffing has been achieved such that the facility is capable of performing its assigned functions. The time from the applicable emergency declaration to the time the facility is activated is the "augmentation time" for emergency responders. For the TSC and OSC, the augmentation time would be 60 minutes from an Alert or higher classification. For the EOF and JIC, the augmentation time would be 90 minutes from a Site Area Emergency or higher classification.

The proposed revision to DAEC Emergency Plan Section B, Figure B-1, requires augmentation of the on-shift staff by the following TSC positions which support activation of the TSC within 60 minutes of an Alert classification:

- Emergency Coordinator
- Site Radiation Protection Coordinator
- Reactor Engineer
- OSC Supervisor
- TSC Ops Liaison
- TSC ENS Communicator
- MIDAS Operator
- Administrative Supervisor

Identification of specific positions required for activation of the TSC and OSC better supports the transfer of command/control functions from the Control Room within the existing 60 minute timeframe as described in the current Emergency Plan.

This change is acceptable in that it is supported by the minimum staffing positions in the TSC for transfer of the command and control functions.

3.2.3 Notification/Communication Function

Per NUREG-0654 Revision 1, the Notification/Communication function included major tasks to notify licensee, state, local and federal personnel and maintain communications.

Licensee Notification

- a. Revision 2 of Section E, dated July 1982, identified notification of licensee off duty personnel by the Shift Supervising Engineer, functioning as the Emergency Coordinator. This notification was completed at an Alert or higher classification for personnel assigned to respond to the TSC or OSC. Notification of ERO members responding to the EOF was initiated at the Site Area Emergency or higher classification.
- b. The current Plan includes notification of off duty ERO by the Operations Shift Manager/Control Room Supervisor or designee in accordance with implementing procedures. This notification occurs at an Alert or higher classification for augmented responders to the TSC, OSC, EOF and JIC.
- c. The proposed Plan will maintain the notification process for augmented ERO in that personnel responding to the TSC, OSC, EOF and JIC will be notified at the Alert or higher classification. This, combined with the implementation of an electronic ERO notification process in EPIP 1.2, "Notifications," will ensure performance of this function without placing additional burden on the on-shift ERO.

State, Local and Federal Notification

- a. Revision 2 of Section B, dated July 1982, identified notification of county and state personnel as well as NRC as a function completed by the Shift Supervising Engineer or designee. Other personnel designated to perform this function were generally on-shift security force members. Transition of the state, local and federal notification function from the control room occurred upon staffing by the Chief Engineer who became the Emergency Coordinator operating out of the Technical Support Center (TSC). The Notification function was augmented by two 30 minute responders, the Chief Engineer and the Security & Support Supervisor, and two 60 minute responders, the Admin Supervisor and ENS Communicator. It should be noted that Table B-1 of Revision 2 of the DAEC Plan identified the Chief Engineer as

performing both the Emergency Direction and Control Major Function, as well as one of the two individuals performing the Notification/Communication Major Function. Due to the fact that a note was not included indicating the Notification Major Function was an ancillary duty of the Chief Engineer, the total number of 30 minute responders was not clearly identified. In Revision 17 of Section B of the DAEC Plan, a dedicated position was added to the on-shift complement for performance of the notification function in lieu of the Chief Engineer 30 minute responder position. Augmentation of the two 60 minute responders for this function was not changed.

- b. The current Plan maintains the on-shift and augmented organization for the State/local notification function as described in Revision 17 of Section B of the DAEC Plan. The notification function transitions from the Shift Communicator in the control room to the Security & Support Supervisor position in the TSC within 30 minutes, supported by the Admin Supervisor who responds within 60 minutes. The function subsequently transitions to the Radiological and EOF Manager in the EOF upon facility activation. A second communicator augments the TSC within 60 minutes to perform ENS notifications. The ENS notification function remains in the TSC throughout the event.
- c. The proposed Plan maintains the on-shift shift communicator position as well as the response time for the communicator assigned ENS notifications and the Admin Supervisor in the TSC. The response time for the Security & Support Supervisor in the TSC is extended to 60 minutes. Primary responsibility for state/local notifications will be changed to the TSC Ops Liaison, which will maintain the response time of 60 minutes. The augmentation time for the EOF Ops Liaison and Radiological and EOF Manager will be extended from 60 minutes to 90 minutes.

The addition of the Shift Communicator position to the on-shift staff in a previous revision of the Plan provided additional support to the control room staff for completion of the state/local notification function for an additional 30 minutes such that extension of the Security & Support Supervisor response time to 60 minutes and maintenance of the TSC Ops Liaison 60 minute response time does not adversely impact the capability for the major task of state/local notification. Additionally, extension of the augmentation response time for the EOF Ops Liaison and Radiological and EOF Manager aligns with the activation criteria for the EOF, so there is no adverse impact to the Notification function in that facility resulting from this change.

Notification/Communication Function Summary

Notification of licensee personnel is initiated through an automated call-out process which is initiated by the Shift Manager. The proposed change does not impact the call-out process or the notification of licensee personnel.

Extending the response time of the Security & Support Supervisor from 30 to 60 minutes does not impact the staffing of the notification function because the proposed Plan maintains the added Shift Communicator position on shift to ensure that notification functions are completed without conflicts as noted in the site On-Shift Staffing Analysis. Upon activation of the TSC, State/local notifications will transition from the Shift Communicator in the Control Room to the TSC Admin Supervisor within 60 minutes under the proposed revision. ENS notifications will continue transition from the Control Room to the TSC within 60 minutes as required under the current Plan. This approach is consistent with Industry and NRC public meeting discussions which have taken place over the last year.

3.2.4 Radiological Accident Assessment and Support of Operational Accident Assessment Function

Per NUREG-0654 Revision 1, the Radiological Accident Assessment and Operational Accident Assessment functional area includes Emergency Operations Facility (EOF) Director, Offsite Dose Assessment, Offsite surveys, Onsite out-of-plant surveys, in-plant surveys and Chemistry/Radiochemistry major tasks.

Emergency Operations Facility (EOF) Director Major Task

Revision 2 of the DAEC Emergency Plan, dated July 1982, identified the TSC as the initial response facility. Accident assessment, evaluation and recovery functions were transitioned from the Shift Supervising Engineer in the Control Room to the Chief Engineer/Emergency Coordinator who operated from the TSC rather than the EOF as noted in NUREG-0654 Rev 1.

Assessment, Evaluation and Recovery Task

- a. In Revision 2 of the DAEC Emergency Plan, the Chief Engineer serving as the Emergency Coordinator (EC) in the TSC was responsible for coordination of total site effort at DAEC. The Chief Engineer/EC assumed the emergency assessment and evaluation functions from the Shift Supervising Engineer in the Control Room. Revision 2 did not specifically identify a response time for the Chief Engineer/EC. In Revision 12 of Section B of the DAEC Plan, the Chief Engineer/EC was assigned a 30 minute response time.

- b. The current Plan maintains the commitment for the 30 minute response time for the Chief Engineer/EC.
- c. In the proposed revision, the 30 minute augmentation goal for the EC in the TSC is extended to 60 minutes.

Assessment, Evaluation and Recovery Task Summary

The proposed revision to the DAEC Emergency Plan extends the time that the assessment, evaluation and recovery tasks are maintained by the Shift Manager for 30 minutes. The addition of personnel on-shift adequately compensates for any additional burden imposed on the Shift Manager by the retention of the EC function for an additional 30 minutes.

Command and Control Task

- a. In Revision 2 of the DAEC Emergency Plan, the on-duty Shift Supervising Engineer, acting as the Emergency Coordinator, was responsible for notification of augmented ERO until relieved by the Chief Engineer/Emergency Coordinator in the TSC at an Alert or higher classification. Upon staffing of the EOF, at a Site Area Emergency or higher classification, overall command and control of the event was transitioned from the Emergency Coordinator in the TSC to the Emergency Response and Recovery Director in the EOF. Revision 2 did not require activation of the EOF and JIC until a Site Area Emergency or higher classification and did not specifically identify timeframes for completion of command and control transfer.
- b. The current Plan maintains the sequence of transfer of command and control functions from the Control Room to the TSC and, subsequently, to the EOF. The current Plan maintains the requirement for activation of the EOF and JIC at a Site Area Emergency or General Emergency, or at an Alert at the direction of the ER&RD, and identifies that minimum staff positions have been designated in order to establish facility activation.
- c. The proposed Plan includes specific facility activation times of 60 and 90 minutes respectively for the TSC and EOF. Additionally, the EOF and JIC will continue be activated at a Site Area Emergency or higher classification. Finally, the proposed Plan revises the list of specific positions in each facility which are required to be in place and ready to accept command and control functions in order for the facility to be declared 'activated'. These positions are related to the command and control functions of Classification, Notification, PARs and Emergency Exposure Authorization based on guidance in NSIR/DPR-ISG-01. Although TSC responders as identified in the proposed Emergency Plan,

Figure B-1, are considered 60 minute responders, identification of specific positions required for facility activation will allow the site to transfer command and control functions from the Control Room earlier than 60 minutes from event classification thus relieving the Control Room staff of Classification, Notification, PARs and Emergency Exposure Authorization responsibilities. Likewise, the EOF responders identified in Figure B-1 have a 90 minute response requirement. However, once specific positions are staffed and ready to accept command and control functions, these can be transitioned from the TSC to the EOF in advance of the 90 minute response requirement at the Site Area Emergency or higher classification.

Command and Control Task Summary

The proposed revision to the DAEC Emergency Plan maintains the requirement for staffing the EOF and JIC at the Site Area Emergency or higher event classification level and revises specific positions associated with command and control responsibilities based on guidance in NSIR/DPR-ISG-01, so that transfer of these functions may occur earlier in the response process. Although response times are being extended, the ability to perform the Command and Control major tasks in the TSC such that transition of these activities occurs within 60 minutes of event declaration is maintained.

Offsite Dose Assessment Major Task

- a. In Revision 2 of the DAEC Emergency Plan, performance of dose assessment on-shift was not specifically discussed. Table B-1 of this revision did identify one 30 minute responder associated with this function. Additionally, the Plan described assessment of radiological consequences and directing protective measures as the responsibility of the Site Radiation Protection Coordinator in the TSC and performance of this function by corporate augmented support in accordance with the Corporate Emergency Response Plan.
- b. In the current Plan, the dose assessment function is performed by a Chemistry Technician on shift. Site practice has been that the Chemistry Technician on-shift performs initial dose assessment activities and transitions to the TSC as the MIDAS Operator when the facility is activated at an Alert or higher. The Site Radiation Protection Coordinator in the TSC serves in support of these activities. This function is transferred to the EOF upon activation of that facility.
- c. In the proposed Plan, performance of the on-shift dose assessment function is maintained by the on-shift Chemistry

Technician. The on-shift Chemistry Technician is trained to perform dose assessment functions and continues to transition to the TSC as the MIDAS operator when that facility is activated as is the current practice. Additional support of these activities by the Site Radiation Protection Coordinator would occur within 60 minutes of an Alert or higher classification. The augmentation change would result in the performance of the dose assessment task in the TSC by the on-shift Chemistry Technician until the EOF is activated at 90 minutes.

As previously stated in section 3.1.2, specifically designed displays are available in the Control Room, TSC and EOF for viewing the plant, radiological effluent, area radiation monitor, and meteorological information that is critical for decision making in a post-accident situation. MIDAS dose projection software is available within the Control Room, TSC and EOF. Due to the immediate availability of data, and the almost instantaneous CPU processing time, a typical MIDAS operator is able to obtain a post-accident dose projection shortly after initiation of the task.

Improvements in dose assessment software enable performance of this major task for an additional 30 minutes without adversely impacting the function.

Offsite Surveys Major Task

- a. In Revision 2 of the DAEC Plan, offsite surveys were initiated by the Site Radiation Protection Coordinator (SRPC) with one team responding within 30 minutes and a second team within 60 minutes.
- b. The current Plan maintains the commitment for augmentation within 30 minutes of a two-person team for off-site surveys and additional augmentation within 60 minutes of a second two-person off-site survey team. The SRPC is responsible for initiating off-site survey team dispatch and provides oversight and direction to the survey teams until the responsibility is transferred to the Radiological Assessment Coordinator in the EOF upon facility activation.
- c. In the proposed Plan, the composition of the Environmental teams is maintained but augmentation would be extended such that the first team would be augmented at 60 minutes and the second team augmented at 90 minutes after event classification. Analysis of field team monitoring functions determined that initial field team response involves primarily environmental radiation and contamination assessments, plume tracking and using dose assessment instrumentation. Actions include, driving to and from

field positions, reading dose rate instrumentation and communicating results to the TSC and/or EOF. One field monitoring team under the direction of the SRPC, consisting of one individual qualified to perform offsite sampling and surveys, and an individual designated as the driver, can effectively track any potential plume and/or cover the necessary area to identify whether the plume exists during the early stages of an event. A second team, augmented at 90 minutes, will support continued plume tracking capability as well as sampling activities. Additional resources can be assigned to field monitoring activities after augmentation on an as needed basis. This change does not adversely impact performance of the offsite survey major task and is consistent with Industry and NRC public meeting discussions which have taken place over the last 12 months.

Onsite (out of plant) Major Task

- a. Revision 2 of the DAEC Emergency Plan includes the augmentation of an HP Technician at 30 minutes and one at 60 minutes. Overall responsibility for on-site surveys and monitoring was transitioned from the Control Room to the SRPC in the TSC.
- b. The current revision maintains the Revision 2 commitment to initiate on-site (out of plant) surveys at 30 minutes by one individual trained to the HP role for field teams and supplement this effort with a second individual augmented at 60 minutes after the event. The transition of this responsibility from the Control Room to the SRPC is also maintained.
- c. The proposed change maintains the structure of the current team concept for onsite (out of plant) surveys but modifies the augmentation requirements to the HP Technician from 30 minutes to 60 minutes and the second individual from 60 minutes to 90 minutes. Analysis of onsite monitoring functions shows that the use of in-plant and effluent monitors effectively supports event classification and onsite protective actions such that performance of this major task at 60 minutes does not adversely impact site response. This approach is consistent with Industry and NRC public meeting discussions which have taken place over the last 12 months.

In-Plant Surveys Major Task

- a. Revision 2 of the DAEC Plan identified an on-shift HP Technician as responsible for conduct of in-plant surveys. This position was augmented by an additional HP Technician at 30 minutes and one at 60 minutes. Overall responsibility for in-plant radiation surveys and monitoring was transitioned from the Control Room

to the Operational Support Center (OSC) Supervisor in the OSC.

- b. The current Plan maintains the commitment for an on-shift HP Technician responsible for in-plant surveys and monitoring as well as augmentation by an additional HP Technician at 30 and 60 minutes.
- c. The proposed revision maintains the commitment for an on-shift HP Technician responsible for performance of the In-Plant survey function and extends the response time for one augmented HP Technician to 60 minutes and one HP Technician to 90 minutes. As previously stated in Section 3.1.1, benefits of the current level of computer capabilities include:
 - Improved plant monitoring capability for Emergency functions.
 - Real time plant data available through graphical displays.
 - PPC PI functions are available on any desktop computer through the plant's site-wide network.
 - Programming capability for automated response such as indication of critical parameter alarms.
 - Easier interface when switching between graphical displays.
 - Power supplies for the PPC and SPDS are robust.

The addition of a second on-shift HP Technician, as described in Section 3.2.6 of this Enclosure, provided the necessary support for the HP Technician assigned to the in-plant survey to perform this function for an additional 30 minutes without adverse impacts. This approach is consistent with Industry and NRC public meeting discussions which have taken place over the last 12 months.

Chemistry/Radiochemistry Major Task

- a. Revision 2 of the DAEC Emergency Plan identified the function as an on-shift Rad Waste Operator augmented by a Rad/Chem Technician at 30 minutes and a second Chemistry Technician at 60 minutes.
- b. The current Plan credits an on-shift Chemistry Technician position which was added in Revision 17 in lieu of the 30 minute responder. The on-shift and augmented Chemistry Technicians are responsible for completion of chemistry samples and analysis and the initial dose assessment function as the MIDAS Operator in the TSC until relieved by the Midas Operator in the EOF. The

current Plan maintains the commitment for augmentation by a second Chemistry Technician in 60 minutes.

