



10 CFR 50.90  
10 CFR 50.54(q)

LIC-16-0076  
September 2, 2016

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

Fort Calhoun Station, Unit No. 1  
Renewed Facility Operating License No. DPR-40  
NRC Docket No. 50-285

Subject: License Amendment Request (LAR) 16-02: Revise the Fort Calhoun Station Emergency Plan to Address the Permanently Defueled Condition

Reference: Letter from OPPD (T. Burke) to USNRC (Document Control Desk), "Certification of Permanent Cessation of Power Operations," dated June 24, 2016 (LIC-16-0043) (ML16176A213)

By letter dated June 24, 2016 (Reference), Omaha Public Power District (OPPDP) provided formal notification to the U.S. Nuclear Regulatory Commission (NRC) pursuant to 10 CFR 50.48(b)(8) and 10 CFR 50.82(a)(1)(i) of OPPDP's determination to permanently cease power operations at Fort Calhoun Station (FCS) no later than December 31, 2016.

After certifications of permanent cessation of power operations and of permanent removal of fuel from the reactor vessel for FCS are submitted in accordance with 10 CFR 50.82(a)(1)(i) and (ii), the 10 CFR Part 50 license will no longer authorize reactor operation or placement or retention of fuel in the reactor vessel.

Pursuant to 10 CFR 50.90, OPPDP hereby requests an amendment to the license for Fort Calhoun Station (FCS), Unit No. 1. The proposed amendment would revise the OPPDP Nuclear Radiological Emergency Response Plan for Fort Calhoun Station (FCS RERP) for the post-shutdown condition. The proposed changes are being submitted to the NRC for approval prior to implementation, as required under 10 CFR 50.54(q)(4).

The proposed FCS RERP changes would revise the shift staffing and Emergency Response Organization (ERO) staffing. OPPDP has reviewed the proposed changes against the planning standards in 10 CFR 50.47(b) and requirements in 10 CFR Part 50, Appendix E and concludes that the standards and requirements will continue to be met.

Preliminary discussions on the proposed schedule associated with changes to the FCS RERP and its effects on the off-site resources were conducted as part of meetings with various Federal, State and local agencies. Followup meetings with Federal, State and local agencies will cover this proposed RERP (LAR 16-02), its impact on off-site resources and the FCS decommissioning process. Updates will continue with off-site agencies during the normally scheduled quarterly meetings.

The proposed changes to the FCS RERP are commensurate with the reduced spectrum of credible accidents in the permanently shut down and defueled condition. In order to assist in the transition from an operating facility to a permanently defueled facility, the changes are required to properly reflect the conditions of the facility while continuing to preserve the FCS Decommissioning Trust Fund and maintain the effectiveness of the FCS RERP.

The description and evaluation of the proposed FCS RERP changes are contained in Attachment 1. Attachment 2 provides a tabular summary of the proposed changes to the FCS RERP. Attachment 3 provides the revised pages of the FCS RERP with the proposed changes and a clean copy. Attachment 4 provides the analysis of the proposed post-shutdown on-shift staffing. Attachment 5 provides the analysis of ERO tasks that will be transferred to remaining ERO positions.

OPPD requests review and approval of the proposed license amendment by September 8, 2017, in order to support future decommissioning efforts and activities at the site. Once approved, this amendment shall be implemented within 60 days.

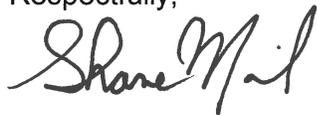
The proposed changes have been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c), and OPPD has determined that these changes involve no significant hazards consideration. OPPD has also determined that the proposed changes satisfy the criteria for categorical exclusion in accordance with 10 CFR 51.22(c)(9) and do not require an environmental review. Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment is required.

Pursuant to 10 CFR 50.91, "*Notice for public comment; State consultation,*" paragraph (b), OPPD is notifying the State of Nebraska of this application for license amendment by transmitting a copy of this letter and its supporting attachments to the designated state official. If you have any questions regarding this submittal, please contact Mr. Bradley H. Blome at (402) 533-7270.

The proposed changes have been reviewed and approved by the Fort Calhoun Station Plant Operations Review Committee (PORC). Attachment 6 of this letter contains new regulatory commitments.

I declare under penalty of perjury that the foregoing is true and correct. Executed on September 2, 2016.

Respectfully,



Shane M. Marik  
Site Vice President and CNO

Attachments:

1. Description and Evaluation of the Proposed Changes
2. Tabular Summary of Proposed Changes to the FCS RERP
3. Proposed Revision to the FCS RERP Pages (copy with changes marked and a clean copy)
4. Analysis of Proposed Post-Shutdown On-Shift Staffing
5. Emergency Response Organization Task Analysis
6. List of Regulatory Commitments

SMM/JEF/epm

C: K. M. Kennedy, NRC Regional Administrator, Region IV  
C. F. Lyon, NRC Senior Project Manager  
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**OMAHA PUBLIC POWER DISTRICT**

**FORT CALHOUN STATION**

**DOCKET NUMBER 50-285 / LICENSE NUMBER DPR-40**

**ATTACHMENT 1**

**DESCRIPTION AND EVALUATION OF THE PROPOSED CHANGES**

**License Amendment Request 16-02: Revise the Fort Calhoun Station  
Emergency Plan to Address the Permanently Defueled Condition**

**DESCRIPTION AND EVALUATION OF PROPOSED CHANGES**

- 1.0 SUMMARY DESCRIPTION
- 2.0 BACKGROUND
- 3.0 DETAILED DESCRIPTION
- 4.0 TECHNICAL EVALUATION
  - 4.1 Accident Analysis
  - 4.2 Analysis of Proposed Changes
  - 4.3 Conclusion
- 5.0 REGULATORY EVALUATION
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- 7.0 REFERENCES

## 1.0 SUMMARY DESCRIPTION

This evaluation supports a request to amend the Renewed Facility Operating License (OL) DPR-40 for the Fort Calhoun Station (FCS).

The proposed changes would revise the OPPD Nuclear Radiological Emergency Response Plan for Fort Calhoun Station (FCS RERP), on-shift staffing, and Emergency Response Organization (ERO) staffing to support the planned permanent cessation of power operations and permanent defueling of the FCS reactor (Reference 1).

An analysis of proposed post-shutdown on-shift staffing was performed to provide the basis for the proposed changes to the on-shift staffing. On-shift staffing at FCS currently consists of:

- 1 Shift Manager (Senior Reactor Operator (SRO))
- 1 Unit Supervisor (SRO)
- 1 Shift Technical Advisor (STA)
- 2 Reactor Operators (RO)
- 2 Equipment Operators
- 1 Control Room Communicator
- 1 Radiation Protection Technician
- 1 Chemistry Technician
- 1 Habitability Technician

The Fire Brigade currently consists of a minimum of five (5) responders, including a Fire Brigade Leader and a minimum of four (4) trained and qualified Fire Brigade Members.

The analysis of proposed post-shutdown on-shift staffing demonstrated that an on-shift complement of four (4) personnel along with the Fire Brigade is able to cope with the spectrum of analyzed events in the permanently defueled condition because the consequences of credible events will be reduced when compared to the events that can occur with an operating reactor.

The credited post-shutdown on-shift complement will consist of:

- 1 Shift Manager (SRO/Certified Fuel Handler (CFH))
- 1 Control Room Operator (SRO or RO/CFH)
- 1 Equipment Operator/Non-Certified Operator (NCO)
- 1 Radiation Protection Technician

The number of on-shift and ERO staff at FCS following permanent cessation of power operations and defueling will be reduced from current normal operating levels, but are commensurate with the need to safely store spent fuel at the facility in a manner that is protective of public health and safety. The Fire Brigade complement will continue to consist of a minimum of five (5) responders, including a Fire Brigade Leader and a minimum of four (4) trained and qualified Fire Brigade Members in compliance with National Fire Protection Association (NFPA) 805 implementation at FCS.

OPPD has reviewed the proposed changes against the planning standards in 10 CFR 50.47(b) and the requirements in 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," and has concluded that the standards and requirements will continue to be met. Therefore, no exemption from 10 CFR 50.47 or 10 CFR 50, Appendix E is requested.

## **2.0 BACKGROUND**

The proposed changes are intended to reflect the pending permanent cessation of power operations and permanent defueling of the FCS reactor, which will occur no later than December 31, 2016 (Reference 1). After the reactor is shut down, all fuel assemblies will be removed from the reactor vessel and placed in the spent fuel pool (SFP). The irradiated fuel will be stored in the SFP and in the Independent Spent Fuel Storage Installation (ISFSI) until it is removed by the Department of Energy (DOE). Upon docketing of the certifications for permanent cessation of power operations (10 CFR 50.82(a)(1)(i)) and permanent removal of fuel from the reactor vessel (10 CFR 50.82(a)(1)(ii)), pursuant to 10 CFR 50.82(a)(2), the 10 CFR Part 50 license for FCS will no longer authorize power operations of the reactor or emplacement or retention of fuel into the reactor vessel.

The proposed revisions to the FCS RERP are commensurate with the reduction in hazards associated with the permanently defueled condition and will allow FCS to transition from a staffing level necessary for an operating facility to that necessary for a permanently shut down and defueled facility. The proposed changes are necessary to properly reflect the conditions of the facility while continuing to preserve the FCS Decommissioning Trust Fund and the effectiveness of the FCS RERP.

### On-Shift Staffing

The on-site emergency response plan regulations in 10 CFR 50.47(b)(2) state, in part, that “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, [and] timely augmentation of response capabilities is available.”

NUREG-0654, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” (Reference 2), Section II.B, “Onsite Emergency Organization,” presents guidance for meeting the planning standards and requirements of 10 CFR 50.47(b) and 10 CFR 50, Appendix E, Section IV.A. The guidance describes the onsite emergency organization, including the staffing requirements found in Table B-1, “Minimum Staffing Requirements for NRC Licensees for Nuclear Power Plant Emergencies.” This table specifies a minimum of ten on-shift responders in four Major Functional Areas. It also specifies seven on-shift response functions where the duties may be performed by shift personnel who are assigned other functions (i.e., there are no dedicated responders to perform these functions). Table B-1 specifies two Major Functional Areas (i.e., firefighting and site access control/personnel accountability) which must be staffed on a site-specific basis.

The on-shift staff must be able to cope with a spectrum of events until augmenting ERO personnel arrive in accordance with the site’s emergency plan commitments. The augmenting ERO responders assume managerial, engineering, and administrative duties from the on-shift personnel, allowing on-shift personnel to focus on their assigned functions.

On November 23, 2011, the NRC published a final rule in the Federal Register amending certain emergency preparedness (EP) requirements in its regulations that govern domestic licensing of production and utilization facilities (Reference 3). This final rule amended 10 CFR Part 50, Appendix E, Section IV.A, "Organization", to address the assignment of tasks or responsibilities to on-shift ERO personnel that could potentially overburden them and prevent the timely performance of their emergency plan functions. Specifically, Section IV.A.9 states that licensees shall perform "...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."

Coincident with the rule change in 10 CFR Part 50, Appendix E, Section IV.A.9, the NRC issued NSIR/DPR-ISG-01, "Interim Staff Guidance – Emergency Planning for Nuclear Power Plants" (ISG-01) (Reference 4). This Interim Staff Guidance (ISG) provides information relevant to performing the on-shift staffing analysis. The ISG states that the NEI developed NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," (Reference 5) to establish a standard methodology for a licensee to perform the required staffing analysis, and that the NRC reviewed NEI 10-05 and found it to be an acceptable methodology for this purpose. The ISG also indicates that the completed staffing analyses are required to be part of the emergency plan and the results documented and submitted to the NRC in accordance with 10 CFR 50.54(q)(5).

In October 2014, an On-Shift Staffing Analysis was performed in accordance with the NEI 10-05 guidance to satisfy the requirements of 10 CFR 50, Appendix E Section IV.A.9. This analysis examined the capability of the minimum staff listed in Section B, Attachment 1, Table B-1 of the FCS RERP to perform the key emergency response actions for events described in ISG-01 until augmenting ERO staff arrive. The analysis was conducted by a cross disciplinary team of personnel and station personnel from the Operations, Training, Radiation Protection, Chemistry, Licensing, and Emergency Preparedness departments. Additionally, members of the Security staff provided input to the analysis.

Each scenario was reviewed to determine what plant actions and emergency plan implementation actions were required based on plant procedures prior to staff augmentation. These actions were then compared to the minimum staffing for emergency response implementation as described in Section B, Attachment 1, Table B-1, ensuring that no actions were assigned to staff members that conflicted with either their dedicated emergency response role or their dedicated operational role, as appropriate. In cases where multiple tasks were assigned to an individual, the team evaluated the timing of the tasks to ensure that they could be performed by the individual in series within any specified time requirements. The accident scenarios considered in the analysis were the main steam line break (MSLB) accident, steam generator tube rupture (SGTR) accident, loss of coolant accident (LOCA), fuel handling accident (FHA) in the SFP, gas decay tank rupture, design basis threat, aircraft probable threat, Control Room fire leading to evacuation and remote shutdown, and station blackout.

The analysis concluded that an on-shift staff of eleven (11) is required to respond to the most limiting accident scenario reviewed.

FCS RERP Section B, Attachment 1, Table B-1 specifies the minimum staffing requirements for the FCS on-shift staff, defines the positions initially responsible for satisfying key ERO functions, and specifies positions that will augment the on-shift staff.

### Emergency Response Organization Staffing

The FCS RERP defines four classes of emergency events: Notification of Unusual Event (NOUE), Alert, Site Area Emergency (SAE) and General Emergency (GE). Because on-shift personnel can normally address an emergency response to NOUEs without additional support, staff augmentation may not be activated for an NOUE declaration. The Operations Shift Manager maintains responsibility during NOUEs, unless the Emergency Operations Facility (EOF) has been activated. An Alert declaration results in the activation of the EOF, Technical Support Center (TSC), and Operations Support Center (OSC). The Joint Information Center (JIC) is activated following a SAE and GE classification, and can be activated at an earlier classification based on the decisions of the Corporate Communications Division. Overall responsibility for the event is assumed by the Emergency Director (ED) in the EOF when the EOF is declared operational. When the ERO is activated, notification is sent to those required to respond to their assigned Emergency Response Facility (ERF).

FCS RERP Section A.2, "OPPD Concept of Emergency Operations," describes how the normal plant operating organization transitions into an ERO to effectively deal with any incident at FCS.

The FCS Onsite Emergency Organization is described in Section B, "Organizational Control of Emergencies," and is depicted in Section B, Attachment 2, Figure B-2 of the FCS RERP. If initiating conditions exist that result in the declaration of an emergency, responsibility for emergency response initially lies with the Shift Manager. Currently, the Shift Manager may be relieved of the task of implementing the FCS RERP by the Control Room Coordinator.

The current Control Room Coordinator position is intended to provide a prompt transition of Command and Control functions from the Shift Manager within the Control Room complex. If the TSC is activated, command and control may be transferred to the Site Director. The Emergency Director in the EOF may assume command and control if that facility is activated. The command and control position is responsible for ensuring the continuity of resources throughout an event. The normal operating organization will also assume their pre-assigned emergency response roles. This is considered to be a short-term response organization that will be augmented within approximately one hour after call-out by additional plant personnel.

If an Alert, SAE, or GE is declared, or if the minimum shift crew requires assistance during an NOUE, the onsite emergency organization will be augmented by additional plant personnel as described in Section B of the FCS RERP, "Organizational Control of Emergencies" and shown in Section B, Attachment 1, Table B-1 and Section B, Attachment 2 Figure B-2. The FCS RERP describes the augmented emergency organization that will staff and operate the EOF, TSC, OSC, and JIC as needed within approximately one hour of the request for activation.

Plans and procedures have been put into place to ensure the timely activation of ERFs. FCS RERP Section B, Attachment 2, Figure B-3 identifies the interrelationships among the various emergency organizations.

### **3.0 DETAILED DESCRIPTION**

The proposed changes would revise the FCS RERP to reflect the permanently shut down and defueled condition. Specifically, the proposed changes would eliminate the on-shift positions not needed for the safe storage of spent fuel in the SFP during the initial decommissioning period and eliminate the ERO positions not necessary to effectively respond to credible accidents.

Attachment 2 of this submittal provides a tabular summary of the proposed changes to the FCS RERP. Attachment 3 of this submittal provides the revised pages of the FCS RERP with the proposed changes shown in strikethrough and underline format. The changes shown in Attachments 2 and 3 include additional changes beyond those involving a reduction in on-shift and ERO staffing. NRC approval of these additional changes is not being requested. These additional changes are included for clarification purposes.

Additional changes, not requiring prior NRC approval, will be made to the FCS RERP and will be dispositioned prior to implementation in accordance with the requirements in 10 CFR 50.54(q), "Conditions of Licenses," related to emergency preparedness, and specifically to making changes to emergency response plans.

### On-Shift Staffing

Currently, FCS RERP Section B, Attachment 1, Table B-1, "OPPD Emergency Response Organization (ERO) Functions and Shift Staff Augmentation Plan," specifies the on-shift and augmented staffing for certain positions in the following Major Functional Areas:

- Plant Operations and Assessment of Operational Aspects
- Emergency Command and Control (Emergency Coordinator)
- Notification/Communication
- Radiological Accident Assessment and Support of Operational Accident Assessment
- Plant Systems Engineering, Repair and Corrective Actions
- Protective Actions (Plant)
- Firefighting
- Rescue Operations and First Aid
- Site Access Control and Personnel Accountability

The proposed changes to the FCS RERP will eliminate the following on-shift positions currently identified in Section 4.1.1 of the FCS RERP:

- 2 Reactor Operators
- 1 Equipment Operator
- 1 Control Room Communicator
- 1 Chemistry Technician
- 1 Habitability Technician
- 1 STA

The post-shutdown on-shift complement will consist of:

- 1 Shift Manager (SRO/CFH)
- 1 Control Room Operator (SRO or RO/CFH)
- 1 Equipment Operator/NCO
- 1 Radiation Protection Technician

Title changes for Licensed personnel and Equipment Operators to CFHs and NCOs, respectively, are dependent upon NRC approval of proposed changes to the FCS Technical Specifications that revise the minimum shift staffing requirements in the FCS Technical Specifications by replacing references to licensed and non-licensed operators with references to CFHs and NCOs. Implementation of the FCS RERP, as proposed for revision in this submittal, is not dependent on prior NRC approval of the proposed changes to the FCS Technical Specifications.

These staffing levels have been evaluated in the FCS analysis of proposed post-shutdown on-shift staffing in conjunction with the postulated accidents that will be applicable in the permanently defueled condition. The analysis is provided in Attachment 4 of this submittal.

The term NCO is used to differentiate from CFH. CFHs will supervise fuel handling operations in the permanently defueled condition. Both Control Room Operators (CROs) and Shift Managers will be qualified as CFHs. However, the Shift Manager requires additional qualification beyond the CFH training. Therefore, any reference to the CFH position throughout this submittal is considered to be equivalent to the CRO position. NCOs will perform duties typically associated with those performed by Equipment Operators, such as manipulation and monitoring of plant equipment. Reference 6 submitted a CFH training program for NRC approval. Senior Reactor Operators and Reactor Operators will not be utilized in the permanently defueled condition.

The NCO training program will be developed in accordance with 10 CFR 50.120. The Equipment Operator/NCO position will combine the post-shutdown duties of the licensed Reactor Operator and the non-licensed Equipment Operator. The specific training requirements of the Equipment Operator/NCO position will be drafted by the FCS Training Department and will be reviewed and approved by Operations Management. The training requirements will include classroom training in theory and systems topics, administrative procedures, off-normal and transient procedures/mitigation strategies, and refuel platform operations. The training program will be designed with an emphasis on dose assessment, systems/processes important to maintaining SFP cooling and monitoring and controlling SFP parameters, such as SFP water level and temperature. Consequently, the Equipment Operators/NCOs will be trained on pertinent Control Room indications and controls that will be monitored and operated to maintain SFP cooling and SFP water level, in addition to plant radiological conditions. The NCO training program will also include training on applicable aspects of the FCS RERP-related NCO duties.

Personnel assigned to fill the NCO positions during the post-shutdown period, prior to implementation of the Permanently Defueled Emergency Plan (PDEP), will include both previously licensed and non-licensed operators. The majority of the required training for the NCO position will already have been completed by the licensed operators because they have previously been trained and qualified as Reactor Operators to support power operations. The current Equipment Operators have been trained and qualified as non-licensed operators only. Therefore, it is expected they will require additional training related to Control Room operations.

Once the specific training requirements for the NCO position have been identified using a systematic approach to training, as required by 10 CFR 50.120, a formal gap analysis will be completed for all operators identified to fill the NCO position. Individualized training plans will be developed and completed to address specific knowledge and skill areas for the selected NCO candidates. This will include training the currently qualified Equipment Operators on Control Room indications, controls, procedures, and Emergency Plan requirements. The initial training for any new NCOs will include all training requirements for the NCO position to ensure the personnel are equipped with the required skills and knowledge to perform their required job functions.