- c. The proposed Plan revision maintains the commitment for the on-shift Chemistry Technician position and subsequent augmentation of a second Chemistry Technician in 60 minutes.

Offsite Dose Assessment, Offsite Surveys, Onsite (out of plant), In-Plant Surveys and Chemistry /Radiochemistry Major Task Summary

The Offsite Dose Assessment and In-Plant Survey major tasks are impacted by the proposed change. For Offsite Dose Assessment, the task would be performed by the MIDAS Operator in the TSC for an additional period of 30 minutes before being augmented by the Site Radiation Protection Coordinator within 60 minutes. For In-Plant Survey, the task would be performed by the on-shift HP Technician for an additional 30 minutes before augmentation by an additional HP Technician. Offsite Dose assessment, Offsite Surveys, Onsite (out of plant), In-Plant Surveys and Chemistry/Radiochemistry major tasks are not adversely impacted by the proposed changes.

3.2.5 Plant System Engineering, Repair and Corrective Actions Function

Per NUREG-0654 Revision 1, the Plant System Engineering, Repair and Corrective Actions functional area includes Technical Support and Repair and Corrective Actions Major Tasks. NUREG-0654 Table B-1 notes that Mechanical Maintenance/Radwaste Operator and Electrical Maintenance/Instrument and Control Technician expertise may be provided by shift personnel assigned other functions.

Technical Support Major Task

- a. Revision 2 of the DAEC Plan Section B, dated July 1982, included a Shift Technical Advisor (STA) on-shift position that was responsible for operational aspects and reported to the Shift Supervising Engineer. The Core Thermal Hydraulics function was augmented at 30 minutes by a Reactor Engineer and reported to the Technical and Engineering Supervisor in the TSC. Staffing by Electrical and Mechanical Engineering was augmented at 60 minutes after the event.

- b. The current Plan maintains the Reactor Engineer position in the TSC with a response time of 30 minutes from an Alert or higher classification. This position is responsible for supporting the operating crew in bringing the reactor core to the desired condition, determining the amount of failed fuel and recommending fuels-related priorities in recovery/re-entry operations. Subsequent staffing by Electrical and Mechanical Engineering continues to take place at 60 minutes after the event.
- c. The proposed change extends the response time for the Reactor Engineer from 30 minutes to 60 minutes. A review of procedural actions for this position demonstrated that failed fuel determinations as well as establishing recovery/re-entry priorities would not be required during the first 60 minutes of the event. Initial reactor core stabilization activities are performed by the Operations crew under the advisement of the STA. Evaluation of the on-shift activities in accordance with 10 CFR 50 Appendix E.IV.A.9 showed that on-shift operations personnel were able to complete required tasks without conflicts. Extending the response time for the Reactor Engineer to 60 minutes does not adversely impact the Technical Support major task. Subsequent staffing by Electrical and Mechanical Engineering at 60 minutes after the event would be maintained under the proposed Plan in support of the Technical Support major task.

Repair and Corrective Actions Major Task

- a. In Revision 2 of the DAEC Plan Section B, on-shift plant stabilizing functions were completed by operations personnel. Augmented staff to address repair and corrective actions, as well as search and rescue efforts, was implemented through activation within 30 minutes of Electrical Maintenance and I&C Maintenance personnel which reported to the OSC Supervisor position at the Alert or higher classification. Additional augmentation occurred at 60 minutes by a Mechanical Maintenance Technician and Electrical Maintenance Technician.
- b. The current Plan maintains the commitment for response of the maintenance craft at 30 and 60 minutes at an Alert or higher classification.
- c. The proposed change would realign Maintenance response by extending the response time for the initial Electrical Maintenance Technician from 30 minutes to 60 minutes and the I&C Technician from 30 minutes to 90 minutes from the time of an Alert or higher classification. The proposed Plan would maintain the 60 minute response time for the Mechanical maintenance

responder at 60 minutes and extend the response for the second Electrician to 90 minutes. Historically, the repair functions associated with an event have been completed by Auxiliary Operators (AOs) on-shift who are qualified to respond to plant events and perform actions to stabilize the plant. This practice is aligned with NUREG-0654 Rev 1 Table B-1 response for shift personnel as noted at the bottom of the table. The results of the On-Shift Staffing Analysis supported the NUREG-0654 Rev 1 position that repair and maintenance activities, if needed, can be successfully implemented by on-shift staffing resources. The proposed change does not impact implementation of repair and corrective actions completed by on-shift resources.

Plant System Engineering, Repair and Corrective Actions Function Summary

The Plant System Engineering, Repair and Corrective Actions functions are not adversely impacted by the proposed change. Core/Thermal Hydraulics and Repair and Corrective Actions major tasks will continue to be performed by on-shift personnel. Extension of the response times from 30 to 60 minutes for the Reactor Engineer, from 30 minutes to 90 minutes for the I&C Technician, and from 60 minutes to 90 minutes for the second Electrical Maintenance positions do not impact completion of this major task.

3.2.6 Protective Actions (In-Plant) Function

Per NUREG-0654 Revision 1, the Protective Actions functional area includes the Radiation Protection major task, specifically Access Control, HP Coverage for repair and corrective actions, search and rescue first aid and firefighting, personnel monitoring and dosimetry. NUREG-0654 Table B-1 notes that HP Technician expertise may be provided by shift personnel assigned other functions.

- a. Revision 2 of the DAEC Plan Section B, dated July 1982, provided for augmented responders under the Protective Action functional area through activation of two HP Technician positions within 30 minutes and one HP Technician within 60 minutes, as well as a dosimetry support position within 60 minutes. In Revision 34 of the DAEC Plan Section B, dated January 2013, a dedicated HP Technician position was added to the on-shift staffing complement in lieu of one 30 minute responder position. Augmentation of the remaining 30 minute and 60 minute responders for this functional area was not changed.
- b. The current Plan maintains the additional HP Technician on-shift commitment as stated in Revision 34 of the DAEC Plan.

- c. The proposed Plan maintains the additional HP Technician added to shift in Revision 34, which increased the total number of HP Technicians on-shift from one to two. The proposed Plan would extend the response time for the 30 minute responder to 60 minutes for the performance of personnel monitoring/habitability surveys. Additionally, the HP technicians for access control and dosimetry would be extended from 60 minutes to 90 minutes.

Access Control/Dosimetry

The performance of access control and dosimetry activities is primarily completed through the use of electronic dosimetry (ED) which is obtained prior to entry into radiological protected areas. The ED is also used as a "key" to unlock turnstiles to gain access to the radiological controlled area. Radiation work permits (RWPs) establish the necessary preset warnings/alarms associated with the ED. Specific emergency RWPs have been developed for use during a declared emergency, which automatically provide the ED with emergency dose and dose rate alarms. This assures that the teams dispatched to the in-plant areas to perform any function during a declared emergency will be afforded ample warning/alarm prior to exceeding their allowed dose or dose rate. Use of the ED and RWP process eliminated the need for access control / dosimetry oversight by an HP Technician for the initial response actions to an event. Through the use of improved access control technology, extension of the HP Technicians response time from 60 to 90 minutes does not adversely impact performance of the Access Control / Dosimetry major tasks.

HP Coverage for Repair and Corrective Actions, Search and Rescue First Aid and Firefighting

Performance of the HP Coverage for Repair and Corrective action activities will continue to be performed by the on-shift HP Technician and so the functions associated with this major task will not be adversely impacted by the proposed change.

Personnel Monitoring/Habitability

The performance of personnel monitoring for on-shift event responders is provided by the on-shift HP Technician. Performance of habitability activities are associated with the emergency response facilities after they are staffed by augmented personnel. As augmentation of facility staffing and HP Technicians occurs simultaneously for each facility under the proposed change, performance of this function is not adversely impacted.

Protective Actions (In-Plant) Function Summary

The proposed change maintains the added on-shift HP technician for the Protective Action function, HP Coverage task. The proposed change extends the 30 minute response time for the personnel monitoring/habitability task to 60 minutes and extends the 60 minute response times for the Access Control and Dosimetry tasks to 90 minutes. DAEC has implemented improvements in technology in the areas of dosimetry and access control which reduce the need for HP Technician actions in each of these areas during the early stages of event response as well as increased the number of on-shift HP Technicians since 1982. Additionally, an extension of the response time for the HP Technicians responsible for personnel monitoring/habitability coincides with the 60 minute activation time for emergency response facilities as described in the proposed Plan. This approach is consistent with Industry and NRC public meeting discussions which have taken place over the last year. The combination of added on-shift resources, improvements in technology and aligning of facility activation times ensure that the functions are not adversely impacted by the proposed change.

3.2.7 Firefighting Function

Per NUREG-0654 Rev 1, the Firefighting functional area is addressed by use of a Fire Brigade and managed in accordance with site Technical Specifications.

- a. In Revision 2, of the DAEC Plan Section B, Fire Fighting response was provided by on-shift personnel assigned other functions and augmented by the offsite local fire department.
- b. The current Plan maintains the Firefighting function commitment through the use of on-shift Fire Brigade members in accordance with FP-AB-100, "DAEC Fire Protection Program."
- c. The proposed Plan maintains this commitment by including the 4 on-shift Fire Brigade members to Table B-1 of the DAEC Plan. The current and proposed on-shift fire protection staffing were evaluated in accordance with the requirements of 10 CFR 50 Appendix E.IV.A.9 and found to be sufficient.

3.2.8 Rescue Operations and First-Aid Function

NUREG-0654 Rev 1, Table B-1 notes that this function may be provided by shift personnel assigned other functions.

- a. DAEC Plan Revision 2, provided for first aid treatment for injured personnel by qualified on-shift personnel.
- b. The current Plan maintains this commitment through the use of on-shift First Aid Responders.

- c. The proposed changes to the Plan also maintain this commitment, therefore, the Rescue Operations and First Aid functional area is not impacted by the proposed change.

3.2.9 Site Access Control and Personnel Accountability Function

Per NUREG-0654 Rev 1, the Site Access Control and Personnel Accountability functional area is addressed by Security personnel in accordance with the Site Security Plan.

- a. In DAEC Plan Revision 2, site access control and accountability was identified as a function of the Security Supervisor on-shift and was detailed in the Site Security Plan.
- b. The current Plan maintains this commitment through the Physical Security Plan.
- c. The proposed changes to the Plan also maintain this commitment, therefore, the Site Access Control and Personnel Accountability functional area is not impacted by the proposed change.

3.3 Conclusions

The proposed changes continue to support the functional areas of the Emergency Plan, continue to ensure the protection of the health and safety of the public and site personnel, and will not present a significant burden to the on-shift personnel. Although the ERO staffing augmentation response time is being increased, resulting in an increased ERF activation time, the emergency response functions identified in the Emergency Plan will continue to be performed by the on-shift staff until relieved by augmented ERO responders and will not result in a reduction of the capability of the ERO to effectively respond to the emergency. Therefore, the proposed increase in augmentation response continues to ensure the DAEC Emergency Plan will meet 10 CFR 50.54(q)(2), the requirements of 10 CFR 50 Appendix E, and the planning standards of 10 CFR 50.47(b).

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

Title 10 Code of Federal Regulations 50.47(b)(1) and (2):

- (b) The onsite and, except as provided in paragraph (d) of this section, offsite emergency response plans for nuclear power reactors must meet the following standards:
- (1) *Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the Emergency Planning Zones have been assigned, the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.*
 - (2) *On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available and the interfaces among various onsite response activities and offsite support and response activities are specified.*

The existing Emergency Plan includes onsite and offsite emergency response plans that meet the requirements listed above. This LAR proposes to increase the current staff augmentation response times from 30 and 60 minutes to 60 and 90 minutes. The Emergency Plan will continue to have onsite and offsite emergency response plans that meet 10 CFR 50.47(b).

Relevant portions of Title 10 Code of Federal Regulations 50.54(q) are as follows:

- (q) Emergency Plans
- (1)(iv) *Reduction in effectiveness means a change in an emergency plan that results in reducing the licensee's capability to perform an emergency planning function in the event of a radiological emergency.*
 - (2) *A holder of a license under this part, or a combined license under part 52 of this chapter after the Commission makes the finding under § 52.103(g) of this chapter, shall follow and maintain the effectiveness of an emergency plan that meets the requirements in appendix E to this part and, for nuclear power reactor licensees, the planning standards of § 50.47(b).*
 - (4) *The changes to a licensee's emergency plan that reduce the*

effectiveness of the plan as defined in paragraph (q)(1)(iv) of this section may not be implemented without prior approval by the NRC. A licensee desiring to make such a change after February 21, 2012 shall submit an application for an amendment to its license. In addition to the filing requirements of §§ 50.90 and 50.91, the request must include all emergency plan pages affected by that change and must be accompanied by a forwarding letter identifying the change, the reason for the change, and the basis for concluding that the licensee's emergency plan, as revised, will continue to meet the requirements in appendix E to this part and, for nuclear power reactor licensees, the planning standards of § 50.47(b).

The existing DAEC Emergency Plan meets the planning standards of 10 CFR 50.47(b) and 10 CFR 50 Appendix E as required by 10 CFR 50.54(q)(2). This LAR proposes to increase the current staff augmentation response times from 30 and 60 minutes to 60 and 90 minutes. This proposed change to 60 and 90 minutes is considered a reduction in effectiveness as defined in 10 CFR 50.54(q)(1)(iv) and requires submittal based on 10 CFR 50.54(q)(4). Therefore, NextEra Energy Duane Arnold, LLC is submitting this LAR pursuant to 10 CFR 50.90.

The Emergency Plan will continue to meet the requirements of 10 CFR 50.54(q)(2) by maintaining the effectiveness of the Emergency Plan such that it meets the requirements of 10 CFR 50 Appendix E, and the planning standards of 10 CFR 50.47(b).

Relevant portions of Title 10 Code of Federal Regulations Part 50 Appendix E.IV are as follows:

A. *Organization*

The organization for coping with radiological emergencies shall be described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's emergency organization and the means for notification of such individuals in the event of an emergency. Specifically, the following shall be included:

- A.9. *By December 24, 2012, for nuclear power reactor licensees, a detailed analysis demonstrating that on-shift personnel assigned emergency plan implementation functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in the emergency plan.*

The existing DAEC Emergency Plan includes a description of the organization, including definition of authorities, responsibilities, and duties of individuals. The current Emergency Plan (Revision 37) is in compliance with the new rule (10 CFR 50 Appendix E.IV.A.9). This LAR proposes to increase the current staff augmentation response times from 30 and 60 minutes to 60 and 90 minutes. A staffing analysis has been performed to demonstrate continued compliance

with 10 CFR 50 Appendix E.IV.A.9. The staffing analysis demonstrates acceptability of this increase in staff augmentation times. The proposed changes to the Emergency Plan will continue to describe the authorities, responsibilities and duties of these individuals. Therefore, with the changes proposed in the LAR, the requirements of 10 CFR 50 Appendix E continue to be met.

NUREG-0654/FEMA-REP-1, Revision 1 (Reference 3)

NUREG-0654/FEMA-REP-1, Revision 1, Section II.B.5 states, in part:

“Each licensee shall specify the positions or title and major tasks to be performed by the persons to be assigned to the functional areas of emergency activity. For emergency situations, specific assignments shall be made for all shifts and for plant staff members, both onsite and away from the site. These assignments shall cover the emergency functions in Table B-1 entitled, ‘Minimum Staffing Requirements for Nuclear Power Plant Emergencies.’ The minimum on-shift staffing levels shall be as indicated in Table B-1. The licensee must be able to augment on-shift capabilities within a short period after declaration of an emergency. This capability shall be as indicated in Table B-1.”

NUREG-0654 Revision 1 states general guidance concerning the onsite emergency organization to allow licensees some flexibility in the number of on-shift staff required by emergency plans for response to emergency events. NUREG-0654 guidance recommends that there be, in addition to on-shift personnel, 30-minute and 60-minute responders. The augmented ERO responders assume many managerial, engineering, and administrative duties from the on-shift personnel, allowing them to focus more fully on plant operations. NUREG-0654 also provides the guidance that augmentation time be measured from the declaration of the emergency. The current DAEC Emergency Plan staffing in Table 5-1 meets the intent of NUREG-0654, Table B-1. This LAR proposes to extend the current staff augmentation response times from 30 and 60 minutes to 60 and 90 minutes. The proposed changes have been evaluated in a staffing analysis performed to meet 10 CFR 50 Appendix E.IV.A.9 requirements. The proposed changes to the Emergency Plan continue to meet the intent of NUREG-0654, Table B-1 (i.e., continues to cover the emergency functional areas in Table B-1). This change is in alignment with NUREG-0654, Section II.B.5.