The proposed changes to the on-shift organization are identified in the FCS Post Shutdown RERP Section B, Attachment 1, Table B-1, "OPPD Emergency Response Organization (ERO) Functions and Shift Staff Augmentation Plan," and Section B, Attachment 2, Figure B-2, "Fort Calhoun Station Emergency Response Organization," Attachment 3.

#### Emergency Response Organization Staffing

The proposed changes to the FCS RERP will eliminate ERO positions currently identified in Part 4 of Section B of the FCS RERP and Emergency Plan Implementing Procedures (EPIPs) for the augmentation of the Control Room staff and the activation and operation of the TSC, EOF, OSC, and JIC. Several of these positions are described in FCS EPIPs as positions required to meet the augmentation requirements of the emergency plan and positions needed to declare the ERFs operational. The proposed changes to the FCS RERP will also eliminate non-minimum (i.e., not required for augmentation or facility activation) ERO positions currently identified in EPIPs as support personnel. Specific ERO positions identified for elimination are listed in Table 1 of this attachment. Table 1 also identifies whether each position is currently required to meet the augmentation requirements of the FCS RERP.

Currently, FCS RERP Section B, Attachment 1, Table B-1 specifies the on-shift and augmented staffing for certain positions in the Major Functional Areas identified above. The proposed changes to the FCS RERP will eliminate the following augmenting positions identified in Table B-1:

- Control Room Coordinator
- Control Room ENS Communicator
- Communicator in TSC
- Four (4) Radiation Protection (RP) Technicians
- Electrical and I&C Engineer
- Primary Systems Engineer
- Radiation Protection Coordinator
- Dosimetry Technician

The proposed changes to the FCS RERP will also eliminate the following minimum staffing ERO positions for activation of ERFs currently identified in Parts 4.3.3, 4.3.4, and 4.3.5 of Section B of the FCS RERP:

- OSC Radiation Protection Coordinator (Table B-1 position identified above as Radiation Protection Coordinator)
- TSC COP Communicator (Table B-1 position identified above as Communicator in TSC)
- EOF Dose Assessment Coordinator

After permanent cessation of power operations and certification of permanent removal of fuel from the reactor vessel, in accordance with 10 CFR 50.82(a)(1)(i) and (ii), and pursuant to 10 CFR 50.82(a)(2), the 10 CFR Part 50 license will no longer authorize reactor operation or emplacement or retention of fuel in the reactor vessel. As a result, the title of the Reactor Safety Coordinator position identified in Part 4.3.4 and Attachment 1, Table B-1 of Section B of the FCS RERP is not descriptive of the functions performed by the position. The current Reactor Safety Coordinator position will be retitled to the Engineering Coordinator. The Engineering Coordinator position will be tasked with performing an engineering assessment of plant conditions and/or actions needed to mitigate damage to the plant.

## **4.0 TECHNICAL EVALUATION**

### **4.1 Accident Analysis**

Chapter 14 of the FCS Final Safety Analysis Report as Updated (USAR) describes the Abnormal Operational Transients and Design Basis Accident (DBA) scenarios that are applicable during plant operations. Fire events are addressed throughout the USAR. Upon docketing of the certifications required by 10 CFR 50.82(a)(1)(i) and (ii), the 10 CFR Part 50 license for FCS will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel, as specified in 10 CFR 50.82(a)(2). Therefore, most of the accident scenarios postulated in the USAR will no longer be applicable once FCS is in the permanently defueled condition.

One of the Chapter 14 accidents that will remain applicable to FCS in it's permanently shut down and defueled condition is the FHA in the SFP. USAR Chapter 14 will be revised to eliminate the DBAs that will not be applicable in the permanently defueled condition.

The Station Blackout (SBO) event was not considered in the analysis of proposed post-shutdown on-shift staffing. Once the certifications required by 10 CFR 50.82(a)(1)(i) and (ii) are docketed, FCS will no longer be licensed to operate, therefore the provisions of 10 CFR 50.63 (Loss of all alternating current power) will no longer be applicable pursuant to 10 CFR 50.63(a)(1).

A comparison of the accident scenarios included in the current On-Shift Staffing Analysis (EP-FC-1001, Addendum 1) (Reference 7) and the analysis of proposed post-shutdown on-shift staffing is provided in the following section.

A specific analysis was conducted to determine if sufficient on-shift staffing would be available to implement emergency response actions in response to potential aircraft impacts in reflected in 10 CFR 50.54(hh)(1). In the permanently shut down and defueled condition, the Fire Brigade will relocate and prepare for reentry. The task of maintaining communications during this event are transferred to an Equipment Operator/NCO trained and qualified to perform this function. Therefore, sufficient staffing is available to promptly implement response actions required under 10 CFR 50.54(hh)(1) without impacting the performance of designated emergency plan functions.

A specific analysis to determine if sufficient on-shift staffing would be available to promptly implement SFP inventory makeup strategies was not necessary. The FCS 5-person Fire Brigade is currently responsible for implementing the SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2). In the permanently shut down and defueled condition, FCS will continue to maintain a trained and qualified 5-person Fire Brigade responsible for implementation of the SFP inventory makeup strategies. The Fire Brigade personnel responsibilities identified in the post-shutdown RERP are separate and distinct from those for implementing the major elements of the emergency plan including emergency classification (Shift Manager), offsite notifications (Control Room Operator (or NCO during events requiring Fire Brigade response), and dose assessment/protective action recommendation development (Radiation Protection Specialist or NCO). Therefore, sufficient staffing is available to promptly implement SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2) without impacting the performance of designated emergency plan functions.

As described in Section 4.2.1.2, events involving a loss of SFP cooling and/or water inventory can be addressed by implementation of SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2). These strategies will continue to be maintained to satisfy applicable portions of Condition G of the FCS Renewed Facility Operating License.

## **4.2 Analysis of Proposed Changes**

### **4.2.1 ERO Staffing**

Prior to an emergency declaration, the normal plant operating organization is in place. The initial classification of an off-normal event occurs in the Control Room. Classification and declaration are performed by the Shift Manager. Upon the classification and declaration of an emergency, the Shift Manager assumes the Command and Control role and retains that role until another designated Command and Control position (currently, the Control Room Coordinator, Site Director in the TSC, or Emergency Director in the EOF) can assume control. The onsite emergency organization is activated by personnel notification or when the station alarm is sounded and the emergency is announced over the public address system. Initially, the ERO consists of the normal operating shift personnel who function as the emergency team members. The normal operating staff is augmented, as needed, by plant personnel. Those personnel onsite respond when the station alarm is sounded and the announcement is made or when individuals are notified by another means. Personnel not onsite during off-hours operations will be notified via an ERO notification system. A designated on-shift plant employee shall perform notifications. The details of notifying all emergency operations personnel during normal and off-hours are contained in EIPs.

In the permanently defueled condition, FCS will maintain ERO teams, with one team being on duty and on-call at any given time. When the Shift Manager directs the activation of the ERO call out system, all ERO members are notified to ensure adequate coverage of all ERO positions at all ERFs. ERO members not on-call are expected to respond unless they are unavailable.

FCS requires ERO personnel to act promptly in reporting to their assigned ERF even when not on duty. During duty periods, procedures further require that team members respond within the required response time for their ERF and that they remain fit for duty throughout the duty assignment. Individuals are trained to respond to their ERF even if they are not on duty. Excess personnel that respond may be assigned support responsibilities or be designated as a relief shift. This conservative policy ensures timely activation because some off duty personnel may respond sooner than the on duty personnel.

The proposed revisions to the FCS RERP will not change the requirements described above. OPPD management's continued expectation is that all duty and support ERO members report to their respective ERF as quickly as possible.

FCS currently has designated ERO members who staff positions that augment the Control Room staff. These Control Room augmenting positions are described in Section 4.5.2 of Part B of the FCS RERP. With the exception of the Control Room Operations Liaison position, the Control Room augmenting positions will not exist in the post-shutdown ERO because the spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The set of plant equipment required in the permanently defueled condition is also greatly reduced, which reduces the assessment and mitigation activities the Control Room must perform prior to the TSC and EOF being declared operational.

The retention of the tasks necessary to implement the RERP by the on-shift Control Room staff prior to ERO augmentation, including the ability of the Shift Manager to maintain Command and Control responsibilities, has been evaluated in the FCS analysis of proposed post-shutdown on-shift staffing in conjunction with the postulated accidents that will be applicable in the permanently defueled condition.

FCS has designated ERO members who staff positions required to meet minimum staffing to activate the TSC, OSC, EOF, and JIC. EIPs identify ERO positions assigned to each facility and the minimum staffing required before each facility can be declared operational. All ERO personnel are expected to respond when notified by the ERO notification system.

Current ERO positions are identified, and the associated duties are captured, in the ERO Task Analysis provided in Attachment 5. The duties of the ERO positions were reviewed against OPPD procedures and the FCS RERP. Each of the eliminated positions was analyzed to identify the key duties associated with the position and the duties were then evaluated against the planning standards in NUREG-0654.

The Table provided in Attachment 5 contains columns with headings "Implementing Actions" and "Task Assigned To?". These columns provide the details for disposition of each task. Procedures and training materials depicting the changes presented in Attachment 5 will be developed. Some of the tasks are identified as being eliminated because they become unnecessary following permanent cessation of power operations and permanent removal of fuel from the reactor vessel. Other tasks are identified as eliminated because the tasks are performed by other positions in the ERO and will continue to be performed by these positions in the post-shutdown ERO.

The proposed changes to the FCS RERP, including the changes made to develop the post-shutdown ERO, have been evaluated for impacts on the ERO and for the ability of offsite response organizations to implement their Federal Emergency Management Agency (FEMA) approved Radiological Emergency Preparedness (REP) Plans. Potential impacts on the ability of the State and local response organizations to effectively implement their FEMA-approved REP Plans do not exist because no tasks that require interfacing with State and local response organizations are proposed for elimination. FCS has appropriately addressed elimination of ERO positions that interface with offsite representatives by transferring the necessary tasks to remaining post-shutdown ERO positions. In addition, the FCS ERO will continue to include technical support staff that have dedicated responsibilities for interfacing with State and local representatives.

To validate the results of the analysis, one or more drills will be developed and conducted prior to implementation of the changes described within this LAR. The drills will be conducted to confirm the ability of the post-shutdown ERO to perform the necessary functions of each ERF. The drills will be used to train and qualify post-shutdown ERO members, evaluate and validate the ability to accomplish the stated mission of each ERF, and ensure that the planning standard functions are preserved with no degradation in time sensitive activities or in the ability to communicate with offsite response organizations. The drills will also validate that the post-shutdown ERO continues to address the risks to public health and safety and comply with the FCS RERP, site commitments, and applicable regulations. Implementing procedures will be revised to address the permanently shut down and defueled conditions. The revised procedures will be used to support training of ERO staff and the conduct of drills described above.

Training and procedures will be developed and in place prior to performing post-shutdown ERO drills. The drill scenarios will include SFP events and will be designed to test the major elements of the FCS post shutdown RERP. Major elements to be tested will include communications and coordination with offsite response organizations, including the JIC. State, Local, and Federal response organizations will be provided the opportunity to participate in or observe the drills. New regulatory commitments for scenario elements and communication with offsite agencies are included in Attachment 6.

FCS has not yet finalized a schedule of drills that will be conducted. FCS will provide the schedule to the NRC and FEMA with appropriate advanced notice, thereby providing the NRC and FEMA an opportunity to observe each drill. A new regulatory commitment to provide the schedule to the NRC is included in Attachment 6.

**Table 1 - Emergency Response Organization Positions**

<b>Procedure(s)</b>	<b>Current Positions</b>	<b>Proposed Positions in the Post-Shutdown Emergency Plan<sup>1</sup></b>	<b>Current FCS RERP Augmentation Requirements</b>
<b>Technical Support Center</b>			
EP-FC-112-200	Site Director	Site Director	Yes
EP-FC-112-200	TSC COP Communicator	--	Yes
EP-FC-112-200	TSC Protective Measures Coordinator	TSC Protective Measures Coordinator	Yes
EP-FC-112-200	TSC Reactor Safety Coordinator	TSC Engineering Coordinator	Yes
EP-FC-112-200	TSC Elec/I&C Engineer	--	No
EP-FC-112-200	TSC Primary Systems Engineer	--	No
EP-FC-112-200	TSC Field Team Technicians	TSC Field Team Technicians	No
EP-FC-112-200	TSC Ops Liaison	TSC Ops Liaison	No
EP-FC-112-200	Admin Logistics Coordinator	Admin Logistics Coordinator	No
EP-FC-112-200	TSC Director	--	No
EP-FC-112-200	Reactor Engineer	--	No
EP-FC-112-200	TSC Secondary Systems Engineer	--	No
EP-FC-112-200	Security Coordinator	Security Coordinator	No
EP-FC-112-200	TSC CHP Communicator	--	No
EP-FC-112-200	Admin Assistant	--	No
EP-FC-112-200	Site Director Secretary	--	No
EP-FC-112-200	TSC Status Board Keeper	--	No
<b>Operations Support Center</b>			
EP-FC-112-300	OSC Director	OSC Director	Yes
EP-FC-112-300	RP Coordinator	--	Yes or RP Tech
EP-FC-112-300	Technicians (Electrical, I&C, Mechanical Maintenance, RP/HP, Chemistry)	Technicians (Electrical, I&C, Mechanical Maintenance, RP/HP, Chemistry)	Yes
EP-FC-112-300	Dosimetry Technician	--	No
EP-FC-112-300	Operations Liaison	--	No
EP-FC-112-300	Chemistry Coordinator	--	No
EP-FC-112-300	ERMS Operator	--	No

Procedure(s)	Current Positions	Proposed Positions in the Post-Shutdown Emergency Plan <sup>1</sup>	Current FCS RERP Augmentation Requirements
<b>Operations Support Center (cont.)</b>			
EP-FC-112-300	Maintenance Coordinator	--	No
EP-FC-112-300	Maintenance Planner	--	No
EP-FC-112-300	Medical Response Coordinator	--	No
EP-FC-112-300	Radio Operator	--	No
EP-FC-112-300	Store Keeper	--	No
EP-FC-112-300	Accountability Clerk	--	No
<b>Emergency Operations Facility</b>			
EP-FC-112-400	Emergency Director	Emergency Director	Yes
EP-FC-112-400	EOF COP Communicator	EOF COP Communicator	Yes
EP-FC-112-400	EOF Protective Measures Manager	EOF Protective Measures Manager	Yes or DAC
EP-FC-112-400	EOF Dose Assessment Specialist	EOF Dose Assessment Specialist	Yes
EP-FC-112-400	EOF Dose Assessment Coordinator	--	Yes or PMM
EP-FC-112-400	EOF Admin Logistics Manager	EOF Admin Logistics Manager	No
EP-FC-112-400	EOF Information Specialist	EOF Information Specialist	No
EP-FC-112-400	EOF Ops Liaison	EOF Ops Liaison	No
EP-FC-112-400	EOF Field team	EOF Field Team	No
EP-FC-112-400	Field Team Specialist	Field Team Specialist	No
EP-FC-112-400	EOF Technical Liaison	EOF Technical Liaison	Yes
EP-FC-112-400	EOF Clerical Assistant	--	No
EP-FC-112-400	Emergency Director Secretary	--	No
EP-FC-112-400	Des Moines Site Representative	Des Moines Site Representative	No
EP-FC-112-400	IT Specialist	--	No
EP-FC-112-400	EOF CHP Communicator	--	No
EP-FC-112-400	Communications Specialist	--	No
EP-FC-112-400	Emergency Response Coordinator	--	No
EP-FC-112-400	EOF Secretary	--	No
EP-FC-112-400	EOF Dose Assessment Assistant	--	No
EP-FC-112-400	EOF Status Board Keeper	--	No

Procedure(s)	Current Positions	Proposed Positions in the Post-Shutdown Emergency Plan <sup>1</sup>	Current FCS RERP Augmentation Requirements
<b>Joint Information Center</b>			
Crisis Communication Plan	Company Spokesperson	Company Spokesperson	Yes
Crisis Communication Plan	JIC Manager	JIC Manager	Yes
Crisis Communication Plan	Executive Liaison	--	No
Crisis Communication Plan	Internal information Liaison (Spokesperson)	--	No
Crisis Communication Plan	JIC Media Information Specialist	JIC Media Information Specialist	Yes
Crisis Communication Plan	JIC Technical Liaison	JIC Technical Liaison	Yes
Crisis Communication Plan	Public Inquiry Supervisor	--	No
Crisis Communication Plan	Public Inquiry Specialist (10)	Public Inquiry Specialist (5)	No
Crisis Communication Plan	JIC Clerical Supervisor	JIC Clerical Supervisor	Yes

<sup>1</sup>-- Indicates the position is proposed for elimination upon implementation of the Post-Shutdown Emergency Plan.

The intent of Table 1 is to compare the current ERO positions against the proposed post-shutdown ERO positions. Table 1 also identifies whether each position is currently required to meet the augmentation requirements of the FCS RERP according to the EIPs. As an example, the TSC Reactor Engineer is a position that is proposed for elimination in the post-shutdown ERO, because in a permanently shut down and defueled condition, responsibilities associated with a reactor core no longer need to be maintained. Also, Table 1 identifies the TSC COP Communicator as a current minimum staff position. The position is not included as a proposed position in the post-shutdown ERO upon implementation of the changes identified herein. The proposed elimination of the ERO minimum staff positions is described in the following sections.

#### 4.2.1.1 Technical Support Center

The TSC has been designed to meet the intent of the guidance in NUREG-0696, "Functional Criteria for Emergency Response Facilities," and the clarification in NUREG-0737, Supplement 1, "Clarification of TMI Action Plan Requirements," as applicable. Following permanent cessation of power operations and permanent removal of fuel from the reactor vessel, the TSC will continue to be located on the north side of the Auxiliary Building. The proposed changes to the FCS RERP do not involve any physical modifications to, or layout/configuration changes in, the TSC.

The current FCS RERP and ERO staffing is intended to address the risks to public health and safety inherent in an operating reactor. The risk in the permanently defueled condition is significantly reduced because many of the potential initiating conditions that would lead to an emergency declaration will no longer be possible.

The spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The set of plant equipment required in the permanently defueled condition is also greatly reduced, which reduces the assessment and mitigation activities the TSC must perform. Therefore, the TSC COP Communicator, TSC Elec/I&C Engineer, TSC Primary Systems Engineer, TSC Reactor Engineer, TSC Director, TSC Secondary Systems Engineer, Admin Assistant, Site Director Secretary, TSC Status Board Keeper, and TSC CHP Communicator positions can be eliminated without placing an undue burden on the remaining ERO positions in the TSC and without increasing the risk to public health and safety. Attachment 5 contains an analysis of all ERO positions being eliminated and evaluates the transfer of tasks to remaining ERO positions following permanent cessation of power operations. The proposed ERO staffing reductions continue to address the risks to public health and safety, comply with the FCS RERP, site commitments, and applicable regulations.

As previously described, to validate the results of the analysis, one or more drills will be developed and conducted prior to implementation of the changes described within. The drills will be conducted to confirm the ability of the post-shutdown ERO to perform the necessary functions of each ERF. The drills will be used to train and qualify post-shutdown ERO members, evaluate and validate the ability to accomplish the stated mission of each ERF, and ensure that the planning standard functions are preserved with no degradation in time sensitive activities or in the ability to communicate with offsite response organizations. The drills will also validate that the post-shutdown ERO continues to address the risks to public health and safety and comply with the FCS RERP, site commitments, and applicable regulations. Implementing procedures will be revised to address the permanently shut down and defueled conditions. The revised procedures will be used to support training of ERO staff and the conduct of drills described above.

Training and procedures will be developed and in place prior to performing post-shutdown ERO drills. The drill scenarios will include SFP events and be designed to test the major elements of the FCS post shutdown RERP. Major elements to be tested will include communications and coordination with offsite response organizations, including the JIC. State, local, and Federal response organizations will be provided the opportunity to participate in or observe the drills. New regulatory commitments for scenario elements and communication with offsite agencies are included in Attachment 6.

The ERF procedures describing activation and operation of each facility will continue to assign responsibilities to ERO responders for the purposes of removing the responsibilities of coordinating with offsite responders and delivering information to the public from the Control Room staff, thereby allowing operations personnel to perform their assigned functions. ERO duties have been reviewed and duties for those positions proposed for elimination will be transferred appropriately.

The proposed staffing changes eliminate one ERO position in the TSC described in FCS EIPs as a minimum staff position, the TSC COP Communicator.

#### TSC COP Communicator

The TSC COP Communicator position is described in Section B.4.6.1.D of the FCS RERP and further detailed in EP-FC-112-200-F-05, *TSC COP Communicator Checklist*. According to Section B.4.6.1.D of the FCS RERP, the TSC COP Communicator performs notifications as directed by the Command and Control position. The EOF COP Communicator has redundant duties. Because both positions have the same response time, the TSC COP Communicator duties can be transferred to the EOF COP Communicator with no loss of efficiency.

Attachment 5 contains an analysis of all ERO positions being eliminated and evaluates the transfer of tasks to remaining ERO positions following permanent cessation of power operations and permanent removal of fuel from the reactor vessel. The proposed ERO staffing reductions continue to address the risks to public health and safety, comply with the FCS RERP, site commitments, and applicable regulations.