4.2 Precedent

The proposed NextEra Energy Duane Arnold, LLC Emergency Plan changes are similar to changes submitted by other licensees, including Susquehanna (ML030830543), Fermi (ML102700478), River Bend (ML012710218), Watts Bar (ML041810056) and Point Beach (ML16118A154). Furthermore, the proposed NextEra Energy Duane Arnold LLC Emergency Plan changes and evaluation documented in this submittal continue to meet the standards of 10 CFR 50.47 (b) and the requirements of 10 CFR 50 Appendix E.

4.3 No Significant Hazards Considerations Determination

In accordance with the requirements of 10 CFR 50.90, NextEra Energy Duane Arnold, LLC requests an amendment to facility Renewed Operating License DPR-49, for the Duane Arnold Energy Center (DAEC), to revise the Emergency Plan. Completion of an on-shift staffing analysis of the Emergency Response Organization (ERO) determined that changes can be made to increase the staff augmentation times for certain ERO response functions from 30 and 60 minutes to 60 and 90 minutes. NextEra Energy Duane Arnold, LLC proposes to revise the ERO staff augmentation response times in the DAEC Emergency Plan.

NextEra Energy Duane Arnold, LLC has evaluated the proposed amendment against the standards in 10 CFR 50.92 and has determined that the operation of the DAEC in accordance with the proposed amendment presents no significant hazards. NextEra Energy Duane Arnold, LLC evaluation against each of the criteria in 10 CFR 50.92 follows.

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed increase in staff augmentation times has no effect on normal plant operation or on any accident initiator or precursors and does not impact the function of plant structures, systems, or components (SCCs). The proposed change does not alter or prevent the ability of the Emergency Response Organization to perform their intended functions to mitigate the consequences of an accident or event. The ability of the emergency response organization to respond adequately to radiological emergencies has been demonstrated as acceptable through a staffing analysis as required by 10 CFR 50 Appendix E.IV.A.9.

Therefore, the proposed Emergency Plan changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed change does not impact the accident analysis. The change does not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed), a change in the method of plant operation, or new operator actions. The proposed change does not introduce failure modes that could result in a new accident, and the

change does not alter assumptions made in the safety analysis. This proposed change increases the staff augmentation response times in the Emergency Plan, which are demonstrated as acceptable through a staffing analysis as required by 10 CFR 50 Appendix E.IV.A.9. The proposed change does not alter or prevent the ability of the Emergency Response Organization to perform their intended functions to mitigate the consequences of an accident or event.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

Margin of safety is associated with confidence in the ability of the fission product barriers (i.e., fuel cladding, reactor coolant system pressure boundary, and containment structure) to limit the level of radiation dose to the public. The proposed change is associated with the Emergency Plan staffing and does not impact operation of the plant or its response to transients or accidents. The change does not affect the Technical Specifications. The proposed change does not involve a change in the method of plant operation, and no accident analyses will be affected by the proposed change. Safety analysis acceptance criteria are not affected by this proposed change. The revised Emergency Plan will continue to provide the necessary response staff with the proposed change. A staffing analysis and a functional analysis were performed for the proposed change on the timeliness of performing major tasks for the functional areas of Emergency Plan. The analysis concluded that an extension in staff augmentation times would not significantly affect the ability to perform the required Emergency Plan tasks. Therefore, the proposed change is determined to not adversely affect the ability to meet 10 CFR 50.54(q)(2), the requirements of 10 CFR 50 Appendix E, and the emergency planning standards as described in 10 CFR 50.47 (b).

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

4.4 Conclusions

NextEra Energy Duane Arnold, LLC has evaluated the proposed change against the applicable regulatory requirements and acceptance criteria. The proposed Emergency Plan changes continue to assure that regulatory requirements and emergency planning standards associated with emergency response are met.

Based on the above evaluation, the NextEra Energy Duane Arnold, LLC has determined that operation of the facility in accordance with the proposed change does not involve a significant hazards consideration as defined in 10 CFR 50.92(c), in that it does not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

5.0 ENVIRONMENTAL CONSIDERATION

NextEra Energy Duane Arnold, LLC has determined that the proposed change would not revise a requirement with respect to installation or use of a facility or component located within the restricted area, as defined in 10 CFR 20, nor would it change an inspection or surveillance requirement. The proposed amendment does not involve (i) a significant hazards consideration, or (ii) authorize a significant change in the types or a significant increase in the amounts of any effluent that may be released offsite, or (iii) result in a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for a categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, NextEra Energy Duane Arnold, LLC concludes that pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the proposed amendment.

6.0 REFERENCES

1. NRC Inspection Manual, Inspection Procedure 71114.01, "Exercise Evaluation," May 29, 2012.
2. NSIR/DPR-ISG-01, "Interim Staff Guidance, Emergency Planning for Nuclear Power Plants," Revision 0, November 2011.
3. 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, U.S. Nuclear Regulatory Commission and Federal Emergency Management Agency, November 1980.

ENCLOSURE 1, ATTACHMENT 1

DUANE ARNOLD ENERGY CENTER

LICENSE AMENDMENT REQUEST (TSCR-149)

License Amendment Request (LAR) for Revision to Staff Augmentation Times in the
Duane Arnold Energy Center (DAEC) Emergency Plan

**MARKED-UP COPY PAGES OF EMERGENCY PLAN
SECTIONS A, B, E, H and Appendix 6**

24 pages to follow

DAEC EMERGENCY PLAN	SECTION 'A'
ASSIGNMENT OF RESPONSIBILITIES (ORGANIZATIONAL CONTROL)	Rev. 24-xx Page 8 of 13

2.4 ORGANIZATIONAL RESPONSIBILITY

- (1) Specific individuals within the Emergency Response Organization in charge of emergency response are as follows:
 - (a) Emergency Response and Recovery Director
 - (b) Emergency Coordinator

2.5 DIRECTION AND COORDINATION

- (1) The effectiveness of directing and coordinating the company's emergency response organization is influenced by the ERO activation times, the organization and the severity of the emergency condition. The response time terminology listed below and the emergency conditions described in Section D should be utilized as mobilization and functional control criteria.
 - (a) Short-Term Actions - Actions that can be taken within 1 hour of initial notification of an emergency condition.
 - (b) Near-Term Actions - Actions that can be taken within 1 to 16 hours of initial notification of an emergency condition.
 - (c) Long-Term Actions - All actions taken 16 hours or more after initial notification of the emergency condition.
- (2) Activation of Emergency Response Facilities occurs when the minimum staff for each facility, as noted in Figure B-1, has arrived, been briefed on the event and is ready to perform command and control functions. Although the facility may be ready, turnover may be postponed in the interest of completing critical tasks. ~~The activation time of any emergency response organization can be defined as the time required for that emergency response organization to assemble and effectively assume its assigned responsibilities.~~ As an immediate action, the on-shift plant operations staff will staff the onsite facilities. Augmenting this staff with additional off-shift operations staff can occur within ~~one hour~~60

DAEC EMERGENCY PLAN	SECTION 'A'
ASSIGNMENT OF RESPONSIBILITIES (ORGANIZATIONAL CONTROL)	Rev. 24-xx Page 9 of 13

minutes of initial declaration notification of the emergency condition. ~~A complete listing of staff augmentation requirements is shown in Table B-1 in Section B of this plan.~~

- (3) The Emergency Response and Recovery Director (ER&RD), Radiological and EOF Manager, Radiological Assessment Coordinator (or their alternates), and the Joint Information Center (JIC) Manager will be notified within the time frame specified in the Emergency Plan Implementing Procedures (EPIPs). ~~Full staffing Activation of the TSC and OSC Emergency Operations Response Facilities (ERFs) will and activation of other support groups will occur within 4 hours at -of declaration of a SITE AREA EMERGENCY or GENERAL EMERGENCY~~ an ALERT or higher classification. The TSC and OSC have an activation time of 60 minutes. The EOF has an activation time of 90 minutes from a Site Area Emergency or higher classification. Therefore, in the near-term, key Emergency Operations Facility staff members or their designees will be available to coordinate support activities from the Emergency Operations Facility on the 15th floor of the Alliant Tower in Cedar Rapids. During a SITE AREA EMERGENCY or GENERAL EMERGENCY condition, the EOF will be activated. When an ALERT condition is declared, personnel assigned to the EOF and JIC will leave from the DAEC and report to their respective facility, whether or not the EOF and JIC have yet been activated. Shift assignments and changes will occur within 16 hours of the initial mobilization of the Emergency Response Organization.

2.6 EMERGENCY RESPONSE FUNCTIONS

- (1) For DAEC, the functions and the person responsible for each function are addressed below and summarized in Table A-1. The functions are addressed in more detail throughout the remainder of the plan, primarily in Section B.
- (a) Command and Control
- (i) The ER&RD exercises overall control of DAEC emergency response activities. He ensures the overall direction of site and corporate activities is properly focused and the necessary resources are available for proper response.
- (b) Warning/Notification Communications
- (i) The Operations Shift Manager/Supervisor, acting as the Emergency Coordinator, is responsible for initially notifying ERO personnel and offsite agencies of an emergency situation and for providing support information to aid in initial response.
- (c) Public Information
- (i) The JIC Manager is responsible for ensuring that communications links are established with the news media and for coordinating information releases to the media related to plant conditions and offsite radiological consequences.

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EMERGENCY RESPONSE ORGANIZATION	Rev. xx Page 4 of 36

2.2 ONSITE RESPONSE ASSIGNMENTS

- (1) Immediate response organizational assignments, lines of succession, and responsibilities are as described below, for the Onsite organization.

2.2.1 EMERGENCY COORDINATOR

- (1) Assignment
 - (a) The Emergency Coordinator functions onsite, coordinates the total site response effort, and normally operates from the Technical Support Center (TSC). The Emergency Coordinator reports to the ER&RD and has full authority and responsibility to initiate emergency actions and to recommend appropriate offsite protective measures to local and state authorities during the initial stages of the event as discussed in Section A.
- (2) Lines of Succession
 - (a) The Operations Shift Manager/Control Room Supervisor (OSM/CRS) functions as the Emergency Coordinator until relieved. A qualified person will assume the responsibility of the Emergency Coordinator and receives turnover from the OSM/CRS. If necessary, the ER&RD will appoint the position of Emergency Coordinator and will inform the Operations Shift Manager/Control Room Supervisor of the appointment.

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(3) Responsibilities

- (a) The Emergency Coordinator exercises full responsibility and authority for all activities at the site. This position is a 3060-minute ERO response reporting position. He/she is assigned the following functional responsibilities:
- (i) Ensure the activation of the onsite Emergency Response Organization as appropriate for the classification and circumstances of the emergency condition.
 - (ii) Coordinate efforts to return the plant to and maintain it in a safe, stable condition.
 - (iii) Coordinate accident assessment and analyses efforts to determine the full scope and impact of the emergency.
 - (iv) Ensure appropriate initial notification of DAEC, local, state, and federal officials and agencies. This function will be assumed by the Emergency Operations Facility (EOF) when activated.
 - (v) Provide initial Protective Action Recommendations, as appropriate, to local and state authorities who are responsible for offsite protective measures. This function will be assumed by the Emergency Operations Facility upon activation of that facility.
 - (vi) Apprise DAEC, local, state, and federal officials and agencies of updated information pertaining to the emergency condition.
 - (vii) Classify/reclassify the event as necessary.
 - (viii) Approve extensions on exposure limits for emergency workers, if necessary. (ix) Select alternate location for the Offsite Relocation & Assembly Area if radiological release and meteorological conditions warrant a change.
 - (ix) Prepare the Emergency Response Organization for an orderly transfer of responsibilities to the recovery organization.
- (b) While the administrative aspects of most of these responsibilities may be delegated by the Emergency Coordinator, the responsibilities for items 2.2.1(3)(a)(v), 2.2.1(3)(a)(vii), and 2.2.1(3)(a)(viii) may not be delegated except as indicated herein. Upon operation of the EOF, the ER&RD assumes responsibility for these non- delegable duties.

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EMERGENCY RESPONSE ORGANIZATION	Rev. xx Page 8 of 36

2.2.4 SITE RADIATION PROTECTION COORDINATOR

(1) Assignment

- (a) The Site Radiation Protection Coordinator will operate from the TSC and initiate those activities related to radiological assessment of the environs surrounding the plant during the initial stages of the event. Offsite monitoring will be assumed by the Radiological Assessment Coordinator upon activation of the EOF.

(2) Lines of Succession

- (a) The Operations Shift Manager/Control Room Supervisor functions as the Site Radiation Protection Coordinator until officially relieved by the Emergency Coordinator. A qualified Site Radiation Protection Coordinator informs the Emergency Coordinator that he/she is ready to assume that position's responsibilities. If necessary, the Emergency Coordinator will appoint the Site Radiation Protection Coordinator.

(3) Responsibilities

- (a) This position is a ~~30~~60 -minute ERO response reporting time position.
- (b) The Site Radiation Protection Coordinator is responsible for the following activities:
 - Ensuring that DAEC personnel are dispatched to monitor the environs in and around the plant for radiological consequences associated with the event.
 - Conducting an initial evaluation and assessment of the results of radiological monitoring activities. Upon activation of the EOF, evaluation and assessment of all offsite monitoring activities will be assumed by the Radiological Assessment Coordinator.
 - Assessing the onsite radiological consequences and directing protective measures, including the need for partial or complete evacuation of the plant.
 - During the initial stages of the event, apprising local and state authorities, through the Emergency Coordinator, of the results of radiological monitoring activities and providing protective action recommendations based upon the projected radiological consequences to the population at risk. Upon activation of the EOF, this function will be assumed by the Radiological Assessment Coordinator.

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2.2.5 SECURITY AND SUPPORT SUPERVISOR

(1) Assignment

- (a) The Security and Support Supervisor will exercise supervision and direction of the security staff and direction over the personnel assigned to the TSC support staff.

(2) Lines of Succession

- (a) If necessary, the Emergency Coordinator will appoint the Security and Support Supervisor.

(3) Responsibilities

- (a) This position is a ~~60~~30- minute ERO response reporting time position.
- (b) Upon activation of the TSC, the Security and Support Supervisor is responsible for:
 - Assuring that an accountability check for all personnel within the protected area is conducted in a timely fashion and that requisite security posts are filled.
 - Ensuring that the Emergency Response Organization notification process as described in the Emergency Plan Implementing Procedures has been initiated and is successfully completed.
 - Assuring the TSC closed ventilation system is operational and activated.
 - Limiting access into the facility to only those personnel who are members of the Emergency Response Organization, or otherwise are authorized.
 - Establishing measures that will enable continuous accountability for all personnel within the protected area once the initial accountability check has been completed.
 - Ensuring that no unauthorized personnel gain access to the site.
 - Assigning personnel for first aid duties, as required.
 - Providing overall management and direction to the support staff assembled in the TSC.

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2.2.6 TECHNICAL AND ENGINEERING SUPERVISOR

(1) Assignment

- (a) ~~The Technical and Engineering Supervisor will exercise supervision and direction over the personnel assigned to the Technical Support Center while the Emergency Coordinator is in the Control Room receiving a turnover.~~ The Technical and Engineering Supervisor will exercise overall management and supervision of engineering, analysis and corrective action efforts undertaken by engineering and maintenance personnel at the DAEC from the TSC. In addition, he/she will coordinate with the Emergency Response Organization for engineering support efforts undertaken at the request of the Emergency Coordinator or TSC Operations Supervisor.

(2) Lines of Succession

- (a) If necessary, the Emergency Coordinator will appoint the Technical and Engineering Supervisor.