In addition to the TSC COP Communicator, the following TSC positions are proposed for elimination following permanent cessation of power operations:

- TSC Reactor Engineer
- TSC Elec/I&C Engineer
- TSC Primary Systems Engineer
- TSC Secondary Systems Engineer
- TSC Director
- Admin Assistant
- Site Director Secretary
- TSC Status Board Keeper
- TSC CHP Communicator

#### TSC Reactor Engineer

While not a minimum staff position in the TSC, the primary duty of the TSC Reactor Engineer is to perform core damage assessments. In a permanently shut down and defueled condition, responsibilities associated with a reactor core no longer need to be maintained. FCS RERP Section B, Attachment 1, Table B-1 indicates that the TSC Reactor Safety Coordinator (retitled the TSC Engineering Coordinator in the Post-Shutdown RERP) is responsible for the core/thermal hydraulics task. Elimination of the TSC Reactor Engineer position will have no effect on emergency response in a permanently defueled condition because the position is not required to assess the condition of fuel in the SFP during an emergency. The TSC Reactor Engineer position can be eliminated without increasing the risk to public health and safety because the major task of evaluating core/thermal hydraulics is not necessary or possible in a permanently shut down and defueled condition.

### TSC Engineers (Elec/I&C, Primary Systems, Secondary Systems)

The primary duties of the TSC Engineer positions include: providing engineering analysis and troubleshooting, evaluating the implementation of Severe Accident Management Guidelines, and assisting in the assessment and development of repair plans. These duties, described in implementing procedures, are either no longer necessary in a permanently shut down and defueled condition or will be performed by other members of the post-shutdown ERO.

The TSC Reactor Safety Coordinator (retitled the TSC Engineering Coordinator in the post-shutdown RERP) is tasked with performing an engineering assessment of plant conditions and/or actions needed to mitigate damage to the plant. FCS EIPs will continue to direct the Engineering to continuously evaluate the need for engineering resources and coordinate with the EOF Admin Logistics Manager to call in additional engineering assistance, as needed. These individuals may be tasked with activities to be completed at engineering offices external to the TSC, called to report to the TSC, or directed to other facilities as needed.

FCS EIPs will continue to identify engineering resources as augmented positions with specific training and qualification requirements for assigned personnel in accordance with the site training program. The required training courses and requalification frequencies will be unchanged in the post-shutdown condition. However, these positions will no longer be identified as on-call positions. The elimination of the TSC Engineer positions is justified because the spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The set of plant equipment required in the permanently defueled condition is also greatly reduced, which reduces the assessment and mitigation activities the TSC must perform.

### Other Positions

The elimination of the TSC Director, Admin Assistant, Site Director Secretary, TSC Status Board Keeper, and TSC CHP Communicator positions does not impact the capabilities of the on-shift staffing or augmented response. The TSC will continue to be activated at an Alert or higher declaration. Functional responsibilities of the positions eliminated as a result of the changes will be reassigned to remaining positions as illustrated in Attachment 5. The proposed ERO staffing reductions continue to address the risks to public health and safety, comply with the FCS RERP, site commitments, and applicable regulations.

#### 4.2.1.2 Operations Support Center

The OSC has been designed to meet the intent of the guidance in NUREG-0696, "Functional Criteria for Emergency Response Facilities," and the clarification in NUREG-0737, Supplement 1, "Clarification of TMI Action Plan Requirements," as applicable. Following permanent cessation of power operations and permanent removal of fuel from the reactor vessel, the OSC will continue to be located in the TSC Building. The proposed changes to the FCS RERP do not involve any physical modifications to, or layout/configuration changes in, the OSC.

The proposed staffing changes do not eliminate any ERO positions in the OSC described in FCS EIPs as minimum staff positions. Following permanent cessation of power operations, the following OSC positions are proposed for elimination: one RP Technician, RP Coordinator, Maintenance Coordinator, Chemistry Coordinator, Medical Response Coordinator, OSC Operations Liaison, Dosimetry Technician, ERMS Operator, Radio Operator, Storekeeper, and Accountability Clerk. Attachment 5 contains an analysis of all ERO positions being eliminated and evaluates the transfer of tasks to remaining ERO positions following permanent cessation of power operations and permanent removal of fuel from the reactor vessel. The proposed ERO staffing reductions continue to address the risks to public health and safety, comply with the FCS RERP, site commitments, and applicable regulations.

As previously described, to validate the results of the analysis, one or more drills will be developed and conducted prior to implementation of the changes described within. The drills will be conducted to confirm the ability of the post-shutdown ERO to perform the necessary functions of each ERF and will utilize the post-shutdown procedures that will be developed depicting the revised assignment of duties. The drills will be used to train and qualify post-shutdown ERO members, evaluate and validate the ability to accomplish the stated mission of each ERF, and ensure that the planning standard functions are preserved with no degradation in time sensitive activities or in the ability to communicate with offsite response organizations. The drills will also validate that the post-shutdown ERO continues to address the risks to public health and safety and comply with the FCS RERP, site commitments, and applicable regulations. Implementing procedures will be revised to address the permanently shut down and defueled conditions. The revised procedures will be used to support training of ERO staff and the conduct of drills described above.

Training and procedures will be developed and in place prior to performing post-shutdown ERO drills. The drill scenarios will include SFP events and be designed to test the major elements of the FCS post shutdown RERP. Major elements to be tested will include communications and coordination with offsite response organizations, including the JIC. State, Local, and Federal response organizations will be provided the opportunity to participate in or observe the drills. New regulatory commitments for scenario elements and communication with offsite agencies are included in Attachment 6.

In the permanently shut down and defueled condition, the primary functions of the OSC will remain dispatching of, and accounting for, Repair and Corrective Action Teams and dispatching of Site Boundary Teams. The OSC Director is responsible for ensuring adequate staffing of the OSC to support the emergency; working with the Site Director to set priorities for the OSC; and directing the activities of the OSC to support the emergency response. If at any time the OSC Director determines additional manpower is necessary to accomplish the mission of the OSC, the OSC Director will contact the TSC Admin Logistics Coordinator to arrange for augmentation by additional personnel to support the emergency response functions of the OSC.

In the permanently shut down and defueled condition, the spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The primary events of concern in the immediate post-shutdown and defueled condition will be a FHA and a loss of SFP cooling and/or water inventory. During fuel handling activities there will be extra personnel on site that will, were a FHA to occur, be able to respond to the event. Events involving a loss of SFP cooling and/or water inventory will continue to be addressed by implementation of SFP inventory makeup strategies in plant procedures and as required under 10 CFR 50.54(hh)(2).). These strategies will continue to be maintained as a license condition. OSC staff is not relied upon to implement SFP inventory makeup.

Restoration of equipment supporting SFP cooling and inventory will be the primary focus of emergency mitigation actions for the TSC and OSC in a permanently shut down and defueled condition. Although ERO activation/response time requirements will be unchanged, the elimination of credible accidents involving an operating reactor provides additional time to plan and execute assessment and mitigation actions. The proposed changes do not impact the capability to assess and monitor actual or potential offsite consequences of a radiological emergency or provide information to offsite authorities in a timely manner. Therefore, the RP Coordinator, Maintenance Coordinator, Chemistry Coordinator, Medical Response Coordinator, OSC Operations Liaison, Dosimetry Technician, ERMS Operator, Radio Operator, Storekeeper, and Accountability Clerk positions can be eliminated without placing an undue burden on the remaining ERO positions in the OSC and without increasing the risk to public health and safety.

#### 4.2.1.3 Emergency Operations Facility

As described in Section H.2 of the FCS RERP, the EOF functions to maintain overall management of emergency response and recovery resources; evaluate, coordinate, and communicate emergency response activities with Federal, State, and local emergency response organizations; evaluate offsite accident conditions; and make recommendations to offsite agencies regarding protective actions. Nebraska and Iowa representatives are provided space and communications at the EOF and staff this facility at an Alert or higher classification.

The EOF has been designed to meet the intent of the guidance in NUREG-0696, "Functional Criteria for Emergency Response Facilities," and the clarification in NUREG-0737, Supplement 1, "Clarification of TMI Action Plan Requirements," as applicable. Following permanent cessation of power operations and permanent removal of fuel from the reactor vessel, the EOF will continue to be located at North Omaha Power Station, approximately 17 miles from the plant site. The proposed changes to the FCS RERP do not involve any physical modifications to, or layout/configuration changes in, the EOF.

The EOF maintains extensive communications capability with all ERFs and direct links are established between the EOF, the Control Room, the State and County Emergency Operations Centers (EOCs), and the JIC to provide up-to-date emergency status reports. The proposed changes to the FCS RERP do not involve changes to the ability of offsite authorities to report to the EOF or the JIC, and as a result, do not impact the ability of the offsite authorities to mobilize to, or operate from, the EOF and JIC.

When activated, the Emergency Director reports to the EOF and directs the activities of the ERO throughout the emergency and until the recovery activities have been terminated. The Emergency Director, or a designated alternate, is notified of all emergency conditions occurring at the plant and issues periodic status reports of the event to the responding offsite representatives. As described in Section B.4.10 of the FCS RERP, the EOF serves as the primary interface with the various offsite support agencies. FCS RERP, Section B, Attachment 2, Figure B-3, "Organizational Interrelationships" illustrates the interface of the EOF with federal, state, and local support agencies. The proposed changes to the FCS RERP do not reduce the ability of FCS to provide the necessary information regarding the status and progression of an event or in the frequency at which event information updates are provided. Nor do the changes impact the ability to dispatch additional technical support to the EOCs. As a result, the proposed changes do not impact the ability of FCS to communicate with the offsite response organizations.

Centralized coordination of the offsite radiological assessment effort with all organizations interested in, and/or performing, assessments is necessary to ensure that the data and its interpretation are reviewed by FCS and offsite response organizations with monitoring and assessment responsibilities. The number and type of organizations performing this effort vary with time and following emergency declarations and offsite notification. Initially, plant emergency response personnel are the only organization performing this function and they are directed from, and their results evaluated, at the EOF. State authorities join the EOF monitoring and assessment activities. Federal response agencies would augment plant and State radiological assessment efforts upon their arrival. Plant and State monitoring efforts are coordinated at the EOF. The proposed changes to the FCS RERP do not involve changes to offsite radiological assessment capabilities or coordination of these efforts with offsite response organizations, and as a result, do not impact the ability of offsite agencies to effectively implement their emergency plans.

FCS will continue to maintain the capability to display plant and meteorological data in the EOF, maintain offsite monitoring equipment at the EOF and maintain the current dose assessment capabilities at the EOF. Additionally, FCS will maintain a goal of approximately sixty (60) minutes after declaration of an emergency to activate the EOF.

The proposed staffing changes would eliminate one ERO position in the EOF described in FCS EIPs as a minimum staff position. FCS EIPs identify the Dose Assessment Coordinator or the Protective Measures Manager as required minimum staff position. The Protective Measures Manager position is retained in the post-shutdown ERO.

The following EOF positions are proposed for elimination following permanent cessation of power operations and permanent removal of fuel from the reactor vessel:

- Emergency Response Coordinator
- EOF Secretary
- EOF Dose Assessment Assistant
- EOF Status Board Keeper
- Dose Assessment Coordinator
- EOF Clerical Assistant
- Emergency Director Secretary
- IT Specialist
- EOF CHP Communicator
- Communications Specialist

The proposed EOF staffing changes described above do not impact the capabilities of the on-shift staffing or augmented response. The positions can be eliminated without placing an undue burden on the remaining ERO positions in the EOF and without increasing the risk to public health and safety. Attachment 5 contains an analysis of all ERO positions being eliminated and evaluates the transfer of tasks to remaining ERO positions following permanent cessation of power operations and permanent removal of fuel from the reactor vessel. The EOF will continue to be activated at an Alert or higher declaration. Functional responsibilities of the positions eliminated as a result of the changes will be reassigned to remaining positions. The proposed ERO staffing reductions continue to address the risks to public health and safety, comply with the FCS RERP, site commitments, and applicable regulations.

As previously described, to validate the results of the analysis, one or more drills will be developed and conducted prior to implementation of the changes described within. The drills will be conducted to confirm the ability of the post-shutdown ERO to perform the necessary functions of each ERF. The drills will be used to train and qualify post-shutdown ERO members, evaluate and validate the ability to accomplish the stated mission of each ERF, and ensure that the planning standard functions are preserved with no degradation in time sensitive activities or in the ability to communicate with offsite response organizations. The drills will also validate that the post-shutdown ERO continues to address the risks to public health and safety and comply with the FCS RERP, site commitments, and applicable regulations. Implementing procedures will be revised to address the permanently shut down and defueled conditions. The revised procedures will be used to support training of ERO staff and the conduct of drills described above.

Training and procedures will be developed and in place prior to performing post-shutdown ERO drills. The drill scenarios will include SFP events and be designed to test the major elements of the FCS post shutdown RERP. Major elements to be tested will include communications and coordination with offsite response organizations, including the JIC. State, local and Federal response organizations will be provided the opportunity to participate in or observe the drills. New regulatory commitments for scenario elements and communication with offsite agencies are included in Attachment 6.

#### 4.2.1.4 Joint Information Center

The FCS JIC is located at the OPPD Energy Plaza, 444 South 16<sup>th</sup> Street Mall, in Omaha, Nebraska. As described in Section G of the FCS RERP, the JIC provides a location for the news media to receive information from all involved agencies and companies during an emergency and provide it to the general public. The JIC is equipped to accommodate the news media for large briefings and conferences and contains extensive communications systems. Media monitoring and rumor control is also accomplished at the JIC, allowing FCS and State representatives to address incorrect information or rumors. Responses to media telephone inquiries are also addressed at the JIC.

The JIC meets the intent of the guidance in Planning Standard G of NUREG-0654. Following permanent cessation of power operations, the JIC will continue to be located at the OPPD Energy Plaza in Omaha. The proposed changes to the FCS RERP do not involve any physical modifications to, or layout/configuration changes in, the JIC.

The proposed staffing changes do not eliminate any ERO position in the JIC described in FCS EPIPs as a minimum staff position.

The proposed staffing changes eliminate the following ERO positions in the JIC:

- Executive Liaison
- Internal Information Liaison (Spokesperson)
- Public Inquiry Supervisor
- Five (5) Public Inquiry Specialists

In the permanently shut down and defueled condition, media briefings and rumor control will continue to be conducted regularly during an emergency to provide accurate and timely information to the public. The proposed JIC staffing changes described above do not impact the capabilities of the on-shift staffing or augmented response. The positions can be eliminated without placing an undue burden on the remaining ERO positions in the JIC and without increasing the risk to public health and safety. Attachment 5 contains an analysis of all ERO positions being eliminated and evaluates the transfer of tasks to remaining ERO positions following permanent cessation of power operations and permanent removal of fuel from the reactor vessel. The JIC will continue to be activated at Site Area Emergency or higher declaration. Functional responsibilities of the positions eliminated as a result of the changes will be reassigned to remaining positions. The proposed ERO staffing reductions continue to address the risks to public health and safety, comply with the FCS RERP, site commitments, and applicable regulations.

As previously described, to validate the results of the analysis, drills will be developed and conducted prior to implementation of the changes described within. The drills will be conducted to confirm the ability of the post-shutdown ERO to perform the necessary functions of each ERF. The drills will be used to train and qualify post-shutdown ERO members, evaluate and validate the ability to accomplish the stated mission of each ERF, and ensure that the planning standard functions are preserved with no degradation in time sensitive activities or in the ability to communicate with offsite response organizations. The drills will also validate that the post-shutdown ERO continues to address the risks to public health and safety and comply with the FCS RERP, site commitments, and applicable regulations. Implementing procedures will be revised to address the permanently shut down and defueled conditions. The revised procedures will be used to support training of ERO staff and conduct of drills.

Training and procedures will be developed and in place prior to performing post-shutdown ERO drills. The drill scenarios will include SFP events and be designed to test the major elements of the FCS post shutdown RERP. Major elements to be tested will include communications and coordination with offsite response organizations, including the JIC. State, local, and Federal response organizations will be provided the opportunity to participate in or observe the drills. New regulatory commitments for scenario elements and communication with offsite agencies are included in Attachment 6.

#### 4.2.1.5 Impact on Off-Site Response Organizations

Because of the geographic location of FCS, the planning and responsibilities at the State and local level involve coordination with the State of Nebraska, State of Iowa, Washington County (Nebraska), Harrison County (Iowa), and Pottawattamie County (Iowa). Section F of the FCS RERP describes the extensive communications network maintained between FCS, the States, and local agencies as a means of promptly notifying and maintaining communications with appropriate authorities. As illustrated in Section F, Figure F-2 of the FCS RERP, the coordination effort with offsite authorities is initiated by notifying the States of Nebraska and, State of Iowa, and Washington, Harrison, and Pottawattamie counties and providing each with information using a pre-arranged notification form that provides key information regarding an emergency. The proposed changes to the FCS RERP do not involve changes to this communications network, and as a result, do not impact the ability of FCS to promptly notify and initiate coordination with the offsite authorities.

Formal offsite REP plans, approved by FEMA in accordance with 44 CFR 350, are required to be maintained in effect until such time as the NRC approves an exemption to formal offsite emergency preparedness requirements. Because the changes proposed by FCS, specifically in regards to ERO staffing of the EOF and JIC, have the potential to adversely impact the effective implementation of the State and local REP plans, the proposed changes to the FCS RERP were evaluated for impacts on the ability of the State and local response organizations to effectively implement their FEMA-approved REP Plans. No specific change recommendations were identified; however, FCS will provide the offsite response organizations with the proposed post shutdown ERO positions so that they may revise their procedures as necessary.

Attachment 5 contains an analysis of all ERO positions being eliminated and evaluates the transfer of tasks to remaining ERO positions following permanent cessation of power operations. The discussion provided previously in this section addresses the potential impacts the proposed changes to the FCS RERP have on the EOF and the JIC and the potential impacts on the ability of the offsite response organizations to implement their FEMA-approved REP Plans.

Decommissioning-related emergency plan submittals for FCS have been discussed with offsite response organizations since OPPD provided notification that it would permanently cease power operations (Reference 1). These discussions have addressed future changes to onsite and offsite emergency preparedness throughout the decommissioning process.

As previously described, State, local, and Federal response organizations will be provided the opportunity to participate in or observe drills prior to implementation of the post-shutdown RERP. New regulatory commitments for scenario elements and communication with offsite agencies are included in Attachment 6.

#### 4.2.2 On-Shift Staffing

To support reduced staffing following permanent cessation of power operations and permanent removal of fuel from the reactor vessel, the proposed post-shutdown on-shift staffing was evaluated in conjunction with the postulated accidents previously submitted to the NRC using methodology presented in NEI 10-05 (Attachment 4). The analysis of proposed post-shutdown on-shift staffing considered the FHA as the DBA. The analysis of proposed post-shutdown on-shift staffing concluded that in a permanently shut down and defueled condition the Shift Manager, one CRO/CFH, one Equipment Operator/NCO, and one Radiation Protection Technician can perform all required Emergency Plan actions in a timely manner and there are no collateral duties that would prevent the timely performance of emergency plan functions. The Fire Brigade complement considered in the analysis of proposed post-shutdown on-shift staffing was consistent with the requirements from the Fire Hazard Analysis.

For the analysis performed in October 2014, the following accident scenarios were evaluated:

##### Main Steam Line Break Accident

This event results in radioactive material releases outside secondary containment and was due to a complete severance of a 16-inch line leading to the turbine bypass steam chest.

##### Steam Generator Tube Rupture (SGTR) Accident

The steam generator tube rupture accident is a penetration of the barrier between the reactor coolant system and the main steam system.

#### Loss of Coolant Accident

A loss-of-coolant accident (LOCA) is defined as a breach of the reactor coolant system boundary, which results in interruption of the normal mechanism for removing heat from the reactor core.

#### Fuel Handling and Fuel Loading Incidents (in Spent Fuel Pool and Containment)

A fuel handling accident is defined as dropping of a spent fuel assembly resulting in the rupture of the fuel cladding of a fuel assembly.

#### Gas Decay Tank Rupture

The accident is defined as the uncontrolled or unanticipated release of the radioactive noble gases stored in a gas decay tank as a result of a failure of a tank or associated piping.

#### Design Basis Threat

The event evaluated for this analysis assumes a land based threat that is neutralized immediately when inside the protected area fence, no significant damage to equipment or systems that require corrective actions before the ERO is staffed, no radiological release, and no fire that requires firefighting response before the ERO is staffed.

#### Aircraft Potential Threat (50.54(hh))

Notification is received from the NRC that a potential aircraft threat exists.

#### Fire requiring evacuation of the Control Room and plant shutdown from remote location

A fire occurs in the main control room requiring the evacuation of the control room and procedures implemented to remotely shutdown the reactor.

#### Station Blackout

A loss of all offsite AC power occurs and the failure of the emergency diesel generators to load. The SM determines power cannot be restored and declares a Site Area Emergency due to the loss of offsite power.

The following accident scenarios were included in the analysis of proposed post-shutdown on-shift staffing:

#### Design Basis Threat

The event consists of notification to the Shift Manager from the Security Shift Supervisor that a hostile action is occurring at or inside the Protected Area. A hostile force will breach the Protected Area fence but is not sufficient to interrupt SFP cooling or cause a radiological release and is neutralized with no adverse consequences to plant safety. Damage inflicted on plant systems, structures and components is not sufficient to cause a radiological release. There is no fire significant enough to warrant firefighting efforts prior to the arrival of offsite resources and/or the augmented ERO.

Fuel Handling Accident (FHA) with General Emergency and PAR

One postulated DBA that will remain applicable to FCS in its permanently shut down and defueled condition is the FHA in the Auxiliary Building where the SFP is located. This event assumes a dose that exceeds the Environmental Protection Agency's (EPA) Protective Action Guides (PAGs) beyond the site boundary, and thus necessitates promulgation of a Protective Action Recommendation (PAR).

Aircraft Potential Threat (50.54(hh)(1))

This event includes emergency response actions in response to potential aircraft impacts in accordance with 10 CFR 50.54(hh)(1).

Event Requiring Control Room Evacuation and Maintain SFP Cooling

An event occurs requiring the evacuation of the Control Room and actions implemented to control auxiliary cooling water pumps from a remote location.

The analysis of the proposed post-shutdown on-shift staffing indicates that the proposed on-shift personnel can satisfactorily implement all emergency plan functions as required by regulation without augmented ERO personnel for at least 60 minutes following an emergency declaration.

Currently, the Chemistry Technician is an on-shift position per FCS RERP Section B, Attachment 1, Table B-1 so that a technician is always available to immediately collect and analyze a liquid sample if the applicable radiation monitor is not available during a release, or as directed by the Shift Manager. When the on-shift Chemistry Technician position is eliminated, the on-shift Radiation Protection Technician will be able to perform sampling and analysis, if necessary, so as to not delay information potentially needed by the Shift Manager to determine if an emergency declaration is required. For gaseous releases, the only credible scenario for releasing gas would be to mechanically damage spent fuel during handling or by impact of a heavy object. Activities that could cause mechanical damage will require that a Chemistry Technician be on-site or the radiation monitor listed in gaseous effluent EALs to be in service, thereby alleviating any reliance on a potentially delayed sample analysis to determine EAL applicability. A new regulatory commitment to revise applicable fuel handling procedures to incorporate this prerequisite is included in Attachment 6.

A gap analysis will be performed to determine any differences between current Radiation Protection Technician training requirements and any new specific knowledge requirements associated with emergency plan sampling and analysis. Such specific knowledge requirements would include how to obtain specific liquid samples.

Once the specific training requirements for the Radiation Protection Technician position have been identified using a systematic approach to training, as required by 10 CFR 50.120, a formal gap analysis will be completed for all personnel identified to fill the Radiation Protection Technician position. Individualized training plans will be developed and completed to address specific knowledge and skill areas for each of the selected Radiation Protection Technician candidates. The initial training for all incumbent Radiation Protection Technicians will include all training requirements to perform liquid sampling and analysis to support an emergency declaration.

The initial training requirements for any new Radiation Protection Technician will include all training modules to ensure they are equipped with the required skills and knowledge to perform the required liquid sampling and analysis. These training modules will be specifically identified in the training program description for the Radiation Protection Technician position. This document will be developed in accordance with the requirements of 10 CFR 50.120.

Based on the above, the proposed change in on-shift operations staffing and elimination of the on-shift Chemistry Technician are appropriate given the permanent cessation of power operations and permanent removal of fuel from the reactor vessel.

Because of the reduced number of possible events requiring mitigating actions in the permanently defueled condition and the limited number of actions to be performed by the Control Room positions in a permanently defueled condition, no Licensed Reactor Operators or STA job tasks were noted as being required for any of the events analyzed in the analysis of proposed post-shutdown on-shift staffing. Therefore, the Licensed Reactor Operators and STA positions can be eliminated without reducing the effectiveness of the post-shutdown FCS RERP.

The proposed on-shift staffing changes do not impact the capabilities of the on-shift staff to respond to an emergency and continue to comply with the FCS RERP, site commitments, and applicable regulations.

Additional analysis for each of the staffing changes associated with FCS RERP Section B, Attachment 1, Table B-1 is provided in the following section.

#### 4.2.3 Major Functional Area: Plant Operations & Assessment of Operational Aspects

##### Current Staffing Requirement

During normal operations, the minimum staff on duty at the plant during all shifts to satisfy this Major Functional Area consists of:

- 1 Shift Manager (SRO)
- 1 Unit Supervisor (SRO)
- 1 STA
- 2 Reactor Operators
- 2 Equipment Operators
- 1 Control Room Communicator
- 1 Radiation Protection Technician
- 1 Chemistry Technician
- 1 Habitability Technician

##### Proposed Change

The proposed changes to the FCS RERP will eliminate the following on-shift positions:

- 2 Reactor Operators
- 1 Equipment Operator
- 1 Control Room Communicator
- 1 Chemistry Technician
- 1 Habitability Technician
- 1 STA

Credited on-shift personnel will consist of one Shift Manager (CFH), one CRO (CFH), and one Equipment Operator/NCO. Title changes for Licensed personnel and Equipment Operators to CFHs and NCOs, respectively, are dependent upon NRC approval of proposed changes to the FCS Technical Specifications that revise the minimum shift staffing requirements in the FCS Technical Specifications by replacing references to licensed and non-licensed operators with references to CFHs and NCOs. Implementation of the FCS RERP, as proposed for revision in this submittal, is not dependent on prior NRC approval of the proposed changes to the FCS Technical Specifications.

#### Analysis

The regulatory standard for minimum staffing requirements for NRC licensees is documented in NUREG-0654. The total minimum on-shift staffing expressed in NUREG-0654, Table B-1, is ten personnel. Plant Operations shift staffing, as implemented previously, was based on an operating philosophy that provided defense in depth. The analysis of proposed post-shutdown on-shift staffing concluded that in a permanently shut down and defueled condition, the Shift Manager, CRO, and one Equipment Operator/NCO can perform all required FCS RERP actions in a timely manner and there are no collateral duties that would prevent the timely performance of emergency plan functions. Therefore, this deviation from the guidance presented in NUREG-0654, Table B-1 is acceptable.

#### 4.2.4 Major Functional Area: Notification/Communication

*Major Tasks: Notify Licensee, State, Local, and Federal personnel and maintain communication.*

#### Current Staffing Requirement

The Control Room Communicator performs the function of on-shift notification/communication.

#### Proposed Change

Replace the Control Room Communicator with the CRO/CFH (or NCO).

#### Analysis

This function is currently performed by an on-shift staff position performing emergency plan Communicator requirements. This function is currently augmented by TSC and EOF designated communications positions when those facilities assume communications responsibilities.

Initial notification to offsite authorities are required to occur within 15 minutes of declaration of an emergency and initial NRC notification is required to occur immediately after notification of the appropriate State or Local agencies and not later than 60 minutes after the time of the emergency declaration, for non-security related events. Subsequent notifications are made should the event escalate and for informational updates. The resource commitment to support the communication function is not full time so there is time to support performance of collateral duties during the first 60 minutes until staff augmentation can occur. The on-shift and offsite communicators have advanced communications capabilities available such as the Conference Operations (COP) Network.

Communications with the NRC take place over dedicated telephone lines provided for and maintained by the NRC (Emergency Notification System (ENS)). For purposes of the analysis of proposed post-shutdown on-shift staffing, NRC notifications were treated as a continuous action in accordance with 10 CFR 50.72(c)(3), meaning that once the initial NRC communications are established, it was assumed that the NRC will request an open line to be continuously maintained with the NRC Operations Center. The use of dedicated phone circuits and headsets enables these notifications to be performed by the same on-shift communicator who performs the State and Local notifications.

The Shift Manager initially approves the content of the communication with the State and Federal agencies until relieved of this function by the EOF. The FCS RERP goal is to activate the EOF within approximately 60 minutes. The EOF assumes the communication responsibility concurrent with activation. Therefore, the current communication protocol may remain within the Control Room for the first 60 minutes, regardless of the presence of any prior ERO augmentation.

In the post-shutdown condition, the task of notifying and communicating with offsite authorities will be transferred to the CRO/CFH (or NCO). This change is acceptable because the analysis of proposed post-shutdown on-shift staffing concluded that in a permanently defueled condition, the designated on-shift staff can perform this required FCS RERP action in a timely manner and there are no collateral duties that would prevent the timely performance of this emergency plan function.

#### 4.2.5 Major Functional Area: Radiological Accident Assessment and Support of Operational Accident Assessment

*Major Tasks: Offsite Dose Assessment; Onsite and In-plant surveys; Offsite surveys; Chemistry/Radiochemistry*

##### Current Staffing Requirement

On-shift Radiation Protection Technician, Habitability Technician, and Chemistry Technician perform the in-plant radiation protective actions.

Augmentation of the on-shift Radiation Protection Technician capability by four Radiation Protection Technicians occurs within approximately 60 minutes.

Augmentation of the on-shift Chemistry Technician capability by one Chemistry Technician occurs within approximately 60 minutes.

##### Proposed Change

Eliminate the on-shift Chemistry Technician position.

Eliminate the on-shift Habitability Technician position.

##### Analysis

During a toxic gas event, tasks would be assigned to the Chemistry Technician in the first 60 minutes. These tasks will be reassigned to a trained and qualified on-shift Radiation Protection Technician with no conflicting duties. Therefore, the Chemistry Technician position does not need to be maintained on-shift.

The proposed change in on-shift staffing and elimination of the on-shift Habitability Technician are appropriate given the permanent cessation of power operations and permanent removal of fuel from the reactor vessel. The spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The set of plant equipment required in the permanently defueled condition is also greatly reduced, which reduces the assessment and mitigation activities in the Control Room. Habitability concerns in a permanently shut down and defueled condition do not require a dedicated on-shift position.

#### 4.2.6 Major Functional Area: Plant Systems Engineering, Repair and Corrective Actions

##### 4.2.6.1 Major Task: Technical Support (STA)

###### Current Staffing Requirement

The on-shift STA performs the major task of Technical Support.

###### Proposed Change

Eliminate the on-shift STA position.

###### Analysis

The STA performs independent assessments of plant operating concerns, technical support, appropriate corrective actions, analysis of events and their effects, effectiveness of response(s) to emergent conditions, assistance in classifications of emergencies, protection of the public, and any other actions related to critical safety functions and plant safety during abnormal and emergency situations. The STA also supports operations during normal plant conditions. By routine monitoring of equipment and plant operations, the STA can focus on preventative actions in order to mitigate the consequences of an accident.

Because of the permanent cessation of power operations and removal of fuel from the reactor vessel, the STA position is no longer necessary for technical and analytical assistance. The spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The set of plant equipment required in the permanently defueled condition is also greatly reduced, which reduces the assessment and mitigation activities in the Control Room. The Technical Support function will be assumed by the remaining Control Room personnel.

The analysis of proposed post-shutdown on-shift staffing concluded that the Shift Manager and CRO/CFH (or NCO during events requiring Fire Brigade response) can perform any required technical analysis, until augmented by the TSC Engineering Coordinator and necessary engineering staff, in a timely manner and there are no collateral duties that would prevent the timely performance of this task.

#### 4.2.7 Major Functional Area: Protective Actions (Plant)

The function of these additional resources is to provide radiation protection oversight of the on-shift complement of personnel and augmented personnel who are expected to respond to emergency events for damage repair, corrective actions, search and rescue, first aid, firefighting and personnel monitoring. They can also be expected to provide for access control and the issuance of dosimetry. Analysis of the proposed change for each of these tasks is discussed below. The fire brigade will continue to perform the tasks of search and rescue, first aid, and firefighting in the permanently shut down and defueled condition.

##### 4.2.7.1 *Major Tasks: Radiation Protection Access Control*

Originally, radiological access control was a labor intensive task. Dedicated Radiation Protection Technicians were required to check dose margins, training qualifications, and to ensure workers had read and understood their radiation work permit. Worker access control is now partially automated because many of the Radiation Protection work processes have been computerized. Radiation Work Permit (RWP) access control and electronic dosimeter computer systems work together to provide a fully integrated system allowing workers to sign-in on their RWP and to self-issue electronic dosimeters. During a declared emergency however, RWPs and dose setpoints will change depending on the emergency situation and plant conditions. Both systems have been used by plant workers for several years. Worker dose margins and training qualifications are also automatically verified when the RWP access control system is used. If a worker's dose margin is inadequate or training is expired, the worker's access would be precluded and the access control system would not allow issuance of an electronic dosimeter. In an emergency situation, approval to exceed dose margins is required. During the log-in process, workers acknowledge their electronic dosimeter alarm setpoints and that they have read and understand their RWP. The electronic dosimeter provides the worker with a continuous status of dose received and work area dose rates, and will alarm at preset dose and dose rate alarms. Worker use of electronic dosimeters facilitates more efficient use of Radiation Protection Technicians to provide Radiation Protection coverage while preserving the ALARA concept. Access control is maintained because the worker must obtain an electronic dosimeter and enter a RWP number into the access control computer system prior to being allowed access into the Radiologically Controlled Area (RCA). No setup is required for the RWP access control computers, which allows Radiation Protection Technicians to be used for more critical tasks during emergency response. Personnel are required to self-monitor for radioactive contamination whenever they exit the RCA. No Radiation Protection involvement is necessary for this contamination monitoring activity because workers are trained to perform this task without supervision or oversight. However, contaminated personnel exiting the RCA will require Radiation Protection oversight.

##### 4.2.7.2 *Major Task: RP Coverage and Personnel Monitoring*

Radiation Protection (RP) coverage will only be performed if the radiological status of a room is unknown and there is a definitive need for emergency workers to enter the room to perform a task. The decision to provide RP coverage may be based on plant radiological conditions as indicated by installed area radiation monitors (ARMs) or event mitigation requirements.

During the initial stages of an accident, not all areas of the plant would be affected by releases of radioactive materials. Therefore, RP coverage would not be required for all areas. Because entry is expected to be limited to those areas where maintenance necessary to maintain SFP cooling is required and the areas potentially affected by an accident involving the SFP are limited, there is a significant decrease in areas potentially requiring RP coverage in a permanently shut down and defueled condition. If RP coverage is deemed necessary, multiple emergency teams can be covered by the on-shift Radiation Protection Technician. If RP coverage is not provided (for entry into areas with low radiological risk or known radiological status), worker protection is ensured because emergency workers are required to wear electronic dosimeters (which will alarm at preset dose and dose rate setpoints) and because of the installed ARMs (which alarm locally and remotely at preset dose rates) located throughout the plant.

#### 4.2.7.3 Major Task: Dosimetry

Originally, dosimetry issuance was a manual process requiring Radiation Protection Technicians to zero and issue dosimeters, verify worker training, and verify and track radiation dose margins. As addressed in the Access Control/Personnel Monitoring Sections above, access control computers are now used for issue of electronic dosimetry with alarming capability. Battery-powered electronic dosimeters are available as a backup. Worker self-issuance of electronic dosimeters has eliminated the need for Radiation Protection Technicians to physically issue dosimetry, with the exception of any tasks that require specialized dosimetry and/or special body placement of the dosimetry. These types of tasks are not expected in the initial stages of an event, but during the recovery phase. Prior to self-issuance of dosimetry, workers are assigned a RWP, setpoints are adjusted, and, when required, briefings are conducted by Radiation Protection.

The analysis of proposed post-shutdown on-shift staffing determined there are no time critical Radiation Protection or chemistry tasks, and that task performance is directed and prioritized by the Shift Manager for the 60-minute time frame used in the analysis. There are no overlapping Radiation Protection or chemistry tasks. Radiation Protection tasks were able to be performed without augmented personnel in the 60-minute time frame used in the analysis.

#### 4.2.8 Major Functional Areas: Fire Fighting/Rescue Operations and First Aid

##### 4.2.8.1 Major Task: Combat Fires

###### Current Staffing Requirement

The FCS Fire Brigade complement is one (1) Fire Brigade Leader or advisor with commensurate Licensed Operator knowledge, two (2) Fire Brigade trained Equipment Operators-Nuclear Auxiliary (EONA) non-license training with commensurate knowledge and two (2) other Fire Brigade qualified on-shift personnel. If use of a Fire Brigade Advisor (commensurate Licensed Operator knowledge) is chosen, the Fire Brigade Leader will be qualified the equivalent of EONA.

All Fire Brigade training and qualification requirements will be maintained utilizing the Fire Hazards Analysis requirements. The Fire Brigade will continue to perform the tasks of search and rescue in the permanently defueled condition. The Fire Brigade will be available to promptly implement SFP inventory makeup strategies required under 10 CFR 50.54(hh)(2) without impacting the performance of designated emergency plan functions.

The analysis of proposed post-shutdown on-shift staffing concluded that during an event requiring a Control Room evacuation in a permanently defueled condition, the Shift Manager and CRO (or NCO) can perform all required FCS RERP actions in a timely manner. There are no collateral duties that would prevent the timely performance of emergency plan functions.

### **4.3 Conclusion**

OPPD completed an evaluation of the proposed reduction in on-shift and ERO staffing and completed an analysis of proposed post-shutdown on-shift staffing to analyze the ability of the proposed defueled on-shift and ERO organization to respond to an emergency.

The analysis of proposed post-shutdown on-shift staffing was conducted assuming an on-shift complement of one Shift Manager, one CRO/CFH, one Equipment Operator/NCO, and one Radiation Protection Technician. The results of the analysis indicate that the proposed on-shift personnel can satisfactorily implement all regulatory required emergency plan functions without augmented ERO personnel for at least 60 minutes following an emergency declaration. During a toxic gas event, tasks would be assigned to the Chemistry Technician in the first 60 minutes. These tasks will be reassigned to a trained and qualified on-shift Radiation Protection Technician with no conflicting duties. Compensatory measures will be implemented to ensure that the ability to assess and declare an emergency during fuel handling activities is maintained. Based on the above, the proposed change in on-shift operations staffing and elimination of the on-shift Chemistry Technician are appropriate for the permanently defueled condition.

Specific training requirements for the Radiation Protection Technician and NCO positions will be identified using a systematic approach to training, as required by 10 CFR 50.120, and formal gap analyses will be completed for all personnel identified to fill these positions. Individualized training plans will be developed and completed to address specific knowledge and skills areas for each of the selected candidates.

The proposed ERO staffing changes do not impact the capabilities of the on-shift staffing or augmented response. The ERFs will continue to be activated within approximately 60 minutes of an Alert or higher declaration. The remaining post-shutdown functional responsibilities of the positions eliminated as a result of the changes described within are being reassigned to remaining positions. The proposed ERO staffing reductions continue to address the risks to public health and safety and comply with the FCS RERP, site commitments, and applicable regulations.

The risk of a major event resulting in radioactive materials being released to the environment is significantly reduced in the permanently defueled condition. All required radiation protection functions are accommodated within the requisite time frames using the proposed on-shift resources. Any anticipated tasks can be handled by the proposed on-shift resources detailed in the post-shutdown on-shift staffing analysis.

## 5.0 REGULATORY EVALUATION

### 5.1 Applicable Regulatory Requirements/Criteria

#### On-Shift and ERO Staffing

The specific standards for establishing an onsite emergency organization to respond to emergency events appears in 10 CFR 50.47(b) and 10 CFR 50, Appendix E, Section IV.A. Specifically:

- 10 CFR 50.47(b)(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.
- 10 CFR 50.47(b)(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.
- 10 CFR 50, Appendix E Section IV.A.1: [E-Plans must contain] A description of the normal plant operating organization.
- 10 CFR 50, Appendix E Section IV.A.2: [E-Plans must contain] A description of the onsite emergency response organization with a detailed discussion of:
  - Authorities, responsibilities, and duties of the individual(s) who will take charge during an emergency;
  - Plant staff emergency assignments;
  - Authorities, responsibilities, and duties on an onsite emergency coordinator who shall be in charge of the exchange of information with offsite authorities responsible for coordinating and implementing offsite emergency measures;

NUREG-0654 (Reference 2), Section II.B, "Onsite Emergency Organization," presents guidance for meeting these requirements. The guidance describes the onsite emergency organization, including the staffing requirements found in Table B-1, "Minimum Staffing Requirements for NRC Licensees for Nuclear Power Plant Emergencies."

10 CFR Part 50, Appendix E, Section IV.A.9 states that licensees shall perform "...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."

NSIR/DPR-ISG-01, "Interim Staff Guidance – Emergency Planning for Nuclear Power Plants" (Reference 4) provides information relevant to performing the on-shift staffing analysis. The ISG states that NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," is an acceptable methodology for performing the staffing analysis. The ISG also indicates that the completed staffing analyses are required to be part of the emergency plan and the results documented and submitted to the NRC in accordance with 10 CFR 50.54(q)(5).

NRC Regulatory Guide 1.101, (Reference 8), Section C, states in part "The criteria and recommendations in Revision 1 of NUREG-0654/FEMA-REP-1, 'Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants (November 1980),' are methods acceptable to the NRC staff for complying with the standards in 10 CFR 50.47 that must be met in onsite and offsite emergency response plans. These criteria provide a basis for NRC licensees and State and local governments to develop acceptable radiological emergency plans and improve emergency preparedness."