(3) Responsibilities

- (a) This position is a ~~60~~30-minute ERO response reporting time position.
- (b) Upon activation of the site Emergency Response Organization and the Technical Support Center, the Technical and Engineering Supervisor is responsible for:
- Verifying that the TSC is fully activated and staffed as described in the Emergency Plan Implementing Procedures.
 - Evaluating plant status and providing support to the operations staff as requested.
 - Assisting the Emergency Coordinator and the TSC Operations Supervisor in establishing the priority for repair activities to be undertaken.
 - Providing direction to the technical staff comprised of support personnel such as the Fire Marshal, Safety Supervisor, and consultant/contractor representatives to analyze plant conditions and define courses of action to mitigate the emergency situation.
 - Providing direction to the engineering staff in TSC to aid in analysis of plant conditions and define courses of action to mitigate the emergency situation.
 - Coordinating corporate engineering activities with efforts being taken at the DAEC to mitigate the event and establish stable plant conditions.
 - Providing support to the Operations Support Center (OSC) Supervisor as necessary for coordinating all repair/corrective action efforts conducted at the DAEC.

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2.2.7 REACTOR ENGINEER

(1) Assignment

- (a) The Reactor Engineer will provide support to the operations crew located in the Control Room, and to the Emergency Coordinator from the TSC. He/she will provide recommendations for returning the reactor core to a safe and stable condition.

(2) Lines of Succession

- (a) If necessary, the Emergency Coordinator will appoint the Reactor Engineer.

(3) Responsibilities

- (a) his position is a ~~30~~-60 minute ERO response reporting position.
- (b) Upon activation of the Emergency Plan for conditions classified as an ALERT or greater, the Reactor Engineer is responsible for:
- Supporting the operating crew in bringing the reactor core to desired condition and maintaining it there.
 - Determining and reporting the amount of failed fuel to the TSC Operations Supervisor
 - Obtaining vendor feedback on the amount of failed fuel.
 - Recommending fuels-related priorities in recovery/re-entry operations.

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2.2.9 TSC OPS LIAISON

(1) Assignment

- (a) The TSC Operations Liaison will provide operations support, as required, in the event that activation of the site Emergency Response Organization is required from the Technical Support Center.

(2) Lines of Succession

- (a) If necessary, the Security and Support Supervisor will appoint someone to fill this position.

(3) Responsibilities

- (a) This position is a 60 -minute ERO response reporting time position.
- (b) The TSC Ops Liaison is responsible for the following:
- Advising the EC and TSC Ops Supervisor on EAL/PAR declarations
 - Generating paperwork required for EAL/PAR declarations
 - Ensuring the State, Counties and NRC receive notification regarding EALs and PARs
 - Providing an operational insight and tracking plant status
 - Advising the EC and TSC Ops Supervisor on matters that pertain to the plant as part of the Severe Accident Management Team

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2.2.10 OPERATIONAL SUPPORT CENTER (OSC) SUPERVISOR

(1) Assignment

- (a) The OSC Supervisor will exercise supervision and direction over the personnel who report to the OSC. He/she will report to the Emergency Coordinator in the TSC and will coordinate repair/corrective action efforts conducted at DAEC.

(2) Lines of Succession

- (a) If necessary, the Emergency Coordinator will appoint the OSC Supervisor.

(3) Responsibilities

- (a) This position is a ~~30~~60 -minute ERO response reporting time position.
- (b) Upon activation of the Emergency Response Organization the OSC Supervisor is responsible for:
 - Supervising the implementation of the tasks and staffing delineated by the Emergency Assignment Staffing Board.
 - Providing general supervision and direction to personnel who report to the OSC.
 - Coordinating evacuation from the site of all unnecessary personnel during events classified as a SITE AREA or GENERAL EMERGENCY, once such an evacuation has been authorized by the Emergency Coordinator.
 - Coordinating all repair/corrective action efforts conducted at the DAEC to achieve stable plant conditions and to terminate any uncontrolled or excessive radiological release.
 - Ensuring that personnel dispatched from the OSC are properly briefed and equipped for their assignment in regards to technical content, as well as ALARA, including existing and potential radiological hazards.

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2.2.11 HEALTH PHYSICS SUPERVISOR

(1) Assignment

- (a) The Health Physics Supervisor will provide overall direction and supervision in regards to ALARA and radiological practices to personnel in the OSC. In addition, he/she will provide direction to personnel for habitability of assembly areas.

(2) Lines of Succession

- (a) If necessary, the OSC Supervisor will appoint the Health Physics Supervisor.

(3) Responsibilities

- (a) This position is a 6030 -minute ERO response reporting time position.
- (b) Upon activation of the Emergency Response Organization the Health Physics Supervisor is responsible for:
- Ensuring that personnel dispatched from the OSC are properly outfitted with protective clothing and equipment, briefed regarding ALARA, and apprised of existing and potential radiological hazards.
 - Coordinating with the Site Radiation Protection Coordinator to obtain information regarding plant status, problems, response options, significant radiological releases in progress, offsite dose rates, plume location, and meteorological conditions as necessary.
 - Ensuring the determination of habitability of assembly areas and ERO facilities.
 - Coordinating the dispatch of monitoring teams and Offsite Relocation and Assembly Area (ORAA) personnel.
 - Ensuring the ORAA is briefed periodically in terms of plant and radiological conditions.
 - Supervising efforts to prepare injured/contaminated personnel for transport to offsite medical facilities.

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2.2.12 INSTRUMENTATION AND CONTROL/ELECTRICAL MAINTENANCE (IC/EM) SUPERVISOR, AND MECHANICAL MAINTENANCE SUPERVISOR

(1) Assignment

- (a) The IC/EM Supervisor and Mechanical Maintenance Supervisor will aid in the coordination of repair/corrective actions conducted at the DAEC to achieve stable plant conditions from the Operations Support Center.

(2) Lines of Succession

- (a) If necessary, the OSC Supervisor will appoint the IC/EM Supervisor and Mechanical Maintenance Supervisor

(3) Responsibilities

- (a) These positions are 60 -minute ERO response time reporting positions.
- (b) Upon activation of the Emergency Response Organization, the IC/EM Supervisor and Mechanical Maintenance Supervisor are responsible for:
- Planning work packages for repair activities with assistance of engineering personnel in the TSC.
 - Selecting personnel for repair teams appropriate to the work being done.
 - Conducting briefing and debriefings to repair team personnel.

2.2.13 MINIMUM STAFFING

- (1) On-shift staffing and staff augmentation assignments are identified in Table B-1. The staffing plan is consistent with the guidance contained in NUREG-0654. [On-Shift staffing as noted in Table B-1 has been validated by an On-Shift Staffing Analysis completed in accordance with the requirements of 10 CFR 50 Appendix E, IV.A.9.](#) Details regarding the assignments and associated responsibilities are addressed in the EIPs.

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2.2.14 OTHER DAEC ORGANIZATIONAL ASSIGNMENTS

In addition to the key response personnel described in the preceding sections, other DAEC personnel will assume roles as necessary in supporting the overall emergency response. Assignments and responsibilities of these support groups follow:

(1) Security

- (a) Upon activation of the plan, for events classified as an ALERT or greater, the DAEC Security Force is responsible for performing an accountability check for all personnel within the protected area and controlling access to the site property. If evacuation of the site is required, the Security Force will assist in the evacuation and conduct an accountability check of all personnel dispatched to the ORAA. ~~In addition, during other than normal working hours, security force members may assist with initial notification of offsite agencies and will conduct notification of the Emergency Response Organization.~~

(2) Administrative

- (a) The DAEC Administrative Support Staff will provide general logistical support functions to aid response organization activities. This includes long range planning for providing personnel, material, facilities and office and clerical services. Additionally, the administrative staff will coordinate warehouse and procurement activities and obtain life support services such as food, clothing, and overnight accommodations.

(3) Technical/Engineering

- (a) The technical and maintenance support staffs will provide plant engineering, maintenance assistance and coordination of corrective actions taken to mitigate the emergency condition, or terminate a release. This includes analytical and engineering efforts of site and corporate engineers and supervision and technical direction of activities performed by engineering, maintenance, or construction crafts.

(4) Quality Assurance

- (a) Quality Assurance can provide assistance to design, procurement, and construction activities that are required to establish cold shutdown conditions. Quality Assurance can define and track activities that are not conducted in accordance with normal established practices, and can ensure that post-accident evaluations are conducted to verify the acceptability of those activities for both short and long term service.

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2.3 OFFSITE (EOF & JIC) RESPONSE ASSIGNMENTS

2.3.1 The Emergency Operations Facility and Joint Information Center (JIC) provide the following principal functions in the overall response to an emergency at the DAEC once control is transferred from the Technical Support Center:

- (1) Establishes a single focal point for performing radiological dose assessment and Protective Action Recommendation decision-making, including coordination and interface with local, state, and federal support groups
- (2) Establishes a coordinated means to disseminate information related to the accident to public officials, the news media, and industry public relations forums.

2.3.2 Response positions are as follows:

- (1) Emergency Response and Recovery Director (ER&RD)

(a) Assignment

- (i) The ER&RD is responsible for the overall direction and control of DAEC's integrated emergency response and recovery effort and providing the financial resources and contractual capabilities to ensure requisite actions can be taken to protect the health and safety of the public.

(b) Responsibilities

- (i) This is a 90 minute ERO response time reporting position.
- ~~(i)~~(ii) Ensuring that the Emergency Response Organization is staffed by qualified personnel and coordinating with these personnel to ensure that sufficient support for various functions is available, either from within Duane Arnold or from outside organizations (i.e., other utilities, Architect Engineers, Nuclear Steam Supply System suppliers, INPO, consultants, etc.).
- ~~(ii)~~(iii) Authorizing the procurement of equipment, materials, and resources, as necessary, to effectively respond, control, and recover from an accident condition at DAEC.
- ~~(iii)~~(iv) Implementing the Emergency Plan Implementing Procedures (EPIPs).
- ~~(iv)~~(v) Reviewing and concurring with Protective Action Recommendations prior to their issuance once the Emergency Operations Facility (EOF) is operational.

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Table B-1
On-Shift Staffing & Staff Augmentation Assignments

Major Functional Areas	Major Tasks	Position Title or Expertise (All positions are 24-hour staffing)	On-Shift * = see Comments	Capability for additions		Response Location	Comments
				30 60 min	60 90 min		
Plant Operations and assessment or operational aspects	Respond to condition and mitigate operational event consequences	Operations Shift Manager (SRO)	1			CR	Provides early direction and control until relieved by the Emergency Coordinator (Plant Manager - DAEC or designee). Third Reactor Operator is assigned as Fire Brigade Leader
		Control Room Supervisor (SRO)	1				
		Control Room Operators	23 *				
		Auxiliary Operators Shift Technical Advisor	2 1				
Emergency Direction and Control	Site utility Emergency Management	Plant Manager - DAEC Manager Outage and Support, or selected Senior Plant Supervisory Personnel	*	1		TSC	Assumed by the Operations Shift Manager /Control Room Supervisor until relieved by the Plant Manager, DAEC or designee.
Notification/ Communications	Notify licensee, state, local & federal personnel and maintain communications		1	4 2	2 1	CR/TSC	Performed by Shift Communicator or designated Emergency Personnel.
Radiological Accident Assessment and Support of Operational Accident Assessment	Overall utility Emergency Management and offsite agency interface	Vice President, Nuclear or Selected Management Personnel			1*	EOF	One-hour staffing commitment may be filled by the Emergency Coordinator in the TSC.
	Offsite Dose Assessment and Protective Action	Radiation Protection Manager or selected Radiation Protection Supervisory Personnel.		1	1	TSC EOF	Staffed by Site Radiation -Protection Coordinator Staffed by Rad Assessment Coordinator
	Recommendations						
	Offsite Surveys	HP Technician DAEC Staff Member		1*	1*	OSC	May be staffed by Plant Personnel trained in the HP role for Field Teams.
	Onsite Surveys (Out of plant)	HP Technician DAEC Staff Member		1*	1	OSC	May be staffed by Plant Personnel trained in the HP role for Field Teams.
Page 1 Subtotal			89	67	6		

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Table B-1
On-Shift Staffing & Staff Augmentation Assignments

Major Functional Areas	Major Tasks	Position Title or Expertise (All positions are 24-hour staffing)	On-Shift * = see Comments	Capability for additions		Response Location	Comments	
				6030 minmin	9060 minmin			
	Inplant Surveys	HP Technician	1	1	1	OSC		
	Chemistry/Radio-chemistry	Chem Technician	1	1	4	OSC		
Plant System Engineering Repair and Corrective Actions	Technical Support	Core/Thermal Hydraulics		1		TSC	Position filled by a Reactor Engineer	
		Electrical Engineer		1	4	TSC		
		Mechanical Engineer		1	4	TSC		
	Repair and corrective actions	Mechanical Maintenance	*	1	4	OSC	On-shift staffing may be provided by shift personnel assigned other functions.	
		Electrical Maintenance	*	1	1	OSC	On-shift staffing may be provided by shift personnel assigned other functions.	
Protective Actions	Radiation Protection: a. Access Control b. HP Coverage for repair, corrective actions, search and rescue first-aid & firefighting c. Personnel monitoring d. Dosimetry	Instrument and Control (I&C) Technician			4	1	OSC	
		HP Technicians	1	1	2			
		Page 2 Subtotal		3	58	85	OSC	
		B) HP Coverage for Repair, Corrective Actions, Search & Rescue, First-aid, & Fire fighting		4			OSC	
		C) Habitability			4		OSC	
D) Dosimetry				4		Health Physics Access window assigned this function.		

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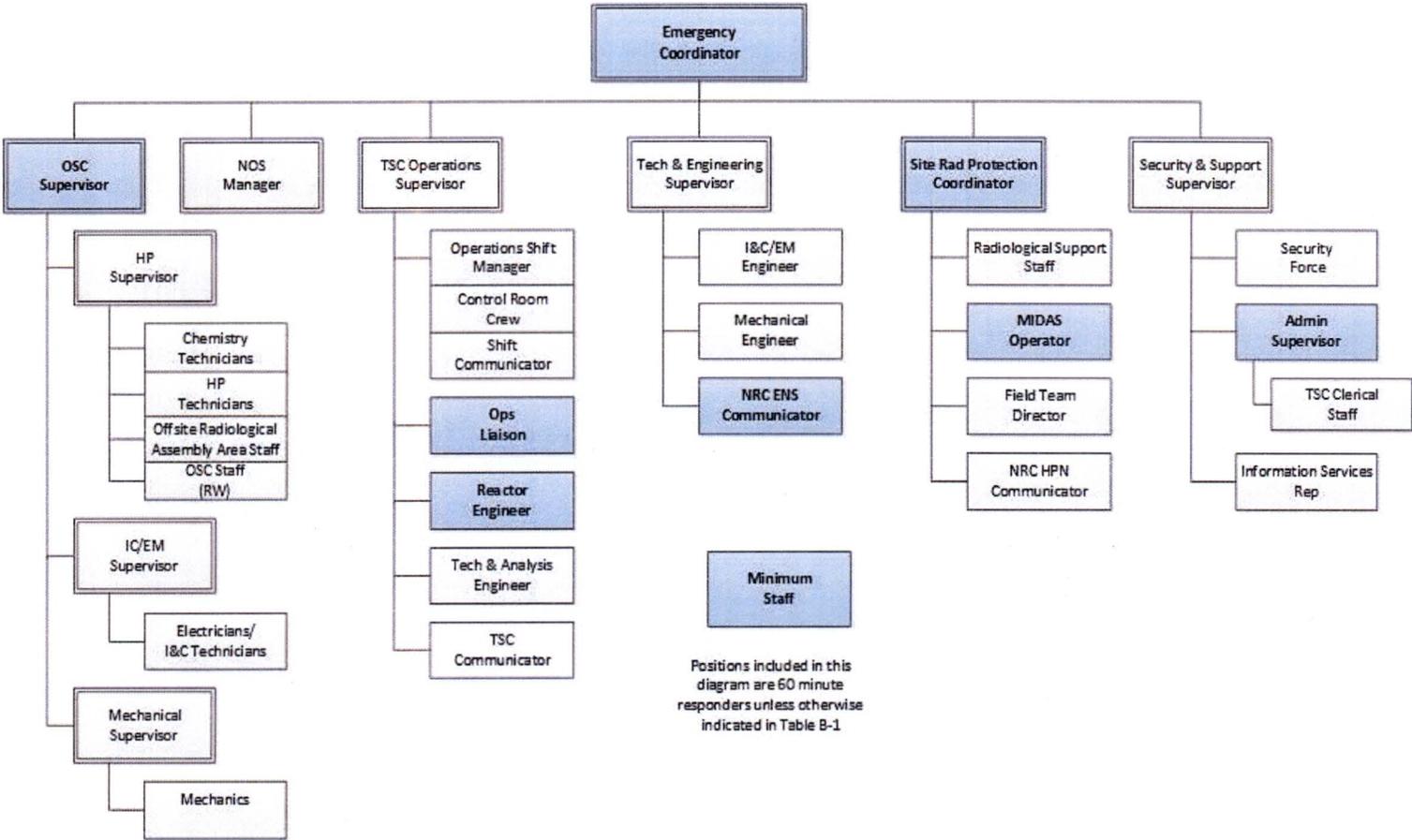
Table B-1
On-Shift Staffing & Staff Augmentation Assignments

Major Functional Areas	Major Tasks	Position Title or Expertise (All positions are 24-hour staffing)	On-Shift * = see Comments	Capability for additions		Response Location	Comments
				30- 60min	60-90 min		
Fire Fighting			4	*	Local	Support	Fire Brigade per FP-AB-100.
Rescue Operations and First Aid				*	Local	Support	May be provided by shift personnel assigned other functions.
Site Access Control and Personnel Accountability	Security, fire fighting, Communications, personnel accountability			*			All per Security Plan.