Regulatory Guide 1.219, "Guidance on Making Changes to Emergency Plans for Nuclear Power Reactors," July 2016 (Reference 9), describes a method that the NRC considers to be acceptable to implement the requirements in 10 CFR 50.54(q). In Section 2.a., the NRC encourages licensees to arrange a conference call with the NRC staff to clarify 10 CFR 50.54(q) requirements and guidance within this regulatory guide for EP changes that increase the activation time of emergency response facilities.

Regulatory Issue Summary 2005-02, "Clarifying the Process for Making Emergency Plan Changes," Revision 1 (Reference 10) was issued by the NRC to clarify the meaning of "decrease in effectiveness" and the process for making changes to emergency plans, and to provide some examples of changes that are considered to be a decrease in effectiveness.

## **5.2 Precedent**

The requested changes to the on-shift staffing and ERO staffing are consistent with the post-shutdown changes approved by the NRC and implemented by Vermont Yankee Nuclear Power Station (Reference 11).

## **5.3 No Significant Hazards Consideration**

Pursuant to 10 CFR 50.92, OPPD has reviewed the proposed changes and concludes that the changes do not involve a significant hazards consideration because the proposed changes satisfy the criteria in 10 CFR 50.92(c). These criteria require that operation of the facility in accordance with the proposed amendment would 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.

The proposed changes would revise the FCS RERP to reduce the number of on-shift and ERO positions commensurate with the hazards associated with a permanently shut down and defueled facility.

The discussion below addresses each of these criteria and demonstrates that the proposed amendment does not constitute a significant hazard.

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

Response: No.

The proposed changes to the FCS RERP do not impact the function of plant structures, systems, or components (SSCs). The proposed changes do not affect accident initiators or precursors, nor does it alter design assumptions. The proposed changes do not prevent the ability of the on-shift staff and ERO to perform their intended functions to mitigate the consequences of any accident or event that will be credible in the permanently defueled condition. The proposed changes only remove positions that will no longer be credited in the FCS RERP.

Therefore, the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

Response: No.

The proposed changes reduce the number of on-shift and ERO positions commensurate with the hazards associated with a permanently shut down and defueled facility. The proposed changes do not involve installation of new equipment or modification of existing equipment, so that no new equipment failure modes are introduced. Also, the proposed changes do not result in a change to the way that the equipment or facility is operated so that no new accident initiators are created.

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

3. Does the proposed amendment 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 changes are associated with the FCS RERP staffing and do not impact operation of the plant or its response to transients or accidents. The change does not affect the Technical Specifications. The proposed changes do not involve a change in the method of plant operation, and no accident analyses will be affected by the proposed changes. Safety analysis acceptance criteria are not affected by the proposed changes. The revised FCS RRP will continue to provide the necessary response staff with the proposed changes.

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

## **5.4 Conclusion**

Based on the above, OPPD concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of “no significant hazards consideration” is justified.

## **6.0 ENVIRONMENTAL CONSIDERATION**

This amendment request meets the eligibility criteria for categorical exclusion from environmental review set forth in 10 CFR 51.22(c)(9) as follows:

- (i) The amendment involves no significant hazards consideration.

As described in Section 5.3 of this evaluation, the proposed changes involve no significant hazards consideration.

- (ii) There is no significant change in the types or significant increase in the amounts of any effluent that may be released offsite.

The proposed changes do not involve any physical alterations to the plant configuration or any changes to the operation of the facility that could lead to a change in the type or amount of effluent release offsite.

- (iii) There is no significant increase in individual or cumulative occupational radiation exposure.

The proposed changes do not involve any physical alterations to the plant configuration or any changes to the operation of the facility that could lead to a significant increase in individual or cumulative occupational radiation exposure.

Based on the above, OPPD concludes that the proposed change meets the eligibility criteria for categorical exclusion as set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

## **7.0 REFERENCES**

1. Letter, OPPD to USNRC, “Certification of Permanent Cessation of Power Operations,” dated June 24, 2016 (LIC-16-0043)(ML16176A213)
2. 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, published November 1980.
3. Federal Register Volume 76, Number 226, Wednesday, November 23, 2011, Rules and Regulations, “Enhancements to Emergency Preparedness Regulations; Final Rule.”
4. NSIR/DPR-ISG-01, “Interim Staff Guidance – Emergency Planning for Nuclear Power Plants,” Revision 0, November 2011 (ML113010523)
5. NEI 10-05, Rev. 0, “Assessment of On-Shift Emergency Response Organization Staffing and Capabilities.”

6. Letter, OPPD to USNRC "Request for Approval of a Certified Fuel Handler Training Program," dated July 7, 2016 (LIC-16-0049) (ML16190A208)
7. EP-FC-1001, Addendum 1, "Fort Calhoun Station On-Shift Staffing Technical Basis," Revision 0, dated October 2014.
8. NRC Regulatory Guide 1.101, "Emergency Response Planning and Preparedness for Nuclear Power Reactors," Revision 4, July 2003
9. Regulatory Guide 1.219, "Guidance on Making Changes to Emergency Plans for Nuclear Power Reactors," Revision 1, July 2016
10. Regulatory Issue Summary 2005-02, "Clarifying the Process for Making Emergency Plan Changes," Revision 1, April 19, 2011
11. Letter, USNRC to Entergy Nuclear Operations, Inc., "Vermont Yankee Nuclear Power Station – Issuance of Amendment to Renewed Facility Operating License Re: Changes to the Emergency Plan (TAC No. MF3668)," dated February 4, 2015 (ML14346A065)

**OMAHA PUBLIC POWER DISTRICT**

**FORT CALHOUN STATION**

**DOCKET NUMBER 50-285 / LICENSE NUMBER DPR-40**

**ATTACHMENT 2**

**TABULAR SUMMARY OF PROPOSED CHANGES TO THE FCS  
RERP**

FCS Emergency Plan Change Summary

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Cover page	OPPD Nuclear Radiological Emergency Response Plan for Fort Calhoun Station	OPPD Nuclear Post Shutdown Radiological Emergency Response Plan for Fort Calhoun Station	Reflect the changes for Post Shutdown
Header	Revision 0	Revision TBD	Changed throughout to reflect the need for a new RERP revision number.
PURPOSE OF THE EMERGENCY PLAN 1 <sup>st</sup> Sentence	The purpose of the Fort Calhoun Station "Radiological Emergency Response Plan" RERP)	The purpose of the Fort Calhoun Station "Post-Shutdown Radiological Emergency Response Plan" (PSRERP)	Title changed to reflect post shutdown condition. Change made to header and all references to the RERP throughout EP-FC-1001.
PURPOSE OF THE EMERGENCY PLAN Sentences 2-5	The Emergency Plan Implementing Procedures (EPIP's), Radiation Protection procedures, Emergency Operating procedures and other station references are available at the plant to further assist personnel for operating during abnormal occurrences. The various emergency procedures are put into effect whenever a system, component or circuit failure could lead to a personnel hazard or major equipment failure. Emergency Operating Procedures are sufficiently detailed so that the plant is placed, as expeditiously as possible, in a safe condition. The various procedures include such items as radiation hazards, weather conditions and availability of technical and operating personnel.	The Emergency Plan Implementing Procedures (EPIP's), Radiation Protection procedures, and other station references are available at the plant to further assist personnel during abnormal occurrences. The various emergency procedures are put into effect whenever a system, component or circuit failure could lead to a personnel hazard or major equipment failure. Procedures are sufficiently detailed so that the plant is maintained in a safe condition. The various procedures include such items as radiation hazards, weather conditions and availability of technical and plant personnel.	FCS will no longer be an operating nuclear power plant. The PURPOSE OF THE EMERGENCY PLAN has been revised to indicate the permanently shut down and defueled condition.

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
<p>5.0, (ACCIDENT CONSIDERATIONS)  <u>MAJOR STEAM RELEASE</u></p>	<p>The offsite consequences of a steam line rupture incident has been evaluated and is documented in the Fort Calhoun Station, Unit NO. 1 USAR. The maximum size steam line rupture is a circumferential double-ended rupture of the 36-inch main steam header. The analysis of this incident at the site boundary is calculated to be 0.9 Rem TEDE. Plant personnel would be protected by normal health physics practices and procedures. Operator action follows the emergency procedures addressing a Steam Line Rupture with Loss of Offsite Power.</p>	<p>Deleted</p>	<p>FCS will no longer be an operating nuclear power plant. A major steam release will no longer be applicable to FCS.                       Re-numbered subsequent sections.</p>
<p>7.0, (ACCIDENT CONSIDERATIONS)  <u>NATURAL DISASTERS</u></p>	<p>A natural disaster may occur which could initiate any of the accidents previously discussed. The reactor may be placed in a shutdown condition, depending upon the anticipated or experienced severity of the disaster. The ISFSI is designed to withstand natural phenomena, including the maximum hypothetical earthquake, design basis tornado and tornado-driven missiles, with no release of radioactivity.</p>	<p>A natural disaster may occur which could initiate any of the accidents previously discussed. The Spent Fuel Pool and ISFSI are designed to withstand natural phenomena, including the maximum hypothetical earthquake, design basis tornado and tornado-driven missiles, with no release of radioactivity.</p>	<p>FCS will no longer be an operating nuclear power plant. References to shutting down the reactor as a result of a natural disaster will no longer be applicable to FCS.</p>

FCS Emergency Plan Change Summary

<b>Emergency Plan Section</b>	<b>Before (Rev. 1)</b>	<b>After (Pending Revision Number)</b>	<b>Reason for Change</b>
Section A, 2.3, 2 <sup>nd</sup> sentence	The Shift Manager may be relieved of the task of implementing the RERP by the Control Room Coordinator.	Deleted	<p>The Control Room Coordinator position will not exist in the post-shutdown ERO. The Shift Manager will implement the RERP in the Control Room.</p> <p>The retention of the task of implementing the RERP by the Shift Manager has been evaluated in the FCS analysis of proposed post-shutdown on-shift staffing in conjunction with the postulated accidents that will be applicable in the permanently defueled condition.</p>
Section B, 4.1.1, 1st bullet	<ul style="list-style-type: none"> <li>• One Shift Manager (Senior Reactor Operator)</li> </ul>	<ul style="list-style-type: none"> <li>• One Shift Manager (Senior Reactor Operator (SRO)/Certified Fuel Handler (CFH))</li> </ul>	<p>The title change from Senior Reactor Operator to Certified Fuel Handler (CFH) is dependent upon NRC approval of proposed changes to Technical Specifications. Implementation of the Emergency Plan as revised in this LAR is not dependent on prior NRC approval of the proposed changes to the FCS Technical Specifications.</p>

FCS Emergency Plan Change Summary

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, 4.1.1, 2nd bullet	<ul style="list-style-type: none"> <li>• One Unit Supervisor (Senior Reactor Operator)</li> </ul>	<ul style="list-style-type: none"> <li>• One Control Room Operator (Senior Reactor Operator (SRO) or Reactor Operator (RO)/CFH)</li> </ul>	<p>The title “Unit Supervisor” title is changed to “Control Room Operator” here, and throughout the Post Shutdown Emergency Plan for consistency.</p> <p>Elimination of the title, Senior Reactor Operator, is dependent upon NRC approval of proposed changes to Technical Specifications. Implementation of the Emergency Plan as revised in this LAR is not dependent on prior NRC approval of the proposed changes to the FCS Technical Specifications.</p>

FCS Emergency Plan Change Summary

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, 4.1.1, 3 <sup>rd</sup> bullet	<ul style="list-style-type: none"> <li>• Two Reactor Operators</li> </ul>	Deleted	<p>The Reactor Operator position will not exist in the post-shutdown on-shift staff.</p> <p>After permanent cessation of power operations and a certification of permanent removal of fuel from the reactor vessel, in accordance with 10 CFR 50.82(a)(1)(i) and (ii), and pursuant to 10 CFR 50.82(a)(2), the 10 CFR 50 license will no longer authorize reactor operation or emplacement or retention of fuel in the reactor vessel. As a result, licensed reactor operators will no longer be required to support plant operating activities.</p> <p>The proposed elimination of the Reactor Operator positions has been evaluated in the FCS analysis of proposed post-shutdown on-shift staffing in conjunction with the postulated accidents that will be applicable in the permanently defueled condition.</p>

FCS Emergency Plan Change Summary

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, 4.1.1, 4 <sup>th</sup> bullet	<ul style="list-style-type: none"> <li>Two Equipment Operators</li> </ul>	<ul style="list-style-type: none"> <li>One Equipment Operator/Non-Certified Operator (NCO)</li> </ul>	<p>The proposed staffing of one NCO has been evaluated in the FCS analysis of proposed post-shutdown on-shift staffing in conjunction with the postulated accidents that will be applicable in the permanently defueled condition.</p> <p>The title change from Equipment Operators to NCOs is dependent upon NRC approval of proposed changes to Technical Specifications. Implementation of the Emergency Plan as revised in this LAR is not dependent on prior NRC approval of the proposed changes to the FCS Technical Specifications.</p>
Section B, 4.1.1, 5 <sup>th</sup> bullet	<ul style="list-style-type: none"> <li>One Control Room Communicator</li> </ul>	Deleted	<p>The Control Room Communicator position will not exist in the post-shutdown on-shift staff. The Control Room Operator will assume these responsibilities as directed by the Shift Manager.</p> <p>The proposed elimination of the Control Room Communicator position has been evaluated in the FCS analysis of proposed post-shutdown on-shift staffing in conjunction with the postulated accidents that will be applicable in the permanently defueled condition.</p>

FCS Emergency Plan Change Summary

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, 4.1.1, 6th bullet	<ul style="list-style-type: none"> <li>One Chemistry Technician</li> </ul>	Deleted	<p>The Chemistry Technician position will not exist in the post-shutdown on-shift staff. The shift RP Technician will perform any needed chemistry analysis.</p> <p>The proposed elimination of the Chemistry Technician position has been evaluated in the FCS analysis of proposed post-shutdown on-shift staffing in conjunction with the postulated accidents that will be applicable in the permanently defueled condition.</p>
Section B, 4.1.1, 8th bullet	<ul style="list-style-type: none"> <li>One Habitability Technician</li> </ul>	Deleted	<p>The Habitability Technician position will not exist in the post-shutdown on-shift staff. The post-shutdown on-shift staff will perform habitability tasks, as necessary.</p> <p>The proposed elimination of the Habitability Technician position has been evaluated in the FCS analysis of proposed post-shutdown on-shift staffing in conjunction with the postulated accidents that will be applicable in the permanently defueled condition.</p>

FCS Emergency Plan Change Summary

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, 4.1.1, 9 <sup>th</sup> bullet	<ul style="list-style-type: none"> <li>• One Shift Technical Advisor</li> </ul>	Deleted	<p>The Shift Technical Advisor position will not exist in the post-shutdown on-shift staff. The Control Room Operator will perform any necessary tasks previously assigned to the Shift Technical Advisor.</p> <p>The proposed elimination of the Shift Technical Advisor position has been evaluated in the FCS analysis of proposed post-shutdown on-shift staffing in conjunction with the postulated accidents that will be applicable in the permanently defueled condition.</p>
Section B, 4.3.3, 2 <sup>nd</sup> bullet	<ul style="list-style-type: none"> <li>• One Radiation Protection Technician or Radiation Protection Coordinator</li> </ul>	<ul style="list-style-type: none"> <li>• One Radiation Protection Technician</li> </ul>	<p>The Radiation Protection Coordinator position will not exist in the post-shutdown ERO. The OSC Director, RP Technicians, and the TSC Protective Measures Coordinator will perform the functions as needed. The proposed elimination of the Radiation Protection Coordinator position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing. Duties and responsibilities will be transferred to remaining ERO positions.</p>

FCS Emergency Plan Change Summary

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, 4.3.4, 2 <sup>nd</sup> bullet	<ul style="list-style-type: none"> <li>One TSC COP Communicator</li> </ul>	Deleted	<p>The TSC COP Communicator position will not exist in the post-shutdown ERO. The EOF COP Communicator and the TSC Ops Liaison will perform the functions as needed. The proposed elimination of the TSC COP Communicator position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing. Duties and responsibilities will be transferred to remaining ERO positions.</p>
Section B, 4.3.4, 4th bullet	<ul style="list-style-type: none"> <li>One Reactor Safety Coordinator</li> </ul>	<ul style="list-style-type: none"> <li>One Engineering Coordinator</li> </ul>	<p>Position title change.</p> <p>After permanent cessation of power operations and a certification of permanent removal of fuel from the reactor vessel, in accordance with 10 CFR 50.82(a)(1)(i) and (ii), and pursuant to 10 CFR 50.82(a)(2), the 10 CFR 50 license will no longer authorize reactor operation or emplacement or retention of fuel in the reactor vessel. As a result, the title, Reactor Safety Coordinator, is not descriptive of the functions performed by the position.</p>

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, 4.3.5, 3 <sup>rd</sup> bullet	<ul style="list-style-type: none"> <li>One EOF Protective Measures Manager or EOF Dose Assessment Coordinator</li> </ul>	<ul style="list-style-type: none"> <li>One EOF Protective Measures Manager</li> </ul>	<p>The EOF Dose Assessment Coordinator position will not exist in the post-shutdown ERO. The EOF Protective Measures Manager and the EOF Dose Assessment Specialist will perform dose assessment as needed. The proposed elimination of the EOF Dose Assessment Coordinator position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing. Duties and responsibilities will be transferred to remaining ERO positions.</p>
Section B, 4.4.1, 2 <sup>nd</sup> bullet	<ul style="list-style-type: none"> <li>The Control Room Coordinator</li> </ul>	Deleted	<p>The Control Room Coordinator position will not exist in the post-shutdown ERO, as previously described.</p>
Section B, 4.4.2	N/A	<p>Add: D. Ensure Control Room communications are established with the TSC, OSC, and EOF.</p>	<p>This task is currently performed by the Control Room Coordinator. The Control Room Coordinator position will not exist in the post-shutdown ERO, as previously described. The Shift Manager will assume these responsibilities. The retention of the task of implementing the PSRERP by the Shift Manager has been evaluated in the FCS analysis of proposed post-shutdown on-shift staffing in conjunction with the postulated accidents that will be applicable in the permanently defueled condition.</p>

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, 4.4.3	<p>The Control Room Coordinator position is intended to provide a prompt transition of Command and Control functions from the Shift Manager within the Control Room complex. This position may assume Command and Control at any emergency classification, and is not dependent on the reporting or activation of any other portion of the ERO.</p> <p>A. The Control Room Coordinator duties are to promptly relieve the Shift Manager and perform as Emergency Director until properly relieved by a qualified position. Additional duties of the Control Room Coordinator are to:</p> <ol style="list-style-type: none"> <li>1. Ensure a qualified Control Room Operations Liaison establishes communications with the TSC, OSC and EOF to provide operational information.</li> <li>2. Coordinate in plant operations response with the TSC and OSC.</li> <li>3. Assist the Shift Manager and on shift operators with plant operations.</li> </ol>	Deleted	<p>The Control Room Coordinator position will not exist in the post-shutdown ERO, as previously described. The Shift Manager will assume these responsibilities. The retention of the task of implementing the PSRERP by the Shift Manager has been evaluated in the FCS analysis of proposed post-shutdown on-shift staffing in conjunction with the postulated accidents that will be applicable in the permanently defueled condition.</p> <p>Re-numbered subsequent steps.</p>

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, 4.5.1.B	Unit Supervisor duties include assessment of plant conditions, ensuring requirements of the AOPs and EOPs are met and supervision of on-shift operations staff.	Control Room Operator duties include: <ul style="list-style-type: none"> <li>• Assessment of plant conditions,</li> <li>• Ensuring requirements of the AOPs are met, and</li> <li>• Notifications as directed by the Shift Manager. These notifications include the following:                             <ul style="list-style-type: none"> <li>○ Required notifications to the states and counties</li> <li>○ Notifications to the Emergency Response Organization</li> </ul> </li> </ul>	<p>FCS will no longer be an operating nuclear power plant.</p> <p>The title “Unit Supervisor” is changed to “Control Room Operator” here, and throughout the Post Shutdown Emergency Plan for consistency.</p> <p>The Control Room Operator will assume notification responsibilities previously belonging to the Control Room Communicator, as directed by the Shift Manager.</p> <p>The proposed elimination of the Control Room Communicator position has been evaluated in the FCS analysis of proposed post-shutdown on-shift staffing in conjunction with the postulated accidents that will be applicable in the permanently defueled condition.</p>
Section B, 4.5.1.C	Reactor Operators (2) duties include implementation of the AOPs and EOPs under the direction of the Unit Supervisor.	Deleted	<p>The Reactor Operator position will not exist in the post-shutdown on-shift staff, as previously described.</p> <p>Re-lettered subsequent steps.</p>

FCS Emergency Plan Change Summary

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, 4.5.1.D	<p>Control Room Communicator duties include notifications as directed by the Control Room Command and Control position. These notifications include the following:</p> <ul style="list-style-type: none"> <li>• Required notifications to the states and counties</li> <li>• Notifications to the Emergency Response Organization</li> </ul>	Deleted	<p>The Control Room Communicator position will not exist in the post-shutdown on-shift staff, as previously described. The Control Room Operator will assume these responsibilities as directed by the Shift Manager.</p> <p>Re-lettered subsequent steps.</p>
Section B, 4.5.1.E	Equipment Operators (2) duties include making repairs and corrective actions on plant equipment until augmented plant maintenance staff arrives.	Equipment Operator/NCO duties include making repairs and corrective actions on plant equipment until augmented plant maintenance staff arrives. NCOs also assist in performing notifications/communications and dose assessment as needed.	<p>The proposed staffing of one NCO has been evaluated in the FCS analysis of proposed post-shutdown on-shift staffing in conjunction with the postulated accidents that will be applicable in the permanently defueled condition.</p> <p>The title change from Equipment Operators to NCOs is dependent upon NRC approval of proposed changes to Technical Specifications. Implementation of the Emergency Plan as revised in this LAR is not dependent on prior NRC approval of the proposed changes to the FCS Technical Specifications.</p>
Section B, 4.5.1.F	Shift Technical Advisor duties include providing technical support for plant systems, engineering, providing input on repair and corrective actions and making initial notifications to the NRC.	Deleted	<p>The Shift Technical Advisor position will not exist in the post-shutdown on-shift staff, as previously described.</p> <p>Re-lettered subsequent steps.</p>

FCS Emergency Plan Change Summary

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, 4.5.1.G	Shift Chemistry Technician duties include chemistry and radiochemistry analysis, radiological accident assessment and support and offsite dose assessment.	Deleted	<p>The Chemistry Technician position will not exist in the post-shutdown on-shift staff, as previously described. The shift RP Technician will perform any needed chemistry analysis.</p> <p>The proposed elimination of the Chemistry Technician position has been evaluated in the FCS analysis of proposed post-shutdown on-shift staffing in conjunction with the postulated accidents that will be applicable in the permanently defueled condition.</p> <p>Re-lettered subsequent steps.</p>
Section B, 4.5.1.I	Habitability Technician duties include conducting surveys and verifying Control Room habitability using available equipment and initiating protective actions if needed.	Deleted	<p>The Habitability Technician position will not exist in the post-shutdown on-shift staff, as previously described.</p> <p>Re-lettered subsequent steps.</p>

<b>Emergency Plan Section</b>	<b>Before (Rev. 1)</b>	<b>After (Pending Revision Number)</b>	<b>Reason for Change</b>
Section B, 4.5.2	<p>Control Room (CR) augmenting positions are:</p> <ul style="list-style-type: none"> <li>A. Coordinator duties are described in Section 3.2 and 4.4.3.</li> <li>B. Operations Liaison duties include transmitting plant status/Control Room information, etc. to the TSC, EOF and OSC Operations Liaison positions.</li> <li>C. ENS Communicator duties include maintaining an ENS link with the NRC.</li> <li>D. Equipment Operator duties include providing operations support to repair teams.</li> </ul>	<p>The Control Room (CR) Operations Liaison is an augmenting position. Duties include transmitting plant status/Control Room information, etc. to the TSC, OSC, and EOF.</p>	<p>With the exception of the Control Room Operations Liaison position, the Control Room augmenting positions will not exist in the post-shutdown ERO. The spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The set of plant equipment required in the permanently defueled condition is also greatly reduced, which reduces the assessment and mitigation activities in the Control Room.</p>
Section B, 4.6.1.A	<p>Site Director duties are described in Steps 3.2 and 4.4.4</p>	<p>Site Director duties are described in Steps 3.2 and 4.4.3</p>	<p>Editorial revision to reflect the revised numbering scheme resulting from changes to the Emergency Plan described within this table.</p>

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, 4.6.1.B	<p>Reactor Safety Coordinator duties include:</p> <ol style="list-style-type: none"> <li>1. Directing the activities of the engineering staff in the TSC.</li> <li>2. Directing the analysis of plant problems and providing recommendations for plant modifications to mitigate the effects of the accident.</li> <li>3. Directing core damage assessment calculations.</li> <li>4. Directing the evaluation of possible radiological release paths to the environment.</li> </ol>	<p>Engineering Coordinator duties include:</p> <ol style="list-style-type: none"> <li>1. Directing activities of engineering resources requested by the TSC.</li> <li>2. Analyzing plant problems and providing recommendations for plant modifications to mitigate the effects of the accident.</li> <li>3. Evaluating possible radiological release paths to the environment.</li> </ol>	<p>Position title change, as previously described. The Engineering Coordinator is tasked with performing an engineering assessment of plant conditions and/or actions needed to mitigate damage to the plant.</p> <p>The FCS Post Shutdown Emergency Plan Implementing Procedures will continue to identify engineering resources as augmented positions with specific training and qualification requirements for assigned personnel in accordance with the site training program. The required training courses and requalification frequencies will be unchanged in the post-shutdown condition. However, these positions will no longer be identified as on-call positions.</p> <p>Core damage assessment will no longer be needed in the permanently shut down and defueled condition.</p>

FCS Emergency Plan Change Summary

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, 4.6.1.D	<p>COP Communicator duties include performing notifications as directed by the Command and Control position. These notifications include the following:</p> <ul style="list-style-type: none"> <li>• Required notifications to states and counties</li> <li>• Required notifications to the NRC</li> <li>• Notifications to the Emergency Response Organization. This position also assists in maintaining status boards within the TSC</li> </ul>	Deleted	The TSC COP Communicator position will not exist in the post-shutdown ERO, as previously described.

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, 4.6.2.B	I&C Electrical Systems Engineer duties include providing engineering analysis and troubleshooting in that field of expertise.	Deleted	<p>The on-call I&amp;C Electrical Systems Engineer position will not exist in the post-shutdown ERO. The Engineering Coordinator (position title change) in the TSC will assume this function as needed.</p> <p>The proposed elimination of the I&amp;C Electrical Systems Engineer position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing. The FCS Emergency Post Shutdown Plan Implementing Procedures will continue to identify engineering resources as augmented positions with specific training and qualification requirements for assigned personnel in accordance with the site training program. The required training courses and requalification frequencies will be unchanged in the post-shutdown condition. However, these positions will no longer be identified as on-call positions.</p> <p>Re-lettered subsequent steps.</p>

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, 4.6.2.D	Primary Systems Engineer duties include providing engineering analysis and troubleshooting in that field of expertise.	Deleted	<p>The on-call Primary Systems Engineer position will not exist in the post-shutdown ERO. The Engineering Coordinator (position title change) in the TSC will assume this function as needed.</p> <p>The proposed elimination of the Primary Systems Engineer position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing. The FCS Post Shutdown Emergency Plan Implementing Procedures will continue to identify engineering resources as augmented positions with specific training and qualification requirements for assigned personnel in accordance with the site training program. The required training courses and requalification frequencies will be unchanged in the post-shutdown condition. However, these positions will no longer be identified as on-call positions.</p>

FCS Emergency Plan Change Summary

<b>Emergency Plan Section</b>	<b>Before (Rev. 1)</b>	<b>After (Pending Revision Number)</b>	<b>Reason for Change</b>
Section B, 4.7.2.A	Chemistry Technician duties include evaluating and performing all chemistry activities on site. Act as Chemistry Coordinator until relieved.	Chemistry Technician duties include evaluating and performing all chemistry activities on site.	The Chemistry Coordinator position will not exist in the post-shutdown ERO. The OSC Director and the TSC Protective Measures Coordinator will perform the functions as needed. The proposed elimination of the Chemistry Coordinator position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing. Duties and responsibilities will be transferred to remaining ERO positions.
Section B, 4.7.2.B	Dosimetry Technician duties include issuing Dosimetry and performing dose extensions as needed.	Deleted	The Dosimetry Technician position will not exist in the post-shutdown ERO. The TSC Protective Measures Coordinator will perform the functions as needed. The proposed elimination of the Dosimetry Technician position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing. Duties and responsibilities will be transferred to remaining ERO positions.  Re-lettered subsequent steps.
Section B, 4.7.2.C	Electrical Maintenance Technicians (two positions) duties include providing repairs and corrective actions for plant electrical equipment as directed.	Electrical Maintenance Technician duties include providing repairs and corrective actions for plant electrical equipment as directed.	The on-call technician positions will not exist in the post-shutdown ERO. Technicians will be called in on an as needed basis.

FCS Emergency Plan Change Summary

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, 4.7.2, F	Operations Liaison duties include obtaining plant status/Control Room information from the Control Room Operations Liaison and transmitting this information to the OSC staff as needed. [AR 11390]	Deleted	<p>The OSC Operations Liaison position will not exist in the post-shutdown ERO, as previously described. The TSC Ops Liaison will perform the functions as needed.</p> <p>The proposed elimination of the Operations Liaison position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing.</p> <p>Re-lettered subsequent steps.</p>
Section B, 4.7.2.G	Radiation Protection Technicians (five positions) duties include providing radiological surveys and job coverage to repair and corrective action teams as directed.	Radiation Protection Technicians (three positions) duties include providing radiological surveys and job coverage to repair and corrective action teams as directed.	The augmenting Radiation Protection Technician positions will be reduced from five to three in the post-shutdown ERO. The spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The duties and coverage required for the position is reduced.

<b>Emergency Plan Section</b>	<b>Before (Rev. 1)</b>	<b>After (Pending Revision Number)</b>	<b>Reason for Change</b>
Section B, 4.7.2.H	<p>H. The Radiation Protection Coordinator duties include:</p> <ol style="list-style-type: none"> <li>1. Forming and preparing emergency response teams as directed by the OSC Director.</li> <li>2. Coordinating all radiation protection activities onsite.</li> <li>3. Keeping the OSC Director and TSC Protective Measures Coordinator informed of the status of all radiation protection activities onsite.</li> <li>4. Fulfilling the minimum staffing position of Radiation Protection Technician, if required.</li> </ol>	<p>H. The Protective Measures Coordinator duties include coordinating all radiation protection activities onsite.</p>	<p>The Radiation Protection Coordinator position will not exist in the post-shutdown ERO, as previously described. The OSC Director, RP Technicians, and the TSC Protective Measures Coordinator will perform the functions as needed. The proposed elimination of the Radiation Protection Coordinator position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing. Duties and responsibilities will be transferred to remaining ERO positions.</p>
Section B, 4.8.1.A	Emergency Director Duties are described in Section 3.2 and 4.4.5	Emergency Director duties are described in Section 3.2 and 4.4.4	Editorial revision to reflect the revised numbering scheme resulting from changes to the Post Shutdown Emergency Plan described within this table.
Section B, 4.8.1.C NOTE	Only one of the positions described in Step 4.8.1C or Step 4.8.10 is required for minimum staffing.	Deleted	The Dose Assessment Coordinator position (4.8.1D) will not exist in the post-shutdown ERO, therefore eliminating the need for the NOTE.

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, 4.8.1.C	<p>Protective Measures Manager duties include:</p> <ol style="list-style-type: none"> <li>1. Monitoring dose assessment operations performed, and keeping the Emergency Director informed of projections and field survey results.</li> <li>2. Evaluating site radiological conditions and necessary personnel protective measures.</li> <li>3. Preparing and submitting state update information, including Protective Action Recommendations, to the Emergency Director, state and federal officials.</li> <li>4. Coordinating technical briefings for the offsite agencies as requested.</li> </ol>	<p>Protective Measures Manager duties include:</p> <ol style="list-style-type: none"> <li>1. Directing dose assessment operations performed, coordinating OPPD field teams, and keeping the Emergency Director informed of projections and field survey results.</li> <li>2. Evaluating site radiological conditions and necessary personnel protective measures.</li> <li>3. Preparing and submitting state update information, including Protective Action Recommendations, to the Emergency Director, state and federal officials.</li> <li>4. Coordinating technical briefings for the offsite agencies as requested.</li> <li>5. Comparing dose projections against field team results.</li> <li>6. Comparing dose projections and field team results with state and federal agency results.</li> </ol>	<p>The Dose Assessment Coordinator position will not exist in the post-shutdown ERO, as previously described. The Protective Measures Manager will perform these assigned duties as needed.</p>

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Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, 4.8.1.D	Dose Assessment Coordinator duties include: 1. Directing offsite dose assessments and the associated Protective Action Recommendations (PARs). 2. Coordinating OPPD field teams. 3. Comparing dose projections against field team results. 4. Comparing dose projections and field team results with state and federal agency results.	Deleted	The Dose Assessment Coordinator position will not exist in the post-shutdown ERO, as previously described. The proposed elimination of the Dose Assessment Coordinator position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing. The Protective Measures Manager and Dose Assessment Specialist will perform these duties as needed. Re-lettered subsequent steps.
Section B, 6.10	EP-FC-1001 Addendum 1, On-Shift Staffing Analysis Report	Fort Calhoun Station Analysis of Proposed Post-Shutdown On-Shift Staff, August 2016	Revised to address the analysis used to develop the Post-Shutdown LAR.
Section B, Attachment 1-Table B-1 (On Shift Minimum Number/Title column, 1st line)	1 Shift Manager (SRO)	1 Shift Manager (SRO/CFH)	The title change from Senior Reactor Operator to Certified Fuel Handler (CFH) is dependent upon NRC approval of proposed changes to Technical Specifications. Implementation of the Emergency Plan as revised in this LAR is not dependent on prior NRC approval of the proposed changes to the FCS Technical Specifications.
Section B, Attachment 1-Table B-1 (On Shift Minimum Number/Title column, 1st line)	Unit Supervisor (SRO)	Control Room Operator (SRO or RO/CFH)***	Position title change, as previously discussed.
Section B, Attachment 1-Table B-1 (On Shift Minimum Number/Title column, 1st line)	2 Reactor Operators (RO)	Deleted	The Reactor Operator position will not exist in the post-shutdown ERO, as previously described.

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Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, Attachment 1-Table B-1 (On Shift Minimum Number/Title column, 1st line)	2 Equipment Operators	1 Equipment Operator/NCO	<p>The proposed staffing of one NCO has been evaluated in the FCS analysis of proposed post-shutdown on-shift staffing in conjunction with the postulated accidents that will be applicable in the permanently defueled condition.</p> <p>The title change from Equipment Operators to NCOs is dependent upon NRC approval of proposed changes to Technical Specifications. Implementation of the Emergency Plan as revised in this LAR is not dependent on prior NRC approval of the proposed changes to the FCS Technical Specifications.</p>
Section B, Attachment 1-Table B-1 (On Shift Minimum Number/Title column, 3rd line)	1 Control Room Communicator	1 Control Room Operator (SRO or RO/CFH)***	The Control Room Communicator position will not exist in the post-shutdown ERO, as previously described. The Control Room Operator will assume these responsibilities as directed by the Shift Manager.
Section B, Attachment 1-Table B-1 (On Shift Minimum Number/Title column, 4th line)	1 Habitability Technician	Deleted	The Habitability Technician position will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 1-Table B-1 (On Shift Minimum Number/Title column, 4th line)	1 Chemistry Technician	Deleted	The Chemistry Technician position will not exist in the post-shutdown on-shift staff, as previously described.

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Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, Attachment 1-Table B-1 (On Shift Minimum Number/Title column, 5th line)	1 Shift Technical Advisor***	Deleted	The Shift Technical Advisor position will not exist in the post-shutdown on-shift staff, as previously described.
Section B, Attachment 1-Table B-1 (On Shift Minimum Number/Title column, 5 <sup>th</sup> line)	1** Equipment Operator (2 instances)	1** Equipment Operator/NCO (2 instances)	The title change from Equipment Operator to NCO is dependent upon NRC approval of proposed changes to Technical Specifications. Implementation of the Emergency Plan as revised in this LAR is not dependent on prior NRC approval of the proposed changes to the FCS Technical Specifications.
Section B, Attachment 1-Table B-1 (On Shift Minimum Number/Title column, 6th line)	2** R.P. Technicians	1 R.P. Technician	The Habitability Technician position (serving as the 2 <sup>nd</sup> RP Technician) will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 1-Table B-1 (Goals for 1 hour Augmentation Minimum Number/Title column, 2nd line)	1 CR Coordinator OR	Deleted	The Control Room augmenting positions, including the Control Room Coordinator position will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 1-Table B-1 (Goals for 1 hour Augmentation Minimum Number/Title column, 3 <sup>rd</sup> line)	1 CR ENS Communicator	Deleted	The Control Room augmenting positions, including the Control Room ENS Communicator position, will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 1-Table B-1 (Goals for 1 hour Augmentation Minimum Number/Title column, 3 <sup>rd</sup> line)	1 Communicator in TSC	Deleted	The TSC Communicator position will not exist in the post-shutdown ERO, as previously described.

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<b>Emergency Plan Section</b>	<b>Before (Rev. 1)</b>	<b>After (Pending Revision Number)</b>	<b>Reason for Change</b>
Section B, Attachment 1-Table B-1 (Goals for 1 hour Augmentation Minimum Number/Title column, 4 <sup>th</sup> line)	2 R.P. Technicians	Deleted	These positions have no defined tasks in procedures. All offsite survey tasks are currently performed by the Field Team Technicians, which are maintained.
Section B, Attachment 1-Table B-1 (Goals for 1 hour Augmentation Minimum Number/Title column, 4 <sup>th</sup> line)	2 R.P. Technicians	1 R.P. Technician	The spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The duties and coverage required for the position is reduced.
Section B, Attachment 1-Table B-1 (Goals for 1 hour Augmentation Minimum Number/Title column, 5 <sup>th</sup> line)	1 Reactor Safety Coordinator	1 Engineering Coordinator	Position title change, as previously described.
Section B, Attachment 1-Table B-1 (Goals for 1 hour Augmentation Minimum Number/Title column, 5 <sup>th</sup> line)	1 Electrical and I&C Engineer	Deleted	The on-call I&C Electrical Systems Engineer position will not exist in the post-shutdown ERO, as previously described. The Engineering Coordinator (position title change) in the TSC will assume this function as needed.
Section B, Attachment 1-Table B-1 (Goals for 1 hour Augmentation Minimum Number/Title column, 5 <sup>th</sup> line)	1 Primary Systems Engineer	Deleted	The on-call Primary Systems Engineer position will not exist in the post-shutdown ERO, as previously described. The Engineering Coordinator (position title change) in the TSC will assume this function as needed.

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<b>Emergency Plan Section</b>	<b>Before (Rev. 1)</b>	<b>After (Pending Revision Number)</b>	<b>Reason for Change</b>
Section B, Attachment 1-Table B-1 (Goals for 1 hour Augmentation Minimum Number/Title column, 5 <sup>th</sup> line)	1 Equipment Operator	1 Equipment Operator/NCO	The title change from Equipment Operator to NCO is dependent upon NRC approval of proposed changes to Technical Specifications. Implementation of the Emergency Plan as revised in this LAR is not dependent on prior NRC approval of the proposed changes to the FCS Technical Specifications.
Section B, Attachment 1-Table B-1 (Goals for 1 hour Augmentation Minimum Number/Title column, 5 <sup>th</sup> line)	2 Electrical Maintenance Technicians	1 Electrical Maintenance Technicians	The spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The duties and coverage required for the position is reduced.
Section B, Attachment 1-Table B-1 (Goals for 1 hour Augmentation Minimum Number/Title column, 6 <sup>th</sup> line)	2 R.P. Technicians	1 R.P. Technician	The spectrum of credible accidents and operational events, and the quantity and complexity of activities required for the safe storage of spent nuclear fuel is reduced as compared to an operating plant. The duties and coverage required for the position is reduced.
Section B, Attachment 1-Table B-1 (Goals for 1 hour Augmentation Minimum Number/Title column, 6 <sup>th</sup> line)	1 R.P. Coordinator	Deleted	The Radiation Protection Coordinator position will not exist in the post-shutdown ERO, as previously described.

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Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, Attachment 1-Table B-1 (Goals for 1 hour Augmentation Minimum Number/Title column,6th line)	1 Dosimetry Technician	Deleted	The Dosimetry Technician position will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 2-Figure B-2	S – ED Secretary	Deleted	The ED Secretary position will not exist in the post-shutdown ERO. The proposed elimination of the ED Secretary position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing.
Section B, Attachment 2-Figure B-2	S – Emergency Response Coordinator	Deleted	The Emergency Response Coordinator position will not exist in the post-shutdown ERO. The proposed elimination of the Emergency Response Coordinator position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing.
Section B, Attachment 2-Figure B-2	M – EOF Dose Assessment Coordinator	Deleted	The EOF Dose Assessment Coordinator position will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 2-Figure B-2	S – EOF Dose Assessment Assistant	Deleted	The EOF Dose Assessment Assistant position will not exist in the post-shutdown ERO. The proposed elimination of the EOF Dose Assessment Assistant position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing.

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<b>Emergency Plan Section</b>	<b>Before (Rev. 1)</b>	<b>After (Pending Revision Number)</b>	<b>Reason for Change</b>
Section B, Attachment 2-Figure B-2	S – CHP Communicator	Deleted	The CHP Communicator position will not exist in the post-shutdown ERO. The EOF Protective Measures Manager and the EOF Technical Liaison will perform the functions as needed. The proposed elimination of the CHP Communicator position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing. Duties and responsibilities will be transferred to remaining ERO positions.
Section B, Attachment 2-Figure B-2	S – Communications Specialist	Deleted	The Communications Specialist position will not exist in the post-shutdown ERO. The proposed elimination of the Communications Specialist position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing.
Section B, Attachment 2-Figure B-2	S – EOF Clerical Assistant	Deleted	The EOF Clerical Assistant position will not exist in the post-shutdown ERO. The EOF Information Specialist and the Admin Logistics Manager will perform the functions as needed. The proposed elimination of the EOF Clerical Assistant position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing. Duties and responsibilities will be transferred to remaining ERO positions.