Page 1 Subtotal	89	67	66
Page 2 Subtotal	3	58	85
Page 3 Subtotal	04	0	0
GRAND TOTAL	416	415	411

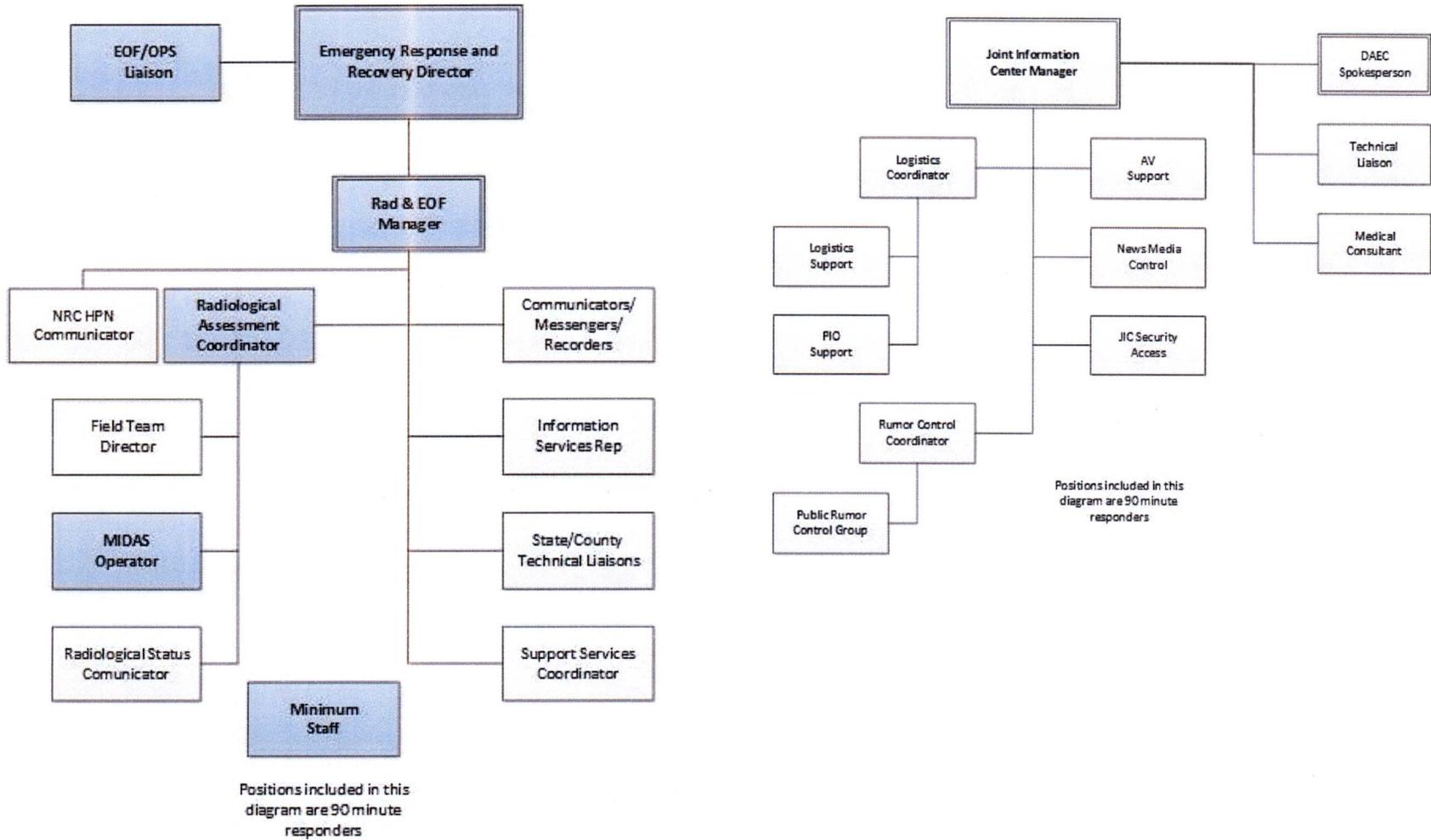
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Figure B-1
ON-SITE EMERGENCY RESPONSE ORGANIZATION (pg. 1 of 2)



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Figure B-1
CORPORATE EMERGENCY RESPONSE ORGANIZATION (pg. 2 of 2)



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NOTIFICATION METHODS AND PROCEDURES	Rev. 23 -xx Page 4 of 7

2.2 NOTIFICATION AND ACTIVATION OF THE ERO

(1) NOTIFICATION OF UNUSUAL EVENT

- (a) Activation of emergency facilities (refer to Section H), such as the TSC, the OSC, the EOF, or the JIC will be as directed by the Emergency Coordinator, ER&RD, and JIC Manager, respectively. Normally, these emergency facilities will not be activated for a NOTIFICATION OF UNUSUAL EVENT, but may be, if escalation of the emergency class appears to be imminent.

(2) ALERT, SITE AREA EMERGENCY, OR GENERAL EMERGENCY

- (a) The Operations Shift Manager/Control Room Supervisor, or another member of the shift operating crew, at the direction of the Operations Shift Manager/Control Room Supervisor, shall notify onsite personnel by activation of a distinctive tone alarm over the public address system, followed by an announcement over the public address system. Off-duty emergency response personnel will be notified in accordance with the EIPs describing notification and call out of off-duty personnel. The Emergency Telephone Book contains the telephone numbers and, if applicable, pager numbers of emergency response personnel.
- (b) The onsite Emergency Response Organization personnel shall initially report to the TSC and the OSC at an Alert or higher classification. As personnel arrive at the Operational Support Center, they should select their own nameplate and place it **first in a 30-minute into their** -response position. ~~Once all 30-minute response positions have been filled, proceed to fill all other 60-minute response positions~~ The instructions are designated in Emergency Plan Implementing Procedures and cover radiological survey, monitoring, communication, record-keeping, rescue, and emergency repair efforts.
- (c) The Emergency Coordinator will initiate notification of the following emergency response officials and agencies and provide them with additional information, as appropriate, until relieved by the ER&RD:
- Local, state and federal governmental officials and support agency management personnel, as warranted, based upon the severity and potential ramifications of the event,
 - INPO Emergency Response Center.
 - Further information and instructions are provided in the supporting implementing procedures.
- (d) Onsite personnel who staff the EOF and the JIC will report to their facilities at an Alert classification. The ER&RD in conjunction with the JIC Manager will determine when the EOF and JIC will be activated as indicated in the EIPs.

DAEC EMERGENCY PLAN	SECTION 'H'
EMERGENCY FACILITIES STAFFING, ACTIVATION AND EQUIPMENT	Rev. 33xx Page 3 of 27

1.0 PURPOSE

- (1) This section describes the DAEC Emergency Response Organization (ERO) emergency facilities, staffing and activation, and equipment required for support of emergency events.

2.0 REQUIREMENTS

- (1) Emergency response facilities will be activated according to the notification and activation procedures described in the EPIPs. Personnel who are assigned to each facility either appear on call or notification lists used for notification purposes, or by procedure and training, will automatically report to a predesignated area upon declaration of the appropriate Emergency Classification. Each key emergency organization position is assigned a minimum of two qualified persons to ensure complete facility staffing. Whenever possible, three qualified persons will be assigned.
- (2) Support facilities and organizations will be activated as described regardless of the time of day or day of the week. However, it should be recognized that the normal plant staff is only at the site approximately 25% of the time. As a result, as many functions as possible will be assumed by the shift operating crew until support facilities are established and off-duty personnel arrive on site. Sufficient plant staff and corporate personnel will be trained and qualified to staff the appropriate facilities to ensure that they will be established and operational in a timely manner. The Emergency Response Organization is shown in Figure B-1 and also in the Emergency Telephone Book.

2.1 TECHNICAL SUPPORT CENTER (TSC)

- (1) General Description
 - (a) The TSC is located in a facility adjacent to the DAEC Administration Building and is staffed by plant management and technical personnel to provide technical support for Control Room activities. The facility has the capability to transmit and record vital plant data in real time and provides access to as-built plant drawings and other records. Computerized dose projections can be performed from a computer terminal available in the TSC. The program (MIDAS) has real-time access to data from the plant effluent and meteorological monitoring systems. The Safety Parameter Display System (SPDS), which displays critical plant parameters monitored by the process computer, is available in the TSC. Additionally, plant parameters and status information of significance to the event can be transmitted using a VAX computer terminal as well as telephone and radio. Also available is the Emergency Response Data System (ERDS) which displays live-time plant data. The TSC is the main communications link between the plant and the Emergency Operations Facility (EOF). The location and floor plan are shown in Figures H-1 and H-2, respectively. The Control Room is designated as the alternate TSC. Communication links between the TSC, Operational Support Center (OSC), Control Room, EOF, and the Nuclear Regulatory Commission (NRC) are described in Section F.

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EMERGENCY FACILITIES STAFFING, ACTIVATION AND EQUIPMENT	Rev. 33xx Page 4 of 27

(2) Activation Criteria

- (a) ~~If the emergency event~~ Declaration of an ALERT or higher emergency classification requires activation of the TSC. ~~†~~The Operations Shift Manager (OSM) will authorize initiation of the notification chain according to procedure. Members of the Emergency Response Organization assigned to the TSC will be notified by plant page, extension number, commercial phone, pager or automated telephone system. During off-hours, members of the Emergency Response Organization assigned to the TSC will be contacted by pager and/or commercial telephone. A call list is provided for this purpose. Upon receiving notification of an Emergency Classification which requires activation of the TSC, each individual contacted will immediately report to the TSC to begin activation tasks.
- (b) The TSC is ~~designated for activation in the event of~~ activated at an ALERT, SITE AREA EMERGENCY or GENERAL EMERGENCY. Activation of the TSC for a NOTIFICATION OF UNUSUAL EVENT is at the discretion of the OSM or Emergency Coordinator. ~~The TSC is considered activated when the minimum 30-minute positions designated in Table B-1 are filled or declared activated by the Emergency Coordinator.~~

(3) Staffing

- (a) The Emergency Coordinator exercises supervision and direction over the personnel assigned to the TSC. Personnel assigned to the TSC will include: selected members of the plant staff who are knowledgeable in specific functional areas at the DAEC, selected engineering personnel who can assist in providing engineering evaluations, and representatives from the NRC.

(4) Habitability

- (a) The TSC is designed and constructed to provide the shielding necessary to protect occupants from radiation effects from either the reactor core or the plume. An independent ventilation system can be placed in a recirculation mode of operation, enabling air to be continually filtered through both charcoal and HEPA filters. Radiation monitors are provided at the ventilation system intake and within the TSC proper. In the event of radiological releases, portable air sampling equipment is available that will enable periodic checks to be made of airborne radiological conditions.

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EMERGENCY FACILITIES STAFFING, ACTIVATION AND EQUIPMENT	Rev. 33xx Page 5 of 27

2.2 OPERATIONAL SUPPORT CENTER (OSC)

(1) General Description

- (a) The OSC is located in a facility adjacent to the DAEC Administration Building and its floor plan is illustrated in Figure H-1. This center will be used to assemble and dispatch onsite and offsite radiation monitoring teams, and to coordinate in-plant survey efforts, rescue and emergency teams, and personnel who support Control Room emergency activities. This center will be in communication with the TSC and Control Room. Portable environmental sampling and monitoring equipment is stored near this facility to support radiation monitoring teams. This facility provides ready access to evacuation routes.

(2) Activation Criteria

- (a) Activation ~~and staffing~~ of the OSC occurs in a similar fashion to the TSC. Upon declaration of an **ALERT or higher** emergency classification ~~that requires activation of the OSC~~, the OSM will initiate the notification process. Individuals will either report to the OSC when notified, or will automatically report when an emergency classification is declared that requires OSC activation. Those assigned to the OSC will be notified by plant page, extension number, commercial phone, pager or automated telephone system. During off-hours, individuals assigned to the OSC will be contacted by pager, commercial telephone, or automated telephone system.
- (b) The OSC is ~~designated to be activated whenever~~ **activated** at an ALERT, SITE AREA EMERGENCY, or GENERAL EMERGENCY is declared. Activation of the OSC for a NOTIFICATION OF UNUSUAL EVENT is at the discretion of the EC. ~~The OSC is considered activated when the minimum 30-minute positions designated in Table B-1 are filled or determined to be operational by the OSC Supervisor.~~

(3) Staffing

- (a) The OSC Supervisor exercises overall supervision and direction for all emergency response personnel on site who are not members of the operations shift crew or assigned to other emergency response facilities. Onsite and offsite field radiological monitoring teams, rescue and repair teams, in-plant radiological survey assignments, and communicator assignments are established at the OSC using an Emergency Assignment Tag Board. This method is further described in the EPIPs.

(4) Habitability

- (a) Sections I and K describe the systems and methods for monitoring radiological conditions in the OSC. Emergency kits at or near the OSC provide respiratory protection, protective clothing, decontamination capabilities, and portable sampling and monitoring devices. First-aid supplies are available from the first aid room. Decontamination is performed at the access control area. Radios, onsite and offsite telephones, and intra-plant telephones are available in this center.

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- (24) Emergency Planning Zone (EPZ) - The areas of major exposure pathways for which there is planning for predetermined protective actions. The two predominant exposure pathways are:
- (a) Ingestion Exposure Pathway Emergency Planning Zone - Area within a 50-mile radius of the nuclear power facility in which the principal radiation source is ingestion of contaminated water or foods.
 - (b) Plume Exposure Emergency Planning Zone - Area within an approximate 10-mile radius of the nuclear power facility and including the Cedar Rapids Metropolitan area in which the principal radiation sources are whole-body external exposure to gamma radiation from the plume and deposited materials, and inhalation exposure.
- (25) Exclusion Area - Area surrounding the DAEC in which FPLE Duane Arnold has the authority to determine and control all activities, including exclusion or removal of personnel and property from the area.
- (26) Exercise - An event, evaluated by federal regulators (NRC and FEMA), that tests the integrated capability and a major portion of the basic elements existing within plans and organizations.
- (27) Facility Activation - Activation of Emergency Response Facilities occurs when the minimum staff for each facility, as noted in Figure B-1, has arrived, been briefed on the event and is ready to perform command and control functions. Although the facility may be ready, turnover may be postponed in the interest of completing critical tasks.
- ~~(27)~~(28) General Emergency (Condition Classification D) - Events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Guideline exposure levels offsite for more than the immediate site area.
- ~~(28)~~(29) Hostile Action – an act toward an NPP or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. Hostile Action should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the NPP. Nonterrorism-based EALs should be used to address such activities (e.g., this may include violent acts between individuals in the owner controlled area.)
- ~~(29)~~(30) Hostile Force – One or more individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.
- ~~(30)~~(31) Independent Spent Fuel Storage Installation (ISFSI) - The on site facility where the loaded Dry Shielded Canisters (DSC's) will be stored in Horizontal Storage Modules (HSMs). The installation is intended for interim storage until the spent fuel is removed from the plant site.

ENCLOSURE 1, ATTACHMENT 2

DUANE ARNOLD ENERGY CENTER

LICENSE AMENDMENT REQUEST (TSCR-149)

License Amendment Request (LAR) for Revision to Staff Augmentation Times in the Duane
Arnold Energy Center (DAEC) Emergency Plan

**CLEAN COPY PAGES OF EMERGENCY PLAN
SECTIONS A, B, E, H and Appendix 6**

23 pages to follow

DAEC EMERGENCY PLAN	SECTION 'A'
ASSIGNMENT OF RESPONSIBILITIES (ORGANIZATIONAL CONTROL)	Rev. xx Page 8 of 13

2.4. ORGANIZATIONAL RESPONSIBILITY

- (1) Specific individuals within the Emergency Response Organization in charge of emergency response are as follows:
 - (a) Emergency Response and Recovery Director
 - (b) Emergency Coordinator

2.5 DIRECTION AND COORDINATION

- (1) The effectiveness of directing and coordinating the company's emergency response organization is influenced by the ERO activation times, the organization and the severity of the emergency condition. The response time terminology listed below and the emergency conditions described in Section D should be utilized as mobilization and functional control criteria.
 - (a) Short-Term Actions - Actions that can be taken within 1 hour of initial notification of an emergency condition.
 - (b) Near-Term Actions - Actions that can be taken within 1 to 16 hours of initial notification of an emergency condition.
 - (c) Long-Term Actions - All actions taken 16 hours or more after initial notification of the emergency condition.
- (2) Activation of Emergency Response Facilities occurs when the minimum staff for each facility, as noted in Figure B-1, has arrived, been briefed on the event and is ready to perform command and control functions. Although the facility may be ready, turnover may be postponed in the interest of completing critical tasks. As an immediate action, the on-shift plant operations staff will staff the onsite facilities. Augmenting this staff with additional off-shift operations staff can occur within 60 minutes of initial declaration of the emergency condition.
- (3) The Emergency Response and Recovery Director (ER&RD), Radiological and EOF Manager, Radiological Assessment Coordinator (or their alternates), and the Joint Information Center (JIC) Manager will be notified within the time frame specified in the Emergency Plan Implementing Procedures (EPIPs). Activation of the TSC and OSC will occur at an ALERT or higher classification. The TSC and OSC have an activation time of 60 minutes. The EOF has an activation time of 90 minutes from a Site Area Emergency or higher classification. Therefore, in the near-term, key Emergency Operations Facility staff members or their designees will be available to coordinate support activities from the Emergency Operations Facility on the 15th floor of the Alliant Tower in Cedar Rapids. During a SITE AREA EMERGENCY or GENERAL EMERGENCY condition, the EOF will be activated. When an ALERT condition is declared, personnel assigned to the EOF and JIC will leave from the DAEC and report to their respective facility, whether or not the EOF and JIC have yet been activated. Shift assignments and changes will occur within 16 hours of the initial mobilization of the Emergency Response Organization.

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2.2 ONSITE RESPONSE ASSIGNMENTS

- (1) Immediate response organizational assignments, lines of succession, and responsibilities are as described below, for the Onsite organization.

2.2.1 EMERGENCY COORDINATOR

- (1) Assignment

- (a) The Emergency Coordinator functions onsite, coordinates the total site response effort, and normally operates from the Technical Support Center (TSC). The Emergency Coordinator reports to the ER&RD and has full authority and responsibility to initiate emergency actions and to recommend appropriate offsite protective measures to local and state authorities during the initial stages of the event as discussed in Section A.

- (2) Lines of Succession

- (a) The Operations Shift Manager/Control Room Supervisor (OSM/CRS) functions as the Emergency Coordinator until relieved. A qualified person will assume the responsibility of the Emergency Coordinator and receives turnover from the OSM/CRS. If necessary, the ER&RD will appoint the position of Emergency Coordinator and will inform the Operations Shift Manager/Control Room Supervisor of the appointment.

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(3) Responsibilities

- (a) The Emergency Coordinator exercises full responsibility and authority for all activities at the site. This position is a 60 minute ERO response reporting position. He/she is assigned the following functional responsibilities:
- (i) Ensure the activation of the onsite Emergency Response Organization as appropriate for the classification and circumstances of the emergency condition.
 - (ii) Coordinate efforts to return the plant to and maintain it in a safe, stable condition.
 - (iii) Coordinate accident assessment and analyses efforts to determine the full scope and impact of the emergency.
 - (iv) Ensure appropriate initial notification of DAEC, local, state, and federal officials and agencies. This function will be assumed by the Emergency Operations Facility (EOF) when activated.
 - (v) Provide initial Protective Action Recommendations, as appropriate, to local and state authorities who are responsible for offsite protective measures. This function will be assumed by the Emergency Operations Facility upon activation of that facility.
 - (vi) Apprise DAEC, local, state, and federal officials and agencies of updated information pertaining to the emergency condition.
 - (vii) Classify/reclassify the event as necessary.
 - (viii) Approve extensions on exposure limits for emergency workers, if necessary. (ix) Select alternate location for the Offsite Relocation & Assembly Area if radiological release and meteorological conditions warrant a change.
 - (ix) Prepare the Emergency Response Organization for an orderly transfer of responsibilities to the recovery organization.
- (b) While the administrative aspects of most of these responsibilities may be delegated by the Emergency Coordinator, the responsibilities for items 2.2.1(3)(a)(v), 2.2.1(3)(a)(vii), and 2.2.1(3)(a)(viii) may not be delegated except as indicated herein. Upon operation of the EOF, the ER&RD assumes responsibility for these non- delegable duties.

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2.2.4 SITE RADIATION PROTECTION COORDINATOR

(1) Assignment

- (a) The Site Radiation Protection Coordinator will operate from the TSC and initiate those activities related to radiological assessment of the environs surrounding the plant during the initial stages of the event. Offsite monitoring will be assumed by the Radiological Assessment Coordinator upon activation of the EOF.

(2) Lines of Succession

- (a) The Operations Shift Manager/Control Room Supervisor functions as the Site Radiation Protection Coordinator until officially relieved by the Emergency Coordinator. A qualified Site Radiation Protection Coordinator informs the Emergency Coordinator that he/she is ready to assume that position's responsibilities. If necessary, the Emergency Coordinator will appoint the Site Radiation Protection Coordinator.

(3) Responsibilities

- (a) This position is a 60 minute ERO response reporting time position.
- (b) The Site Radiation Protection Coordinator is responsible for the following activities:
- Ensuring that DAEC personnel are dispatched to monitor the environs in and around the plant for radiological consequences associated with the event.
 - Conducting an initial evaluation and assessment of the results of radiological monitoring activities. Upon activation of the EOF, evaluation and assessment of all offsite monitoring activities will be assumed by the Radiological Assessment Coordinator.
 - Assessing the onsite radiological consequences and directing protective measures, including the need for partial or complete evacuation of the plant.
 - During the initial stages of the event, apprising local and state authorities, through the Emergency Coordinator, of the results of radiological monitoring activities and providing protective action recommendations based upon the projected radiological consequences to the population at risk. Upon activation of the EOF, this function will be assumed by the Radiological Assessment Coordinator.

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2.2.5 SECURITY AND SUPPORT SUPERVISOR

(1) Assignment

- (a) The Security and Support Supervisor will exercise supervision and direction of the security staff and direction over the personnel assigned to the TSC support staff.

(2) Lines of Succession

- (a) If necessary, the Emergency Coordinator will appoint the Security and Support Supervisor.

(3) Responsibilities

- (a) This position is a 60 minute ERO response reporting time position.
- (b) Upon activation of the TSC, the Security and Support Supervisor is responsible for:
- Assuring that an accountability check for all personnel within the protected area is conducted in a timely fashion and that requisite security posts are filled.
 - Ensuring that the Emergency Response Organization notification process as described in the Emergency Plan Implementing Procedures has been initiated and is successfully completed.
 - Assuring the TSC closed ventilation system is operational and activated.
 - Limiting access into the facility to only those personnel who are members of the Emergency Response Organization, or otherwise are authorized.
 - Establishing measures that will enable continuous accountability for all personnel within the protected area once the initial accountability check has been completed.
 - Ensuring that no unauthorized personnel gain access to the site.
 - Assigning personnel for first aid duties, as required.
 - Providing overall management and direction to the support staff assembled in the TSC.

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2.2.6 TECHNICAL AND ENGINEERING SUPERVISOR

(1) Assignment

- (a) The Technical and Engineering Supervisor will exercise overall management and supervision of engineering, analysis and corrective action efforts undertaken by engineering and maintenance personnel at the DAEC from the TSC. In addition, he/she will coordinate with the Emergency Response Organization for engineering support efforts undertaken at the request of the Emergency Coordinator or TSC Operations Supervisor.

(2) Lines of Succession

- (a) If necessary, the Emergency Coordinator will appoint the Technical and Engineering Supervisor.

(3) Responsibilities

- (a) This position is a 60 minute ERO response reporting time position.
- (b) Upon activation of the site Emergency Response Organization and the Technical Support Center, the Technical and Engineering Supervisor is responsible for:
- Verifying that the TSC is fully activated and staffed as described in the Emergency Plan Implementing Procedures.
 - Evaluating plant status and providing support to the operations staff as requested.
 - Assisting the Emergency Coordinator and the TSC Operations Supervisor in establishing the priority for repair activities to be undertaken.
 - Providing direction to the technical staff comprised of support personnel such as the Fire Marshal, Safety Supervisor, and consultant/contractor representatives to analyze plant conditions and define courses of action to mitigate the emergency situation.
 - Providing direction to the engineering staff in TSC to aid in analysis of plant conditions and define courses of action to mitigate the emergency situation.
 - Coordinating corporate engineering activities with efforts being taken at the DAEC to mitigate the event and establish stable plant conditions.
 - Providing support to the Operations Support Center (OSC) Supervisor as necessary for coordinating all repair/corrective action efforts conducted at the DAEC.

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2.2.7 REACTOR ENGINEER

(1) Assignment

- (a) The Reactor Engineer will provide support to the operations crew located in the Control Room, and to the Emergency Coordinator from the TSC. He/she will provide recommendations for returning the reactor core to a safe and stable condition.

(2) Lines of Succession

- (a) If necessary, the Emergency Coordinator will appoint the Reactor Engineer.

(3) Responsibilities

- (a) his position is a 60 minute ERO response reporting position.
- (b) Upon activation of the Emergency Plan for conditions classified as an ALERT or greater, the Reactor Engineer is responsible for:
 - Supporting the operating crew in bringing the reactor core to desired condition and maintaining it there.
 - Determining and reporting the amount of failed fuel to the TSC Operations Supervisor
 - Obtaining vendor feedback on the amount of failed fuel.
 - Recommending fuels-related priorities in recovery/re-entry operations.

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2.2.9 TSC OPS LIAISON

(1) Assignment

- (a) The TSC Operations Liaison will provide operations support, as required, in the event that activation of the site Emergency Response Organization is required from the Technical Support Center.

(2) Lines of Succession

- (a) If necessary, the Security and Support Supervisor will appoint someone to fill this position.

(3) Responsibilities

- (a) This position is a 60 minute ERO response reporting time position.
- (b) The TSC Ops Liaison is responsible for the following:
- Advising the EC and TSC Ops Supervisor on EAL/PAR declarations
 - Generating paperwork required for EAL/PAR declarations
 - Ensuring the State, Counties and NRC receive notification regarding EALs and PARs
 - Providing an operational insight and tracking plant status
 - Advising the EC and TSC Ops Supervisor on matters that pertain to the plant as part of the Severe Accident Management Team

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2.2.10 OPERATIONAL SUPPORT CENTER (OSC) SUPERVISOR

(1) Assignment

- (a) The OSC Supervisor will exercise supervision and direction over the personnel who report to the OSC. He/she will report to the Emergency Coordinator in the TSC and will coordinate repair/corrective action efforts conducted at DAEC.

(2) Lines of Succession

- (a) If necessary, the Emergency Coordinator will appoint the OSC Supervisor.

(3) Responsibilities

- (a) This position is a 60 minute ERO response reporting time position.
- (b) Upon activation of the Emergency Response Organization the OSC Supervisor is responsible for:

- Supervising the implementation of the tasks and staffing delineated by the Emergency Assignment Staffing Board.
- Providing general supervision and direction to personnel who report to the OSC.
- Coordinating evacuation from the site of all unnecessary personnel during events classified as a SITE AREA or GENERAL EMERGENCY, once such an evacuation has been authorized by the Emergency Coordinator.
- Coordinating all repair/corrective action efforts conducted at the DAEC to achieve stable plant conditions and to terminate any uncontrolled or excessive radiological release.
- Ensuring that personnel dispatched from the OSC are properly briefed and equipped for their assignment in regards to technical content, as well as ALARA, including existing and potential radiological hazards.

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2.2.11 HEALTH PHYSICS SUPERVISOR

(1) Assignment

- (a) The Health Physics Supervisor will provide overall direction and supervision in regards to ALARA and radiological practices to personnel in the OSC. In addition, he/she will provide direction to personnel for habitability of assembly areas.

(2) Lines of Succession

- (a) If necessary, the OSC Supervisor will appoint the Health Physics Supervisor.

(3) Responsibilities

- (a) This position is a 60 minute ERO response reporting time position.
- (b) Upon activation of the Emergency Response Organization the Health Physics Supervisor is responsible for:
- Ensuring that personnel dispatched from the OSC are properly outfitted with protective clothing and equipment, briefed regarding ALARA, and apprised of existing and potential radiological hazards.
 - Coordinating with the Site Radiation Protection Coordinator to obtain information regarding plant status, problems, response options, significant radiological releases in progress, offsite dose rates, plume location, and meteorological conditions as necessary.
 - Ensuring the determination of habitability of assembly areas and ERO facilities.
 - Coordinating the dispatch of monitoring teams and Offsite Relocation and Assembly Area (ORAA) personnel.
 - Ensuring the ORAA is briefed periodically in terms of plant and radiological conditions.
 - Supervising efforts to prepare injured/contaminated personnel for transport to offsite medical facilities.

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2.2.12 INSTRUMENTATION AND CONTROL/ELECTRICAL MAINTENANCE (IC/EM) SUPERVISOR, AND MECHANICAL MAINTENANCE SUPERVISOR

(1) Assignment

- (a) The IC/EM Supervisor and Mechanical Maintenance Supervisor will aid in the coordination of repair/corrective actions conducted at the DAEC to achieve stable plant conditions from the Operations Support Center.

(2) Lines of Succession

- (a) If necessary, the OSC Supervisor will appoint the IC/EM Supervisor and Mechanical Maintenance Supervisor

(3) Responsibilities

- (a) These positions are 60 minute ERO response time reporting positions.
- (b) Upon activation of the Emergency Response Organization, the IC/EM Supervisor and Mechanical Maintenance Supervisor are responsible for:
 - Planning work packages for repair activities with assistance of engineering personnel in the TSC.
 - Selecting personnel for repair teams appropriate to the work being done.
 - Conducting briefing and debriefings to repair team personnel.

2.2.13 MINIMUM STAFFING

- (1) On-shift staffing and staff augmentation assignments are identified in Table B-1. The staffing plan is consistent with the guidance contained in NUREG-0654. On-Shift staffing as noted in Table B-1 has been validated by an On-Shift Staffing Analysis completed in accordance with the requirements of 10 CFR 50 Appendix E. IV.A.9. Details regarding the assignments and associated responsibilities are addressed in the EIPs.

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2.2.14 OTHER DAEC ORGANIZATIONAL ASSIGNMENTS

In addition to the key response personnel described in the preceding sections, other DAEC personnel will assume roles as necessary in supporting the overall emergency response. Assignments and responsibilities of these support groups follow:

(1) Security

- (a) Upon activation of the plan, for events classified as an ALERT or greater, the DAEC Security Force is responsible for performing an accountability check for all personnel within the protected area and controlling access to the site property. If evacuation of the site is required, the Security Force will assist in the evacuation and conduct an accountability check of all personnel dispatched to the ORAA.