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<b>Emergency Plan Section</b>	<b>Before (Rev. 1)</b>	<b>After (Pending Revision Number)</b>	<b>Reason for Change</b>
Section B, Attachment 2-Figure B-2	S – EOF Status Board Keeper	Deleted	The EOF Status Board Keeper position will not exist in the post-shutdown ERO. The proposed elimination of the EOF Status Board Keeper position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing.
Section B, Attachment 2-Figure B-2	S – EOF Secretary	Deleted	The EOF Secretary position will not exist in the post-shutdown ERO. The proposed elimination of the EOF Secretary position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing.
Section B, Attachment 2-Figure B-2	S – IT Specialist	Deleted	The IT Specialist position will not exist in the post-shutdown ERO. The proposed elimination of the IT Specialist position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing.

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Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, Attachment 2-Figure B-2	Public Inquiry Supervisor	Deleted	The Public Inquiry Supervisor position will not exist in the post-shutdown ERO. The JIC Manager and Public Inquiry Specialist will perform this function as needed. The proposed elimination of the Public Inquiry Supervisor position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing. Duties and responsibilities will be transferred to remaining ERO positions.
Section B, Attachment 2-Figure B-2	2S – SD Secretary	Deleted	The Site Director Secretary position will not exist in the post-shutdown ERO. The proposed elimination of the Site Director Secretary position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing.
Section B, Attachment 2-Figure B-2	M – COP Communicator	Deleted	The TSC COP Communicator position will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 2-Figure B-2	S – OSC ERMS Operator	Deleted	The OSC ERMS Operator position will not exist in the post-shutdown ERO. The proposed elimination of the OSC ERMS Operator position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing.
Section B, Attachment 2-Figure B-2	A – OSC Operations Liaison	Deleted	The OSC Operations Liaison position will not exist in the post-shutdown ERO, as previously described.

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Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, Attachment 2-Figure B-2	S – Medical Coordinator	Deleted	The Medical Coordinator position will not exist in the post-shutdown ERO. The OSC Director will perform the functions as needed. The proposed elimination of the OSC Medical Response Coordinator position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing. Duties and responsibilities will be transferred to remaining ERO positions.
Section B, Attachment 2-Figure B-2	M/A – Radiation Protection Coordinator	Deleted	The Radiation Protection Coordinator position will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 2-Figure B-2	S – OSC Radio Operator (2)	Deleted	The OSC Radio Operator position will not exist in the post-shutdown ERO. The proposed elimination of the OSC Radio Operator position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing.
Section B, Attachment 2-Figure B-2	A – OSC Dosimetry Technician	Deleted	The OSC Dosimetry Technician position will not exist in the post-shutdown ERO, as previously described.

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<b>Emergency Plan Section</b>	<b>Before (Rev. 1)</b>	<b>After (Pending Revision Number)</b>	<b>Reason for Change</b>
Section B, Attachment 2-Figure B-2	S – OSC Accountability Clerk	Deleted	The OSC Accountability Clerk position will not exist in the post-shutdown ERO. The proposed elimination of the OSC Accountability Clerk position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing.
Section B, Attachment 2-Figure B-2	S – Chemistry Coordinator	Deleted	The Chemistry Coordinator position will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 2-Figure B-2	S – Maintenance Coordinator (2)	Deleted	The Maintenance Coordinator position will not exist in the post-shutdown ERO. The OSC Director will perform the functions as needed. The proposed elimination of the Maintenance Coordinator position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing. Duties and responsibilities will be transferred to remaining ERO positions.
Section B, Attachment 2-Figure B-2	S – OSC Maintenance Planners	Deleted	The OSC Maintenance Planner position will not exist in the post-shutdown ERO. The proposed elimination of the OSC Maintenance Planner position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing.

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Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, Attachment 2-Figure B-2	S - Storekeeper	Deleted	The Storekeeper position will not exist in the post-shutdown ERO. The proposed elimination of the Store Keeper position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing.
Section B, Attachment 2-Figure B-2	A – Control Room Coordinator (Shift Manager Until Relieved)	Deleted	The Control Room Coordinator position will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 2-Figure B-2	A –CR ERMS Communicator	Deleted	The CR ERMS Communicator position will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 2-Figure B-2	A – Equipment Operator	Deleted	The augmenting Equipment Operator position will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 2-Figure B-2	S – CR Data Collector	Deleted	The CR Data Collector position will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 2-Figure B-2	S – CR Dose Assessment Specialist	Deleted	The Control Room Dose Assessment Specialist position will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 2-Figure B-2	S – CR Accountability Clerk	Deleted	The CR Accountability position will not exist in the post-shutdown ERO, as previously described.

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<b>Emergency Plan Section</b>	<b>Before (Rev. 1)</b>	<b>After (Pending Revision Number)</b>	<b>Reason for Change</b>
Section B, Attachment 2-Figure B-2	S – CR Extra Operators	Deleted	The CR Extra Operator position will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 2-Figure B-2	B - Control Room Supervisor	B - Control Room Operator	Title change as previously described.
Section B, Attachment 2-Figure B-2	2B – Reactor Operator	Deleted	The Reactor Operator position will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 2-Figure B-2	B – Shift Technical Advisor	Deleted	The Shift Technical Advisor position will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 2-Figure B-2	B – CR Communicator	Deleted	The Control Room Communicator position will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 2-Figure B-2	S – Shift Chemist	Deleted	The Shift Chemist position will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 2-Figure B-2	S – Habitability Technician	Deleted	The Habitability Technician position will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 2-Figure B-2	S – TSC Status Board Keeper	Deleted	The TSC Status Board Keeper position will not exist in the post-shutdown ERO.
Section B, Attachment 2-Figure B-2	2S – TSC Administrative Assistant	Deleted	The TSC Administrative Assistant position will not exist in the post-shutdown ERO.
Section B, Attachment 2-Figure B-2	M – Reactor Safety Coordinator	M-Engineering Coordinator	Title change as previously described.

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<b>Emergency Plan Section</b>	<b>Before (Rev. 1)</b>	<b>After (Pending Revision Number)</b>	<b>Reason for Change</b>
Section B, Attachment 2-Figure B-2	S – Reactor Engineer	Deleted	The Reactor Engineer position will not exist in the post-shutdown ERO. The TSC Reactor Safety coordinator (retitled to Engineering Coordinator) will perform the functions as needed. The proposed elimination of the Reactor Engineer position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing. Duties and responsibilities will be transferred to remaining ERO positions.
Section B, Attachment 2-Figure B-2	1A/1S – Electrical/I&C Systems Engineer	Deleted	The Electrical/I&C Systems Engineer position will not exist in the post-shutdown ERO, as previously described.
Section B, Attachment 2-Figure B-2	A – Primary Systems Engineer	Deleted	The Primary Systems Engineer position will not exist in the post-shutdown ERO, as previously described.

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Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section B, Attachment 2-Figure B-2	S – Secondary Systems Engineer	Deleted	The Secondary Systems Engineer position will not exist in the post-shutdown ERO. The TSC Reactor Safety coordinator (retitled to Engineering Coordinator) will perform the functions as needed. The proposed elimination of the Secondary Systems Engineer position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing. Duties and responsibilities will be transferred to remaining ERO positions.
Section B, Attachment 2-Figure B-2	S – CHP Communicator	Deleted	The CHP Communicator position will not exist in the post-shutdown ERO. The TSC Protective Measures Coordinator and the TSC Ops Liaison will perform the functions as needed. The proposed elimination of the CHP Communicator position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing. Duties and responsibilities will be transferred to remaining ERO positions.
Section B, Attachment 2-Figure B-2, NOTE 1	For activation only, either a Dose Assessment Coordinator or a Protective Measures Manager is required.	For activation only, a Protective Measures Manager is required.	The Dose Assessment Coordinator position will not exist in the post-shutdown ERO as previously described.

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<b>Emergency Plan Section</b>	<b>Before (Rev. 1)</b>	<b>After (Pending Revision Number)</b>	<b>Reason for Change</b>
Section B, Attachment 2-Figure B-2, NOTE 2	Minimum staffing for the OSC is an OSC Director, one RP Technician or the RP Coordinator and one other person to form a team.	Minimum staffing for the OSC is an OSC Director, one RP Technician and one other person to form a team.	The RP Coordinator position will not exist in the post-shutdown ERO as previously described.
Section D, 1.1	The Emergency Classification scheme is based on NEI-99-01, Revision 5, Methodology for Development of Emergency Action Levels.	The Emergency Classification scheme is based on NEI-99-01, Revision 6, Development of Emergency Action Levels for Non-Passive Reactors.	Editorial change to reflect previous EAL update.
Section D, 2.4 3 <sup>rd</sup> Sentence	Immediate actions to be taken in response to conditions involving abnormal plant operating parameters are detailed in the Fort Calhoun Station Emergency Operating Procedures, Abnormal Operating Procedures and Operating Instructions. Other immediate actions and follow-up actions are identified in Section J of this plan and are described in detail in applicable Emergency Plan Implementing Procedures, listed in Appendix C of this plan.	Immediate actions to be taken in response to conditions involving abnormal plant operating parameters are detailed in the Fort Calhoun Station Abnormal Operating Procedures and Operating Instructions. Other immediate actions and follow-up actions are identified in Section J of this plan and are described in detail in applicable Emergency Plan Implementing Procedures, listed in Appendix C of this plan.	FCS will no longer be an operating nuclear power plant.

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section D, 2.6	In using the ICs as the basis for initiating emergency response activity, there may be instances when the plant operating staff cannot determine which of two emergency classifications is appropriate for a particular occurrence. In those cases where the appropriate classification can not be defined in a short period of time, the occurrence should be treated as the higher of the two classifications and the appropriate response for that level should be initiated.	In using the ICs as the basis for initiating emergency response activity, there may be instances when the plant staff cannot determine which of two emergency classifications is appropriate for a particular occurrence. In those cases where the appropriate classification cannot be defined in a short period of time, the occurrence should be treated as the higher of the two classifications and the appropriate response for that level should be initiated.	FCS will no longer be an operating nuclear power plant. The word "operating" is deleted from this section to reflect the permanently shut down and defueled condition.  The words "can not" are changed to "cannot". Editorial change.
Section D, 2.7.2	The primary purpose for this classification is to ensure that the operating plant staff recognizes the initiating condition, takes appropriate action, such as assessment and verification, and comes to an appropriate state of readiness to respond in the event that the condition worsens.	The primary purpose for this classification is to ensure that the plant staff recognizes the initiating condition, takes appropriate action, such as assessment and verification, and comes to an appropriate state of readiness to respond in the event that the condition worsens.	FCS will no longer be an operating nuclear power plant. The word "operating" is deleted from this section to reflect the permanently shut down and defueled condition.

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Table D-1 – Emergency Classification of Postulated Accidents	Fuel Handling Accident (in Containment) Control Element Assembly Ejection Incident Loss of Coolant Accident Single Reactor Coolant Pump Seizure Steam Generator Tube Rupture Main Steam Line Break	Deleted	FCS will no longer be an operating nuclear power plant. The deleted postulated accidents will no longer be applicable to FCS since it will be defueled.
Section E, 2.1.1	As discussed in that section, they are consistent with NEI-99-01, Methodology Development of Emergency Action Levels, ...	As discussed in that section, they are consistent with NEI-99-01, Development of Emergency Action Levels for Non-Passive Reactors,...	Editorial change to reflect previous EAL update.
Section E, 2.2.2.C	Emergency information to the county Emergency Operations Centers (Washington, Harrison and Pottawattamie Counties) is given verbally using the Conference Operation (COP) Network. These messages discuss general operational progress of the plant.	Emergency information to the county Emergency Operations Centers (Washington, Harrison and Pottawattamie Counties) is given verbally using the Conference Operation (COP) Network. These messages discuss general conditions of the plant.	FCS will no longer be an operating nuclear power plant. The term “operational progress” is deleted from this section to reflect the permanently shut down and defueled condition.
Section F, 2.3, Table, right column heading	Prlmary/Alternate Communications Responsibility	Primary/Alternate Communications Responsibility	Editorial change. Corrected typographical error. Changed “Prlmary” to “Primary”.
Section F, 2.3, Table, right column, 1st line	Shift Manager (Control Room Coordinator)/Control Room Communicator	Shift Manager (Control Room Operator)	The Control Room Coordinator and Control Room Communicator positions will not exist in the post-shutdown ERO, as previously described.  Editorial change. Closed parenthesis.

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<b>Emergency Plan Section</b>	<b>Before (Rev. 1)</b>	<b>After (Pending Revision Number)</b>	<b>Reason for Change</b>
Section F, 2.3, Table, right hand column, 2 <sup>nd</sup> line	Site Director/TSC COP Communicator	Site Director	The TSC COP Communicator position will not exist in the post-shutdown ERO, as previously described.
Section F, 2.16.1	This system (similar to the COP and Ops Liaison Network) provides dedicated conference capability between the Control Room Coordinator, TSC Site Director, OSC Director, EOF Emergency Director and the JIC Manager. The purpose of the system is to provide information flow between the directors of all the emergency facilities.	This system (similar to the COP and Ops Liaison Network) provides dedicated conference capability between the Control Room, TSC Site Director, OSC Director, EOF Emergency Director and the JIC Manager. The purpose of the system is to provide information flow between the directors of all the emergency facilities.	The Control Room Coordinator position will not exist in the post-shutdown ERO, as previously described. However, the capability to communicate via the MOP network between the Control Room, TSC, OSC, EOF, and JIC via the MOP Network will continue.
Section F, 2.17	joint Information Center Hot Line	Joint Information Center Hot Line	Editorial change.
Section F, 2.19.1	WEBeOC	WebEOC	Editorial change.
Section F, Figure F-5, Heading	Figure F-5 - Operations Liaison Network	Figure F-5 - Operations Liaison Network	Editorial change. Corrected spelling of "Liaison."
Section H (Corrected to "G", 2.1, 3 <sup>rd</sup> paragraph	The Joint Information Center also serves as the public inquiry center for OPPD, State and Federal authorities. The Public Inquiry Supervisor will serve as OPPD's representative in this area.	The Joint Information Center also serves as the public inquiry center for OPPD, State and Federal authorities.	The Public Inquiry Supervisor position will not exist in the post-shutdown ERO, as previously described.
Section H (Corrected to "G"), 3.0, , 5 <sup>th</sup> sentence	An JIC Technical Liaison at the Joint Information Center will assist in nuclear related information matters.	A JIC Technical Liaison at the Joint Information Center will assist in nuclear related information matters.	Editorial change.

FCS Emergency Plan Change Summary

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section H, 1.1.1	The TSC's primary function is the collection, analysis, and distribution of technical data required to support plant operations personnel during an emergency. This operational support is provided from a separate and distinct center, thus reducing personnel congestion in the Control Room. The TSC has the capability to perform EOF functions and responsibilities until that facility can be fully activated.	The TSC's primary function is the collection, analysis, and distribution of technical data required to support plant personnel during an emergency. This support is provided from a separate and distinct center, thus reducing personnel congestion in the Control Room. The TSC has the capability to perform EOF functions and responsibilities until that facility can be fully activated.	FCS will no longer be an operating nuclear power plant. The words "plant operations" and "operational" are deleted from this section to reflect the permanently shut down and defueled condition.
Section H, 1.2.1.C	An official copy of the Fort Calhoun Station Operating Manual. (This includes the Operating Procedures and Instructions, Emergency Operation Procedures, the Radiological Emergency Response Plan and Emergency Plan Implementing Procedures.	An official copy of the Fort Calhoun Station Operating Manual. (This includes the Operating Procedures and Instructions, the Post Shutdown Radiological Emergency Response Plan and Emergency Plan Implementing Procedures.	FCS will no longer be an operating nuclear power plant.
Section H, 1.2.1.A	St4atus boards.	L. Status boards	Editorial change. Corrected typographical error. Corrected step lettering.  Re-numbered subsequent steps.
Section H, 1.2.1.L.	L. The ability to provide output displays to the OSC and EOF.	M. The ability to provide output displays to the OSC and EOF.	Editorial change. Corrected step lettering.

FCS Emergency Plan Change Summary

<b>Emergency Plan Section</b>	<b>Before (Rev. 1)</b>	<b>After (Pending Revision Number)</b>	<b>Reason for Change</b>
Section H, 2.2.1.K	Complete latest revision of the Fort Calhoun Station Operating Manual. (This includes the Operating Procedures and Instructions, Emergency Operating Procedures, the Radiological Emergency Response Plan and Emergency Plan Implementing Procedures).	Complete latest revision of the Fort Calhoun Station Operating Manual. (This includes the Operating Procedures and Instructions, the Post Shutdown Radiological Emergency Response Plan and Emergency Plan Implementing Procedures).	FCS will no longer be an operating nuclear power plant.
Section H, 3.3.1	OSC management is comprised of an OSC Director and three coordinators representing the radiation protection, chemistry and maintenance disciplines. Technicians comprise the balance of the OSC personnel (See Section B of this plan for a comprehensive organization definition).	OSC management is comprised of an OSC Director and three technicians representing the radiation protection, chemistry and maintenance disciplines. (See Section B of this plan for a comprehensive organization definition).	The three OSC coordinator positions will not exist in the post-shutdown ERO, as previously described. Technicians will perform these functions as needed.

<b>Emergency Plan Section</b>	<b>Before (Rev. 1)</b>	<b>After (Pending Revision Number)</b>	<b>Reason for Change</b>
Section H, 4.1.1	<p>The Control Room functions as the onsite location from which the nuclear power plant is operated and from which any ISFSI operations are coordinated. It is large enough to contain all the instrumentation, controls and displays for the nuclear systems, reactor coolant systems, steam systems, electrical systems, safety and accident monitoring systems. The Control Room plays a vital role in the Emergency Response Organization by providing the initial response actions needed to react to any emergency situation. The Control Room personnel will respond to all emergency situations in an attempt to mitigate the emergency and minimize the impact on the surrounding environment, health and safety of the public as well as plant personnel and equipment.</p>	<p>The Control Room functions as the onsite location from which the FCS systems are monitored and controlled and from which any ISFSI operations are coordinated. It is large enough to contain all the instrumentation, controls and displays for the nuclear systems, reactor coolant systems, steam systems, electrical systems, safety and accident monitoring systems. The Control Room plays a vital role in the Emergency Response Organization by providing the initial response actions needed to react to any emergency situation. The Control Room personnel will respond to all emergency situations in an attempt to mitigate the emergency and minimize the impact on the surrounding environment, health and safety of the public as well as plant personnel and equipment.</p>	<p>FCS will no longer be an operating nuclear power plant. Hence, the term “nuclear power plant” is replaced with “Fort Calhoun Station”, and the word “operated” is deleted from this section to reflect the permanently shut down and defueled condition.</p>
Section H, 4.2.1, 4 <sup>th</sup> bullet	<p>Technical Specifications for the nuclear power plant and the ISFSI (electronically)</p>	<p>Technical Specifications for FCS and the ISFSI (electronically)</p>	<p>FCS will no longer be an operating nuclear power plant. Hence, the term “nuclear power plant” is replaced with “Fort Calhoun Station” in this section to reflect the permanently shut down and defueled condition.</p>

FCS Emergency Plan Change Summary

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section H, Figure H-2	2 – TSC DIRECTOR 6 – SITE DIRECTOR SECRETARY 11 – TSC STATUS BOARD KEEPER 12 – COP COMMUNICATOR 16 – ELECTRICAL/I&C ENGINEER 17 – PRIMARY SYSTEMS ENGINEER 20 – REACTOR ENGINEER 21 – SECONDARY SYSTEMS ENGINEER 22 – CHP COMMUNICATOR	Updated Figure to remove positions.	Positions will not exist in the post-shutdown ERO as previously described.
Section H, Figure H-2	7 – REACTOR SAFETY COORDINATOR	7 – ENGINEERING COORDINATOR	Position title changed, as previously described.
Section H, Figure H-3	1 – TSC ACCOUNTABILITY CLERK	Updated Figure to remove position.	The TSC Accountability Clerk position will not exist in the post-shutdown ERO. The proposed elimination of the TSC Accountability Clerk position has been evaluated in the FCS analysis of proposed post-shutdown ERO staffing.

<b>Emergency Plan Section</b>	<b>Before (Rev. 1)</b>	<b>After (Pending Revision Number)</b>	<b>Reason for Change</b>
Section H, Figure H-4	3 – OSC CHEMISTRY COORDINATOR 4 – OSC RP COORDINATOR 5 – OSC MAINTENANCE COORDINATOR 6 – OSC MAINTENANCE PLANNER 7 – OSC STOREKEEPER 9 – OSC ACCOUNTABILITY CLERK 10 – OSC ERMS OPERATOR 11 – OSC RADIO OPERATOR 12 – OSC DOSIMETRY TECHNICIAN 13 – OSC MEDICAL COORDINATOR	Updated Figure to remove positions.	Positions will not exist in the post-shutdown ERO, as previously described.
Section H, Figure H-5	2. Emergency Director Secretary/ERMS 6. EOF Dose Assessment Coordinator 9. EOF Dose Assessment Assistant 14. EOF Secretary 15. EOF Clerical Assistant 16. EOF Status Board Keeper 17. EOF Communications Specialist 19. EOF Information Technology Specialist 20. EOF Emergency Response Coordinator 21. CHP Communicator	Updated figure to remove positions.	Positions will not exist in the post-shutdown ERO as previously described.