(2) Administrative

- (a) The DAEC Administrative Support Staff will provide general logistical support functions to aid response organization activities. This includes long range planning for providing personnel, material, facilities and office and clerical services. Additionally, the administrative staff will coordinate warehouse and procurement activities and obtain life support services such as food, clothing, and overnight accommodations.

(3) Technical/Engineering

- (a) The technical and maintenance support staffs will provide plant engineering, maintenance assistance and coordination of corrective actions taken to mitigate the emergency condition, or terminate a release. This includes analytical and engineering efforts of site and corporate engineers and supervision and technical direction of activities performed by engineering, maintenance, or construction crafts.

(4) Quality Assurance

- (a) Quality Assurance can provide assistance to design, procurement, and construction activities that are required to establish cold shutdown conditions. Quality Assurance can define and track activities that are not conducted in accordance with normal established practices, and can ensure that post-accident evaluations are conducted to verify the acceptability of those activities for both short and long term service.

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2.3 OFFSITE (EOF & JIC) RESPONSE ASSIGNMENTS

2.3.1 The Emergency Operations Facility and Joint Information Center (JIC) provide the following principal functions in the overall response to an emergency at the DAEC once control is transferred from the Technical Support Center:

- (1) Establishes a single focal point for performing radiological dose assessment and Protective Action Recommendation decision-making, including coordination and interface with local, state, and federal support groups
- (2) Establishes a coordinated means to disseminate information related to the accident to public officials, the news media, and industry public relations forums.

2.3.2 Response positions are as follows:

- (1) Emergency Response and Recovery Director (ER&RD)

(a) Assignment

- (i) The ER&RD is responsible for the overall direction and control of DAEC's integrated emergency response and recovery effort and providing the financial resources and contractual capabilities to ensure requisite actions can be taken to protect the health and safety of the public.

(b) Responsibilities

- (i) This is a 90 minute ERO response time reporting position.
- (ii) Ensuring that the Emergency Response Organization is staffed by qualified personnel and coordinating with these personnel to ensure that sufficient support for various functions is available, either from within Duane Arnold or from outside organizations (i.e., other utilities, Architect Engineers, Nuclear Steam Supply System suppliers, INPO, consultants, etc.).
- (iii) Authorizing the procurement of equipment, materials, and resources, as necessary, to effectively respond, control, and recover from an accident condition at DAEC.
- (iv) Implementing the Emergency Plan Implementing Procedures (EPIPs).
- (v) Reviewing and concurring with Protective Action Recommendations prior to their issuance once the Emergency Operations Facility (EOF) is operational.

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Table B-1
On-Shift Staffing & Staff Augmentation Assignments

Major Functional Areas	Major Tasks	Position Title or Expertise (All positions are 24-hour staffing)	On-Shift * = see Comments	Capability for additions		Response Location	Comments
				60 min	90 min		
Plant Operations and assessment or operational aspects	Respond to condition and mitigate operational event consequences	Operations Shift Manager (SRO)	1			CR	Provides early direction and control until relieved by the Emergency Coordinator (Plant Manager - DAEC or designee). Third Reactor Operator is assigned as Fire Brigade Leader
		Control Room Supervisor (SRO)	1				
		Control Room Operators	3*				
		Auxiliary Operators Shift Technical Advisor	2 1				
Emergency Direction and Control	Site utility Emergency Management	Plant Manager - DAEC Manager Outage and Support, or selected Senior Plant Supervisory Personnel	*	1		TSC	Assumed by the Operations Shift Manager /Control Room Supervisor until relieved by the Plant Manager, DAEC or designee.
Notification/ Communications	Notify licensee, state, local & federal personnel and maintain communications		1	2	1	CR/TSC	Performed by Shift Communicator or designated Emergency Personnel.
Radiological Accident Assessment and Support of Operational Accident Assessment	Overall utility Emergency Management and offsite agency interface	Vice President, Nuclear or Selected Management Personnel			1*	EOF	One-hour staffing commitment may be filled by the Emergency Coordinator in the TSC.
	Offsite Dose Assessment and Protective Action	Radiation Protection Manager or selected Radiation Protection Supervisory Personnel.		1	1	TSC EOF	Staffed by Site Rad Protection Coordinator Staffed by Rad Assessment Coordinator
	Recommendations						
	Offsite Surveys	HP Technician DAEC Staff Member		1*	1*	1 1	OSC
	Onsite Surveys (Out of plant)	HP Technician DAEC Staff Member		1*	1	OSC	May be staffed by Plant Personnel trained in the HP role for Field Teams.
Page 1 Subtotal			9	7	6		

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Table B-1
On-Shift Staffing & Staff Augmentation Assignments

Major Functional Areas	Major Tasks	Position Title or Expertise (All positions are 24-hour staffing)	On-Shift * = see Comments	Capability for additions		Response Location	Comments
				60 min	90 min		
	Inplant Surveys	HP Technician	1	1	1	OSC	
	Chemistry/Radio-chemistry	Chem Technician	1	1		OSC	
Plant System Engineering Repair and Corrective Actions	Technical Support	Core/Thermal Hydraulics		1		TSC	Position filled by a Reactor Engineer
		Electrical Engineer		1		TSC	
		Mechanical Engineer		1		TSC	
	Repair and corrective actions	Mechanical Maintenance	*	1		OSC	On-shift staffing may be provided by shift personnel assigned other functions.
Electrical Maintenance		*	1	1	OSC	On-shift staffing may be provided by shift personnel assigned other functions.	
Protective Actions	Radiation Protection: a. Access Control b. HP Coverage for repair, corrective actions, search and rescue first-aid & firefighting c. Personnel monitoring d. Dosimetry	Instrument and Control (I&C) Technician			1	OSC	
		HP Technicians	1	1	2		
Page 2 Subtotal			3	8	5		

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Table B-1
On-Shift Staffing & Staff Augmentation Assignments

Major Functional Areas	Major Tasks	Position Title or Expertise (All positions are 24-hour staffing)	On-Shift * = see Comments	Capability for additions		Response Location	Comments
				60min	90 min		
Fire Fighting			4	*	Local	Support	Fire Brigade per FP-AB-100.
Rescue Operations and First Aid				*	Local	Support	May be provided by shift personnel assigned other functions.
Site Access Control and Personnel Accountability	Security, fire fighting, Communications, personnel accountability			*			All per Security Plan.

Page 1 Subtotal	9	7	6
Page 2 Subtotal	3	8	5
Page 3 Subtotal	4	0	0
GRAND TOTAL	16	15	11

DAEC EMERGENCY PLAN	SECTION 'B'
EMERGENCY RESPONSE ORGANIZATION	Rev. xx Page 33 of 36

Figure B-1
ON-SITE EMERGENCY RESPONSE ORGANIZATION (pg. 1 of 2)

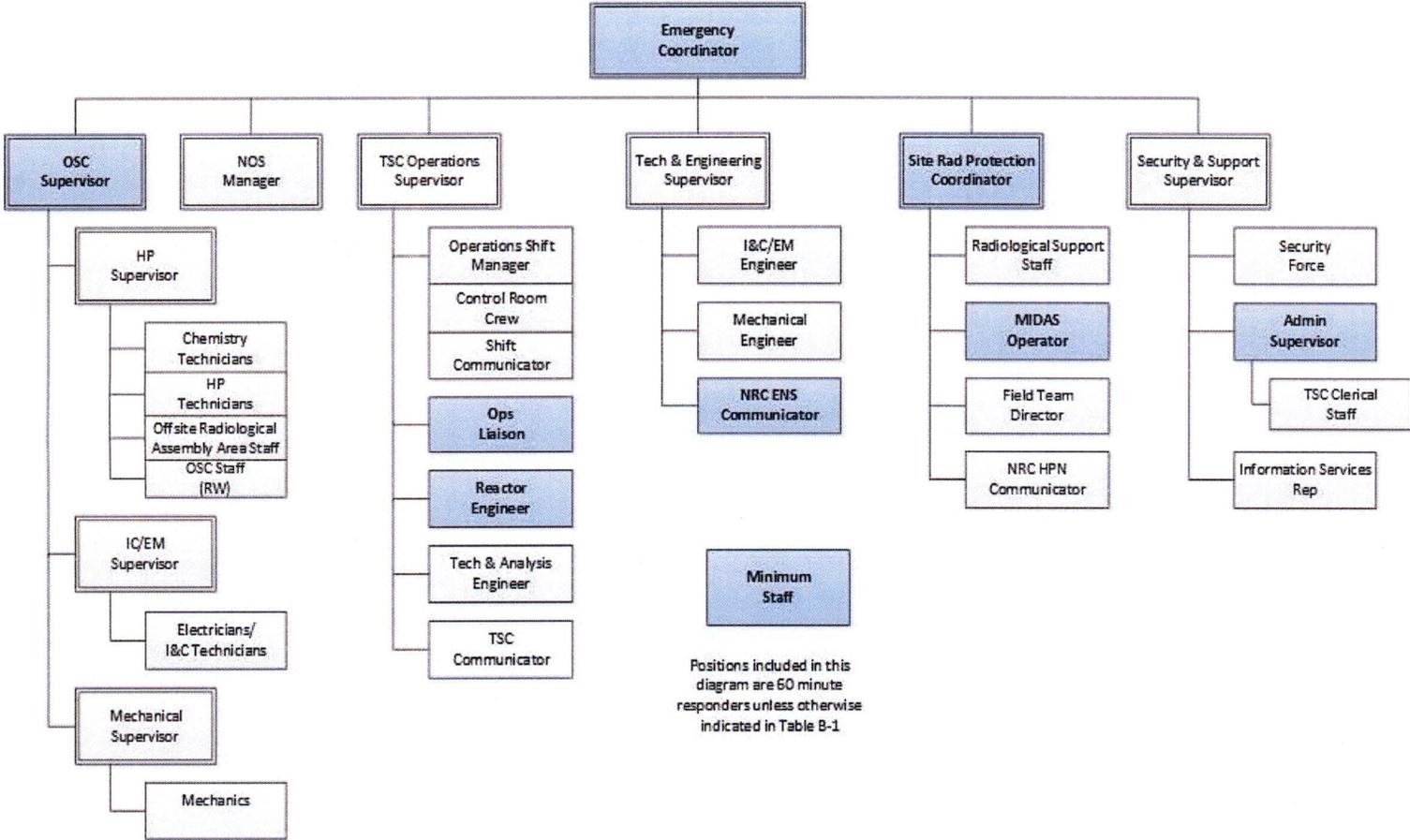
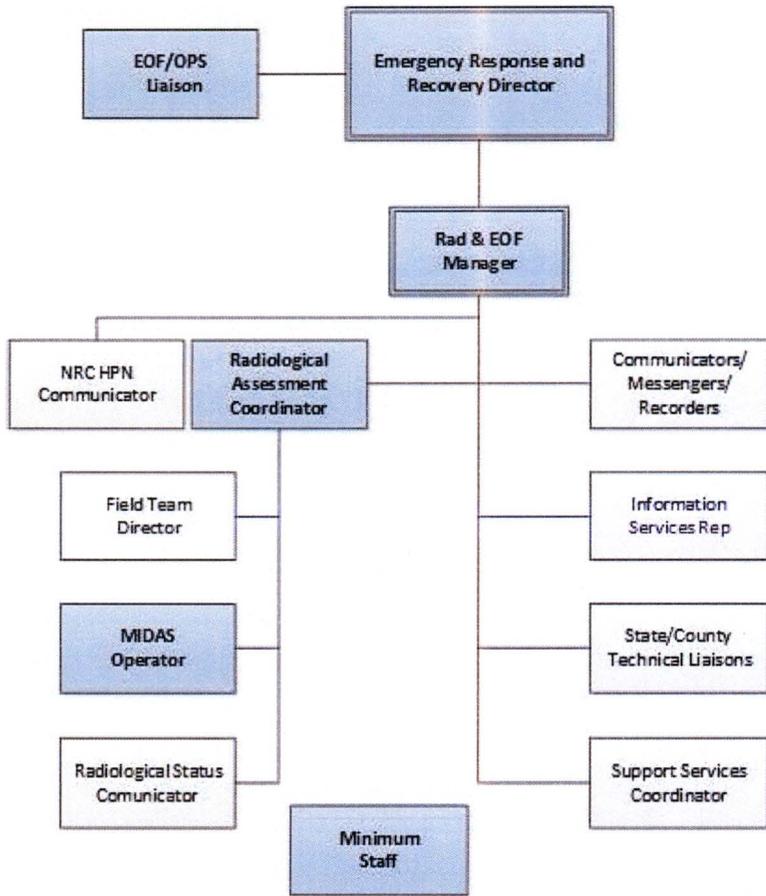
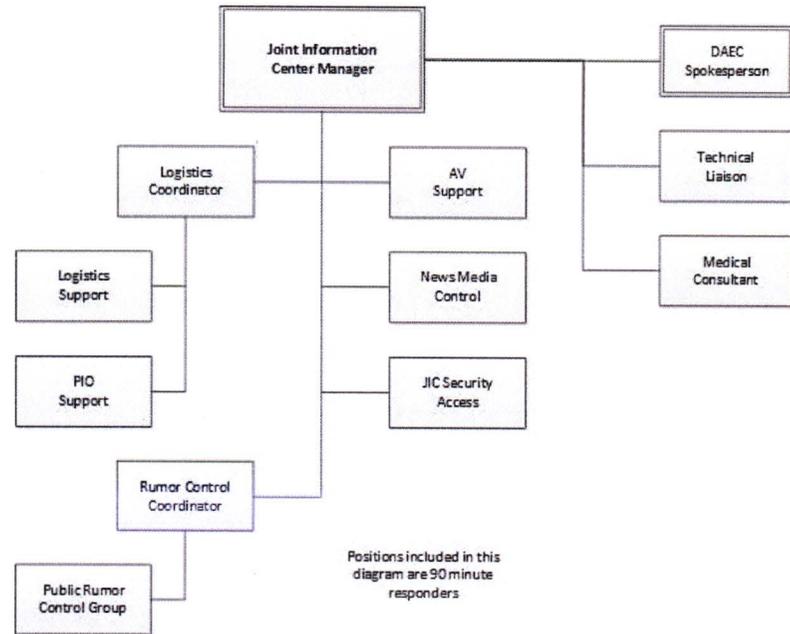


Figure B-1
CORPORATE EMERGENCY RESPONSE ORGANIZATION (pg. 2 of 2)



Positions included in this diagram are 90 minute responders



Positions included in this diagram are 90 minute responders

DAEC EMERGENCY PLAN	SECTION 'E'
NOTIFICATION METHODS AND PROCEDURES	Rev. xx Page 4 of 7

2.2 NOTIFICATION AND ACTIVATION OF THE ERO

(1) NOTIFICATION OF UNUSUAL EVENT

- (a) Activation of emergency facilities (refer to Section H), such as the TSC, the OSC, the EOF, or the JIC will be as directed by the Emergency Coordinator, ER&RD, and JIC Manager, respectively. Normally, these emergency facilities will not be activated for a NOTIFICATION OF UNUSUAL EVENT, but may be, if escalation of the emergency class appears to be imminent.

(2) ALERT, SITE AREA EMERGENCY, OR GENERAL EMERGENCY

- (a) The Operations Shift Manager/Control Room Supervisor, or another member of the shift operating crew, at the direction of the Operations Shift Manager/Control Room Supervisor, shall notify onsite personnel by activation of a distinctive tone alarm over the public address system, followed by an announcement over the public address system. Off-duty emergency response personnel will be notified in accordance with the EIPs describing notification and call out of off-duty personnel. The Emergency Telephone Book contains the telephone numbers and, if applicable, pager numbers of emergency response personnel.
- (b) The onsite Emergency Response Organization personnel shall initially report to the TSC and the OSC at an Alert or higher classification. As personnel arrive at the Operational Support Center, they should select their own nameplate and place it into their response position. The instructions are designated in Emergency Plan Implementing Procedures and cover radiological survey, monitoring, communication, record-keeping, rescue, and emergency repair efforts.
- (c) The Emergency Coordinator will initiate notification of the following emergency response officials and agencies and provide them with additional information, as appropriate, until relieved by the ER&RD:
- Local, state and federal governmental officials and support agency management personnel, as warranted, based upon the severity and potential ramifications of the event,
 - INPO Emergency Response Center.
 - Further information and instructions are provided in the supporting implementing procedures.
- (d) Onsite personnel who staff the EOF and the JIC will report to their facilities at an Alert classification. The ER&RD in conjunction with the JIC Manager will determine when the EOF and JIC will be activated as indicated in the EIPs.

DAEC EMERGENCY PLAN	SECTION 'H'
EMERGENCY FACILITIES STAFFING, ACTIVATION AND EQUIPMENT	Rev. xx Page 3 of 27

1.0 PURPOSE

- (1) This section describes the DAEC Emergency Response Organization (ERO) emergency facilities, staffing and activation, and equipment required for support of emergency events.

2.0 REQUIREMENTS

- (1) Emergency response facilities will be activated according to the notification and activation procedures described in the EPIPs. Personnel who are assigned to each facility either appear on call or notification lists used for notification purposes, or by procedure and training, will automatically report to a predesignated area upon declaration of the appropriate Emergency Classification. Each key emergency organization position is assigned a minimum of two qualified persons to ensure complete facility staffing. Whenever possible, three qualified persons will be assigned.
- (2) Support facilities and organizations will be activated as described regardless of the time of day or day of the week. However, it should be recognized that the normal plant staff is only at the site approximately 25% of the time. As a result, as many functions as possible will be assumed by the shift operating crew until support facilities are established and off-duty personnel arrive on site. Sufficient plant staff and corporate personnel will be trained and qualified to staff the appropriate facilities to ensure that they will be established and operational in a timely manner. The Emergency Response Organization is shown in Figure B-1 and also in the Emergency Telephone Book.

2.1 TECHNICAL SUPPORT CENTER (TSC)

- (1) General Description
- (a) The TSC is located in a facility adjacent to the DAEC Administration Building and is staffed by plant management and technical personnel to provide technical support for Control Room activities. The facility has the capability to transmit and record vital plant data in real time and provides access to as-built plant drawings and other records. Computerized dose projections can be performed from a computer terminal available in the TSC. The program (MIDAS) has real-time access to data from the plant effluent and meteorological monitoring systems. The Safety Parameter Display System (SPDS), which displays critical plant parameters monitored by the process computer, is available in the TSC. Additionally, plant parameters and status information of significance to the event can be transmitted using a VAX computer terminal as well as telephone and radio. Also available is the Emergency Response Data System (ERDS) which displays live-time plant data. The TSC is the main communications link between the plant and the Emergency Operations Facility (EOF). The location and floor plan are shown in Figures H-1 and H-2, respectively. The Control Room is designated as the alternate TSC. Communication links between the TSC, Operational Support Center (OSC), Control Room, EOF, and the Nuclear Regulatory Commission (NRC) are described in Section F.

DAEC EMERGENCY PLAN	SECTION 'H'
EMERGENCY FACILITIES STAFFING, ACTIVATION AND EQUIPMENT	Rev. xx Page 4 of 27

(2) Activation Criteria

- (a) Declaration of an ALERT or higher emergency classification requires activation of the TSC. The Operations Shift Manager (OSM) will authorize initiation of the notification chain according to procedure. Members of the Emergency Response Organization assigned to the TSC will be notified by plant page, extension number, commercial phone, pager or automated telephone system. During off-hours, members of the Emergency Response Organization assigned to the TSC will be contacted by pager and/or commercial telephone. A call list is provided for this purpose. Upon receiving notification of an Emergency Classification which requires activation of the TSC, each individual contacted will immediately report to the TSC to begin activation tasks.
- (b) The TSC is activated at an ALERT, SITE AREA EMERGENCY or GENERAL EMERGENCY. Activation of the TSC for a NOTIFICATION OF UNUSUAL EVENT is at the discretion of the OSM or Emergency Coordinator.

(3) Staffing

- (a) The Emergency Coordinator exercises supervision and direction over the personnel assigned to the TSC. Personnel assigned to the TSC will include: selected members of the plant staff who are knowledgeable in specific functional areas at the DAEC, selected engineering personnel who can assist in providing engineering evaluations, and representatives from the NRC.

(4) Habitability

- (a) The TSC is designed and constructed to provide the shielding necessary to protect occupants from radiation effects from either the reactor core or the plume. An independent ventilation system can be placed in a recirculation mode of operation, enabling air to be continually filtered through both charcoal and HEPA filters. Radiation monitors are provided at the ventilation system intake and within the TSC proper. In the event of radiological releases, portable air sampling equipment is available that will enable periodic checks to be made of airborne radiological conditions.

DAEC EMERGENCY PLAN	SECTION 'H'
EMERGENCY FACILITIES STAFFING, ACTIVATION AND EQUIPMENT	Rev. xx Page 5 of 27

2.2 OPERATIONAL SUPPORT CENTER (OSC)

(1) General Description

- (a) The OSC is located in a facility adjacent to the DAEC Administration Building and its floor plan is illustrated in Figure H-1. This center will be used to assemble and dispatch onsite and offsite radiation monitoring teams, and to coordinate in-plant survey efforts, rescue and emergency teams, and personnel who support Control Room emergency activities. This center will be in communication with the TSC and Control Room. Portable environmental sampling and monitoring equipment is stored near this facility to support radiation monitoring teams. This facility provides ready access to evacuation routes.

(2) Activation Criteria

- (a) Activation of the OSC occurs in a similar fashion to the TSC. Upon declaration of an ALERT or higher emergency classification, the OSM will initiate the notification process. Individuals will either report to the OSC when notified, or will automatically report when an emergency classification is declared that requires OSC activation. Those assigned to the OSC will be notified by plant page, extension number, commercial phone, pager or automated telephone system. During off-hours, individuals assigned to the OSC will be contacted by pager, commercial telephone, or automated telephone system.
- (b) The OSC is activated at an ALERT, SITE AREA EMERGENCY, or GENERAL EMERGENCY is declared. Activation of the OSC for a NOTIFICATION OF UNUSUAL EVENT is at the discretion of the EC.

(3) Staffing

- (a) The OSC Supervisor exercises overall supervision and direction for all emergency response personnel on site who are not members of the operations shift crew or assigned to other emergency response facilities. Onsite and offsite field radiological monitoring teams, rescue and repair teams, in-plant radiological survey assignments, and communicator assignments are established at the OSC using an Emergency Assignment Tag Board. This method is further described in the EPIPs.

(4) Habitability

- (a) Sections I and K describe the systems and methods for monitoring radiological conditions in the OSC. Emergency kits at or near the OSC provide respiratory protection, protective clothing, decontamination capabilities, and portable sampling and monitoring devices. First-aid supplies are available from the first aid room. Decontamination is performed at the access control area. Radios, onsite and offsite telephones, and intra-plant telephones are available in this center.

DAEC EMERGENCY PLAN	APPENDIX 6
DEFINITIONS	Rev. xx Page 4 of 7

- (24) Emergency Planning Zone (EPZ) - The areas of major exposure pathways for which there is planning for predetermined protective actions. The two predominant exposure pathways are:
- (a) Ingestion Exposure Pathway Emergency Planning Zone - Area within a 50-mile radius of the nuclear power facility in which the principal radiation source is ingestion of contaminated water or foods.
 - (b) Plume Exposure Emergency Planning Zone - Area within an approximate 10-mile radius of the nuclear power facility and including the Cedar Rapids Metropolitan area in which the principal radiation sources are whole-body external exposure to gamma radiation from the plume and deposited materials, and inhalation exposure.
- (25) Exclusion Area - Area surrounding the DAEC in which FPLE Duane Arnold has the authority to determine and control all activities, including exclusion or removal of personnel and property from the area.
- (26) Exercise - An event, evaluated by federal regulators (NRC and FEMA), that tests the integrated capability and a major portion of the basic elements existing within plans and organizations.
- (27) Facility Activation - Activation of Emergency Response Facilities occurs when the minimum staff for each facility, as noted in Figure B-1, has arrived, been briefed on the event and is ready to perform command and control functions. Although the facility may be ready, turnover may be postponed in the interest of completing critical tasks.
- (28) General Emergency (Condition Classification D) - Events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Guideline exposure levels offsite for more than the immediate site area.
- (29) Hostile Action - an act toward an NPP or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. Hostile Action should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the NPP. Nonterrorism-based EALs should be used to address such activities (e.g., this may include violent acts between individuals in the owner controlled area.)
- (30) Hostile Force - One or more individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.
- (31) Independent Spent Fuel Storage Installation (ISFSI) - The on site facility where the loaded Dry Shielded Canisters (DSC's) will be stored in Horizontal Storage Modules (HSMs). The installation is intended for interim storage until the spent fuel is removed from the plant site.

ENCLOSURE 2

**DUANE ARNOLD ENERGY CENTER
LICENSE AMENDMENT REQUEST (TSCR-149)**

Comparison between NUREG-0654 Revision 1, the last NRC approved Emergency Plan Revision (2), the current Emergency Plan Revision (37) and the proposed changes to the emergency plan.

3 pages to follow

Site On-Shift Table Comparison

Major Functional Area	Major Tasks	Position Title / Expertise	Table B-1 on-shift	DAEC Rev 2	DAEC Rev 37	DAEC Proposed On-shift
Plant Operation and Assessment of Operation Aspects		Shift Supervisor (SRO)	1	1	1	1
		Shift Foreman (SRO)	1	1	1	1
		Control Room Operators	2	2	2	3
		Auxiliary Operators	2	2	2	2
Emergency Direction and Control (Emergency Coordinator) ***		STA. Shift Supervisor or facility manager	1**	1**	1	1
Notification / Communication ****	Notify State/local and federal personnel, maintain communication		1****	1****	1	1
Radiological Accident Assessment and Support of Operational Accident Assessment	In-Plant surveys	HP Technicians	1	1	1	1
	Chemistry / Radiochemistry	Chem/HP Technicians	1	1 (RWO)	1 (CT)	1 (CT)
Plant System Engineering	Technical support	Shift Technical Advisor	1	1	1**	1**
Repair and Corrective Actions	Repair and Corrective Actions	Mechanical Maintenance	1**			
		Electrical Maintenance	1**			
Protective Actions (In-Plant)	Radiation Protection: a. Access Control b. HP Coverage for repair, corrective actions, search and rescue first-aid & firefighting c. Personnel monitoring d. Dosimetry	HP Technicians	2**		1	1
Firefighting		Fire Brigade per Tec Specs				4
Rescue Operations and First-Aid			2**			
Site Access Control and Personnel Accountability	Security, firefighting communications, personnel accountability	Security personnel per security plan				
Total On-Shift			10	9	11	16

**May be provided by shift personnel assigned other functions

***Overall direction to be assumed by ER&RD when ERFs are fully manned

****Performed by Shift Communicator

Site 30 Minute Augmented ERO Table Comparison

Major Functional Area	Major Tasks	Position Title / Expertise	Table B-1 Augment	DAEC Rev 2 30 min	DAEC Rev 37 30 min	DAEC Proposed 60 Min
Notification / Communication	Notify State/local and federal personnel, maintain communication		1	2	1	2
Radiological Accident Assessment and Support of Operational Accident Assessment	Emergency Response & Recovery Director	Senior Manager		1	1	1
	Offsite Dose Assessment	Sr. HP Expertise	1	1	1	1
	Offsite Surveys	HP Technicians	2	2	2	2
	On-Site Surveys	HP Technicians	1	1	1	1
	In-Plant surveys	HP Technicians	1	1	1	1
Plant System Engineering	Technical Support	Chemistry / Radiochemistry		1		1
		Core/Thermal Hydraulics	1	1	1	1
		Electrical				1
Repair and Corrective Actions	Repair and Corrective Actions	Mechanical				1
		Rad Waste Operator				
		Electrical Maintenance	1	1	1	1
		I&C Technician	1	1	1	
Protective Actions (In-Plant)	Radiation Protection: a. Access Control b. HP Coverage for repair, corrective actions, search and rescue first-aid & firefighting c. Personnel monitoring d. Dosimetry	HP Technicians	2	2	1	1
Total Augmented ERO			11	14	11	15

Site 60 Minute Augmented ERO Table Comparison

Major Functional Area	Major Tasks	Position Title / Expertise	Table B-1 Augment	DAEC Rev 2 60 min	DAEC Rev 37 60 min	DAEC Proposed 90 Min
Notification / Communication	Notify State/local and federal personnel, maintain communication		2	2	2	1
Radiological Accident Assessment and Support of Operational Accident Assessment	Emergency Response & Recovery Director	Senior Manager	1	1	1	1
	Offsite Dose Assessment	Sr. HP Expertise				1
	Offsite Surveys	HP Technicians	2	2	2	2
	On-Site Surveys	HP Technicians	1	1	1	1
	In-Plant surveys	HP Technicians	1	1	1	1
	Chemistry / Radiochemistry	Chem/HP Technicians	1	1	1	
Plant System Engineering	Technical Support	Core/Thermal Hydraulics				
		Electrical	1	1	1	
		Mechanical	1	1	1	
Repair and Corrective Actions	Repair and Corrective Actions	Mechanical Maintenance	1	1	1	
		Rad Waste Operator	1			
		Electrical Maintenance	1	1	1	1
		I&C Technician				1
Protective Actions (In-Plant)	Radiation Protection: a. Access Control b. HP Coverage for repair, corrective actions, search and rescue first-aid & firefighting c. Personnel monitoring d. Dosimetry	HP Technicians	2	2	2	2
Total Augmented ERO			15	14	14	11

ENCLOSURE 3

DUANE ARNOLD ENERGY CENTER

LICENSE AMENDMENT REQUEST (TSCR-149)

Letter of Consultation and Concurrence from Off-site Response Organizations

1 page to follow

**ACKNOWLEDGEMENT OF OPPORTUNITY TO REVIEW AND SUPPORT OF
DAEC PROPOSED E-PLAN CHANGE TO AUGMENTED ERO STAFFING GOAL FROM
30-60 MINUTES TO 60-90 MINUTES**

On January 28, 2016 Emergency Preparedness Department representatives from NextEra Energy Duane Arnold, LLC (DAEC) provided a briefing to the Linn County Emergency Management Agency, the Benton County Emergency Management Agency, the Iowa Homeland Security and Emergency Management Department, and the Iowa Department of Public Health (IDPH) (the Partners). DAEC reviewed with the Partners their proposed license amendment request (LAR) seeking NRC approval for extension of the goal for staffing its augmented ERO from the current goal of 30-60 minutes to one of 60-90 minutes.

During the referenced meeting, DAEC Emergency Preparedness staff provided assurances that the proposed change will not adversely affect existing capabilities for prompt notification to the Partners of a DAEC emergency, for radiological monitoring and assessment support, and for ongoing communication and coordination of emergency information.

In addition to maintaining notification capabilities to notify the Partners of a declared emergency within 15 minutes, DAEC will continue to deploy a plant technical representative to the Partners Emergency Operation Centers after declaration of an Alert or higher emergency classification level. The DAEC Emergency Response Organization (ERO) will continue support to IDPH for offsite radiological monitoring and assessment at the DAEC Emergency Operations Facility. Coordination arrangements between DAEC and the Partners will continue to allow for timely dissemination of emergency information to the public.

With the assurances noted above, the Partners support approval of the proposed LAR for extension of the DAEC augmented ERO staffing goal from 30-60 minutes to 60-90 minutes.

CONCURRENCE

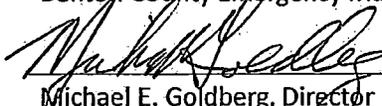
Approved By and Date:



Scott E. Hansen, Coordinator
Benton County Emergency Management

02/25/16

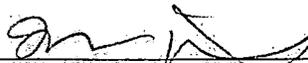
Date



Michael E. Goldberg, Director
Linn County Emergency Management

02/25/2016

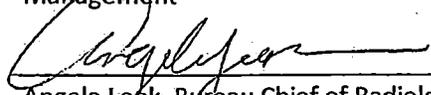
Date



Jacob Nicholson, REP Program Manager
Iowa Department of Homeland Security and Emergency
Management

2/22/2016

Date



Angela Leek, Bureau Chief of Radiological Health
Iowa Department of Public Health

2/25/2016

Date