<b>Emergency Plan Section</b>	<b>Before (Rev. 1)</b>	<b>After (Pending Revision Number)</b>	<b>Reason for Change</b>
Section J, 1.4.5.A	Respiratory protective devices may be required in any situation arising from plant operations where an airborne radioactivity condition is potential or existent. In such cases, the air will be monitored and the necessary protective devices specified according to the concentration and type of airborne contaminants present. Monitoring and issue of respiratory protection equipment will be conducted in accordance with Radiation Protection Manual Procedures. Precautions will be taken to keep airborne contamination to a minimum through the use of proper engineering controls and decontamination.	Respiratory protective devices may be required where an airborne radioactivity condition is potential or existent. In such cases, the air will be monitored and the necessary protective devices specified according to the concentration and type of airborne contaminants present. Monitoring and issue of respiratory protection equipment will be conducted in accordance with Radiation Protection Manual Procedures. Precautions will be taken to keep airborne contamination to a minimum through the use of proper engineering controls and decontamination.	FCS will no longer be an operating nuclear power plant. Deleted the words, "in any situation arising from plant operations", to reflect the permanently shut down and defueled condition.
Section K, 1.2	The facility directors, Control Room Coordinator or Shift Manager in the Control Room, Site Director or TSC Director in the TSC, the OSC Director in the OSC or the Emergency Director in the EOF may authorize dose extension up to 5 Rem TEDE per year during declared events for workers in their facility.	The facility directors, Shift Manager in the Control Room, Site Director in the TSC, the OSC Director in the OSC or the Emergency Director in the EOF may authorize dose extension up to 5 Rem TEDE per year during declared events for workers in their facility.	The Control Room Coordinator position will not exist in the post-shutdown ERO, as previously described.

Emergency Plan Section	Before (Rev. 1)	After (Pending Revision Number)	Reason for Change
Section K, 1.5, 3 <sup>rd</sup> bullet	<p>Personnel responding to the site that require, but do not have, dosimetry will be issued dosimetry by Security or Radiation Protection personnel. The following ERO positions can also issue dosimetry when necessary:</p> <ul style="list-style-type: none"> <li>• Control Room: The Shift RP Technician or OSC RP Technicians</li> <li>• TSC: OSC RP Technicians</li> <li>• OSC: The OSC Dosimetry Technician or OSC RP Technicians</li> </ul>	<p>Personnel responding to the site that require, but do not have, dosimetry will be issued dosimetry by Security or Radiation Protection personnel. The following ERO positions can also issue dosimetry when necessary:</p> <ul style="list-style-type: none"> <li>• Control Room: The Shift RP Technician or OSC RP Technicians</li> <li>• TSC: OSC RP Technicians</li> <li>• OSC: The OSC RP Technicians</li> </ul>	<p>The OSC Dosimetry Technician position will not exist in the post-shutdown ERO, as previously described.</p>
Section L, 1.3	<p>All injuries at the station must be immediately reported to the Shift Manager, who will initiate response according to the Fort Calhoun Station Safety Manual, FCSG 15 7, Medical Emergencies. When the OSC is activated the OSC Director and the OSC Medical Coordinator will be responsible for response to medical emergencies.</p>	<p>All injuries at the station must be immediately reported to the Shift Manager, who will initiate response according to the Fort Calhoun Station Safety Manual, FCSG 15 7, Medical Emergencies. When the OSC is activated the OSC Director will be responsible for response to medical emergencies.</p>	<p>The OSC Medical Coordinator position will not exist in the post-shutdown ERO, as previously described.</p>
Section M, 2.2	<p>The Command and Control Position has the responsibility for authorizing reentry into a previously evacuated area. This could be the Shift Manager, Control Room Coordinator, Site Director, or Emergency Director depending on the stage that emergency response has reached.</p>	<p>The Command and Control Position has the responsibility for authorizing reentry into a previously evacuated area. This could be the Shift Manager, Site Director, or Emergency Director depending on the stage that emergency response has reached.</p>	<p>The Control Room Coordinator position will not exist in the post-shutdown ERO, as previously described.</p>

FCS Emergency Plan Change Summary

<b>Emergency Plan Section</b>	<b>Before (Rev. 1)</b>	<b>After (Pending Revision Number)</b>	<b>Reason for Change</b>
Section P, 1.1, 2 <sup>nd</sup> paragraph, Last Sentence	Radiological	Radiological	Editorial change. Corrected spelling of “radiological”.
Appendix C, 3 <sup>rd</sup> Paragraph	For Section D, Emergency Classification System, OPPD uses the guidance of NEI-99-01, Methodology for Development of Emergency Action Levels. This variance from NUREG-0654 has been approved by the NRC.	For Section D, Emergency Classification System, OPPD uses the guidance of NEI-99-01, Development of Emergency Action Levels for Non-Passive Reactors. This variance from NUREG-0654 has been approved by the NRC.	Editorial change to reflect previous EAL update.
Appendix C, Throughout	Adendum seismic	Addendum seismic	Editorial changes. Corrected spelling of “addendum” and “seismic” throughout Appendix.

**OMAHA PUBLIC POWER DISTRICT**

**FORT CALHOUN STATION**

**DOCKET NUMBER 50-285 / LICENSE NUMBER DPR-40**

**ATTACHMENT 3**

**PROPOSED REVISION TO THE FCS RERP PAGES**  
(copy with changes marked and a clean copy)

**OPPD NUCLEAR**

**POST-SHUTDOWN**

**RADIOLOGICAL EMERGENCY  
RESPONSE PLAN  
FOR FORT CALHOUN STATION**

## AREA DESCRIPTION

**1.0 PLANT LOCATION**

Fort Calhoun Station is located midway between Fort Calhoun and Blair, Nebraska, on the west bank of the Missouri River. The site consists of approximately 660.46 acres with an additional exclusion area of 582.18 acres on the northeast bank of the river directly opposite the plant buildings. The Fort Calhoun Station includes the Independent Spent Fuel Storage Installation (ISFSI), located within the protected area, centered approximately 200 meters north-northwest of the Containment Building. The distance from the reactor containment to the nearest site boundary is approximately 910 meters; and the distance to the nearest residence is beyond the site boundary. Except for the city of Blair and the villages of Fort Calhoun and Kennard, the area within a ten mile radius is predominantly rural. The land use within the ten mile radius is primarily devoted to general farming. There are no private businesses or public recreational facilities on the plant property. The DeSoto National Wildlife Refuge occupies approximately 7821 acres east of the plant site. This area is open to the public for day use year-round. Visitors to the refuge generally use areas from two to five miles from the plant. Estimates by the U.S. Fish and Wildlife Service place annual usage of the facility at approximately 120,000 for the Visitors Center and 400,000 for the refuge. The expected maximum daily usage of the facility has been placed at 2500 visitors for a winter weekday and 5000 on a summer weekend. The Boyer Chute Federal Recreation Area is a day use facility occupying approximately 2000 acres southeast of the plant site. Visitors to the recreation area generally use areas seven to ten miles from the plant. The estimates for annual usage of this facility is approximately 50,000 visitors.

The State of Nebraska operates the Fort Atkinson State Historic Park five and half miles southeast of the plant site. This day use facility is mostly seasonal and estimates place annual usage at 60,000. The State of Iowa maintains Wilson Island State Park with 275 camping spaces south of the DeSoto National Wildlife Refuge and four miles southeast of the plant site. The estimates for usage of this facility range from 500 on a winter weekday to 1000 on a summer weekend.

Two private facilities lie to the north of the plant along the Missouri River. The Cottonwood Marina is located approximately four and a half miles from the plant. Estimates place summer weekend usage at 200 people. Riverland Resort Park is a private campground lying directly south of Cottonwood Marina and ranging from four to four and a half miles from the plant. The campground has approximately 235 campsites and is open from April to October.

## POST SHUTDOWN RADIOLOGICAL EMERGENCY RESPONSE PLAN

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### 2.0 AREA INDUSTRIES

A listing of various industries located within a ten mile radius of the Fort Calhoun Station, including firm name, product, number of employees, and location from the plant site is contained in the Updated Safety Analysis Report.

### 3.0 AREA WATER SUPPLIES

Local public drinking water supplies are not taken from the Missouri River in this area. The first downstream intake is the city of Omaha approximately 19.5 miles downstream. Industrial water use is limited to cooling purposes in the Omaha area. Drinking water near the Fort Calhoun Station is obtained from either well or reservoirs. Since the known public and private water supplies originate at elevations higher than the river, radioactive liquids that might be discharged from the plant into the river should not contaminate these supplies.

There are also many private wells in the region which draw primarily upon ground water rather than on springs or other surface sources. Several marinas are located along the Missouri River, between 3 miles upstream from Blair and Omaha, 18 miles downstream. In the event of a significant waterborne release incident from the Fort Calhoun Station, the Nebraska Department of Environmental Control acting in conjunction with the Nebraska Department of Health, Division of Radiological Health and the U. S. Coast Guard are prepared to notify all downstream users of Missouri River water. Notification is made through OPPD management directly to the Metropolitan Utilities District (MUD) in the event of an inadvertent liquid release to the river. Swimming, boating and other recreational activities involving river water can be controlled by the Coast Guard until adequate surveys have been taken to determine when normal activities may be resumed.

## POST SHUTDOWN RADIOLOGICAL EMERGENCY RESPONSE PLAN

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### PURPOSE OF THE EMERGENCY PLAN

The purpose of the Fort Calhoun Station "Post-Shutdown Radiological Emergency Response Plan" (PSRERP) is to delineate an organization for coping with emergencies, to classify emergencies according to severity, define and assign responsibilities and authorities, and to clearly outline the most effective course of action and protective measures required to mitigate the consequences of an accident and to safeguard the public and station personnel in the event of an incident. The Emergency Plan Implementing Procedures (EPIP's), Radiation Protection procedures, Emergency Operating procedures and other station references are available at the plant to further assist personnel ~~for operating~~ during abnormal occurrences. The various emergency procedures are put into effect whenever a system, component or circuit failure could lead to a personnel hazard or major equipment failure. Emergency Operating Procedures are sufficiently detailed so that the plant is ~~placed, as expeditiously as possible,~~ maintained in a safe condition. The various procedures include such items as radiation hazards, weather conditions and availability of technical and ~~operating\_ plant~~ personnel.

## ACCIDENT CONSIDERATIONS

### 1.0 FUEL HANDLING ACCIDENT

The possibility of an incident during fuel handling is unlikely due to the many physical limitations imposed on fuel handling operations and systems. In addition, administrative restrictions placed on fuel handling procedures provide greater control. Nevertheless, the offsite consequences of dropping a spent fuel assembly and damaging the entire assembly have been evaluated and are documented in the Fort Calhoun Station, Unit No. 1 USAR, Section 14.18. Emergency onsite and offsite monitoring practices would begin immediately following the accident to determine actual consequences, and appropriate emergency actions would be taken. Emergency procedures addressing a Fuel Handling Incident provide emergency actions for this mishap.

The transfer cask that is used to transfer spent fuel (32 assembly capacity) contained within a dry shielded canister (DSC) from the Auxiliary Building to the ISFSI, has been analyzed for an 80 inch drop accident in the NUHOMS FSAR. The analysis determined that the DSC would retain its leak tight integrity for this 80 inch drop. This bounds the height of the transfer cask while it is being moved by the heavy-haul trailer between the Auxiliary Building and the ISFSI so that a release of radioactivity due to a drop event during transfer operations would not occur.

### 2.0 FIRES

#### 2.1 Internal Plant Fires (within the Protected Area)

Internal Plant fires are normally handled by the station's Fire Brigade, comprised of trained individuals from the Operations Department and Radiation Protection Department. All efforts are made to prevent the spread of airborne contamination should the fires occur within the Radiological Controlled Area.

#### 2.2 External Fires (outside the Protected Area)

External fires are controlled by local fire department response. In the event high airborne contamination constitutes a possible hazard to areas outside of the protected area, offsite survey teams/personnel can be dispatched immediately.

## POST SHUTDOWN RADIOLOGICAL EMERGENCY RESPONSE PLAN

### 3.0 EXPLOSION

Because of the accumulation of waste gases in the waste gas decay tanks, the possibility and consequences of an explosion have been considered. An explosion could result in an unexpected, uncontrolled release to the atmosphere of radioactive fission gases that were stored in the waste gas system. A failure of any of the waste gas decay tanks or associated piping could also result in a release of gaseous activity. The noble gases stored in the tanks would diffuse and become diluted during their transport to the site boundary. The projected Deep Dose Equivalent (DDE) at the exclusion area boundary would be less than 1.0 Rem. This conservative analysis is based upon 1% fuel cladding defects, and accumulation of all noble gases without release over a full core cycle. Emergency procedures addressing a Waste Gas Incident, would be placed into effect immediately and offsite monitoring teams would be dispatched downwind.

The ISFSI horizontal storage modules (HSM) are designed to protect the DSC's from the effects of explosions to ensure the DSC's retain their leak-tight integrity and prevent a release of radioactivity to the atmosphere. An analysis of the haul route used to transfer the DSC's from the Auxiliary Building to the ISFSI was performed, and it identified administrative controls needed to prevent explosions in the vicinity of the transfer cask (designed to withstand 3 psi overpressure) during spent fuel transfer operations.

### 4.0 TOXIC CHEMICAL RELEASE ACCIDENTS

The primary toxic chemical release accidents which may result in toxic gas concentrations at Fort Calhoun Station are shown below:

<u>TOXIC CHEMICAL</u>	<u>ACCIDENT</u>
Ammonia (NH <sub>3</sub> )	Rupture of two 25,000 ton offsite refrigerated tanks.
Ammonia	Rupture of two 30,000 gal. offsite non-refrigerated tanks.
Ammonia	Rupture of a 78 ton railroad tank car.
Ammonia	Rupture of a 2 ton tank truck.

The above accidents will not pose a hazard to control room personnel, due to toxic gas monitors located at the fresh air intake of the control room, which isolates the control room before the gases reach the toxic limit. The stringent odor of ammonia makes station personnel immediately aware of any leakage or toxic gas cloud. Spent Fuel storage at the ISFSI relies on passive means of decay heat removal (natural convection), so a toxic gas release does not challenge nuclear safety.

The toxic gas monitors sample for NH<sub>3</sub> and continuously monitor the fresh air to the control room during normal plant operations.

## POST SHUTDOWN RADIOLOGICAL EMERGENCY RESPONSE PLAN

At different phases of plant operation, Hydrogen and/or Nitrogen gases blanket the volume control tank and the waste gas system. Considering that the deleterious effect of these gases is the exclusion of oxygen, a release to the atmosphere diminishes the harmful effect and a serious hazard is eliminated.

In the event of an offsite accidental release of chemicals, within a five (5) mile radius of the Fort Calhoun Station, the Blair Fire Department emergency procedures require notification to the Fort Calhoun Station. The counties of Washington (Nebraska) and Harrison (Iowa) have agreed to notify the Fort Calhoun Station when hazardous chemical accidents occur within five miles of the station. Appropriate action is taken, especially in the control room, to ensure that air remains breathable. For long duration toxic accidents, six (6) hours of compressed air is available for five (5) control room operators coupled with provisions to obtain additional air within this time period.

### 5.0 MAJOR STEAM RELEASE

~~—The offsite consequences of a steam line rupture incident has been evaluated and is documented in the Fort Calhoun Station, Unit NO. 1 USAR. The maximum size steam line rupture is a circumferential double ended rupture of the 36 inch main steam header. The analysis of this incident at the site boundary is calculated to be 0.9 Rem TEDE. Plant personnel would be protected by normal health physics practices and procedures. Operator action follows the emergency procedures addressing a Steam Line Rupture with Loss of Offsite Power.~~

### 6.05.0 PERSONNEL INJURY

A fully stocked First Aid Room is available in the Plant. Immediate and temporary care may be given to the injured person using standard First Aid practices. If the injury involves contamination, efforts to decontaminate the injured person to reasonable levels are made prior to transfer to the First Aid Room or to offsite medical facilities. If decontamination is not practical, the injured person is covered in such a manner as to minimize the spread of contamination until either medical aid can be obtained or until the injured person can be transported to the UNMC Regional Radiation Health Center.

### 7.06.0 NATURAL DISASTERS

A natural disaster may occur which could initiate any of the accidents previously discussed. ~~The reactor may be placed in a shutdown condition, depending upon the anticipated or experienced severity of the disaster.~~ The Spent Fuel Pool and ISFSI ~~is~~ are designed to withstand natural phenomena, including the maximum hypothetical earthquake, design basis tornado and tornado-driven missiles, with no release of radioactivity.

## ASSIGNMENT OF ORGANIZATIONAL RESPONSIBILITY (ORGANIZATIONAL CONTROL)

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### 1.0 NON-OPPD SUPPORT ORGANIZATIONS

The following organizations may respond to a declared emergency at the Fort Calhoun Station. Each of these groups are capable of 24 hour response and operation. The details of their responsibilities are contained in their respective emergency response plans/procedures or if applicable, a Letter of Agreement between that organization and OPPD. Figure A-1 outlines the organizational interrelationships of various response organizations.

#### 1.1 Law Enforcement Support Organizations

- 1.1.1 Nebraska State Patrol
- 1.1.2 Iowa State Patrol
- 1.1.3 Washington County Sheriff's Department
- 1.1.4 Pottawattamie County Sheriff's Department
- 1.1.5 Harrison County Sheriff's Department
- 1.1.6 Douglas County Sheriff's Department

#### 1.2 Fire and Rescue Support Organizations

- 1.2.1 Blair Fire Department and Rescue Squad
- 1.2.2 Fort Calhoun Fire/Rescue
- 1.2.3 Missouri Valley Fire & Rescue Squad
- 1.2.4 Council Bluffs Fire and Ambulance Department

#### 1.3 Medical Support Organization

- 1.3.1 UNMC Regional Radiation Health Center

#### 1.4 Nebraska's Governmental Support Organizations

- 1.4.1 Nebraska Emergency Management Agency
- 1.4.2 Washington County Emergency Management Agency
- 1.4.3 Douglas County Emergency Management Agency

## ASSIGNMENT OF ORGANIZATIONAL RESPONSIBILITY (ORGANIZATIONAL CONTROL)

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- 1.4.4 Nebraska Health and Human Services, Regulation and Licensure
- 1.4.5 Region 5/6 Emergency Management Agency
- 1.4.6 Dodge County Emergency Management Agency
- 1.4.7 Sarpy County Emergency Management Agency
- 1.5 Iowa's Governmental Support Organizations
  - 1.5.1 Iowa Homeland Security and Emergency Management Division
  - 1.5.2 Iowa Department of Public Health
  - 1.5.3 Harrison County Emergency Management Agency (via Board of Supervisors)
  - 1.5.4 Pottawattamie County Emergency Management Agency (via Board of Supervisors)
  - 1.5.5 Pottawattamie County Division of Communications
  - 1.5.6 Crawford County Emergency Management Agency
- 1.6 Federal Government Support Organizations
  - 1.6.1 U.S. Coast Guard
  - 1.6.2 Environmental Protection Agency (EPA)
  - 1.6.3 Department of Energy (DOE)
  - 1.6.4 National Weather Service (NWS)
  - 1.6.5 U.S. Nuclear Regulatory Commission (NRC)
  - 1.6.6 Federal Emergency Management Agency (FEMA) Region VII
  - 1.6.7 Federal Aviation Administration (FAA)
  - 1.6.8 Department of the Interior, Branch of Global Seismology

## ASSIGNMENT OF ORGANIZATIONAL RESPONSIBILITY (ORGANIZATIONAL CONTROL)

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### 1.7 Industrial Support Organizations

1.7.1 Westinghouse Electric

1.7.2 Union Pacific Railroad

1.7.3 Institute of Nuclear Power Operations (INPO)

1.7.4 Institute of Nuclear Power Operations/Electric Power Research Institute/Nuclear Energy Institute

### 1.8 Other Support Organizations

1.8.1 Metropolitan Utilities District

1.8.2 Nebraska Public Power District (Cooper Nuclear Station)

1.8.3 National Weather Service

### 1.9 Monitoring and Decontamination Support Organizations

1.9.1 Omaha Fire Department Emergency Worker Decon

## **2.0 OPPD CONCEPT OF EMERGENCY OPERATIONS**

2.1 OPPD's overall goals are to mitigate any emergency conditions which may occur at the Fort Calhoun Station and to provide information and support to State and Local agencies needed to protect the health and safety of the general public.

2.2 A predesignated group is assigned to various roles to ensure capable emergency response and mitigation at the Fort Calhoun Station. These assignments are made to ensure that the administrative, managerial and technical support needed for accident mitigation are met. A sufficient number of individuals are assigned to these positions to ensure around-the-clock and continued long term support.

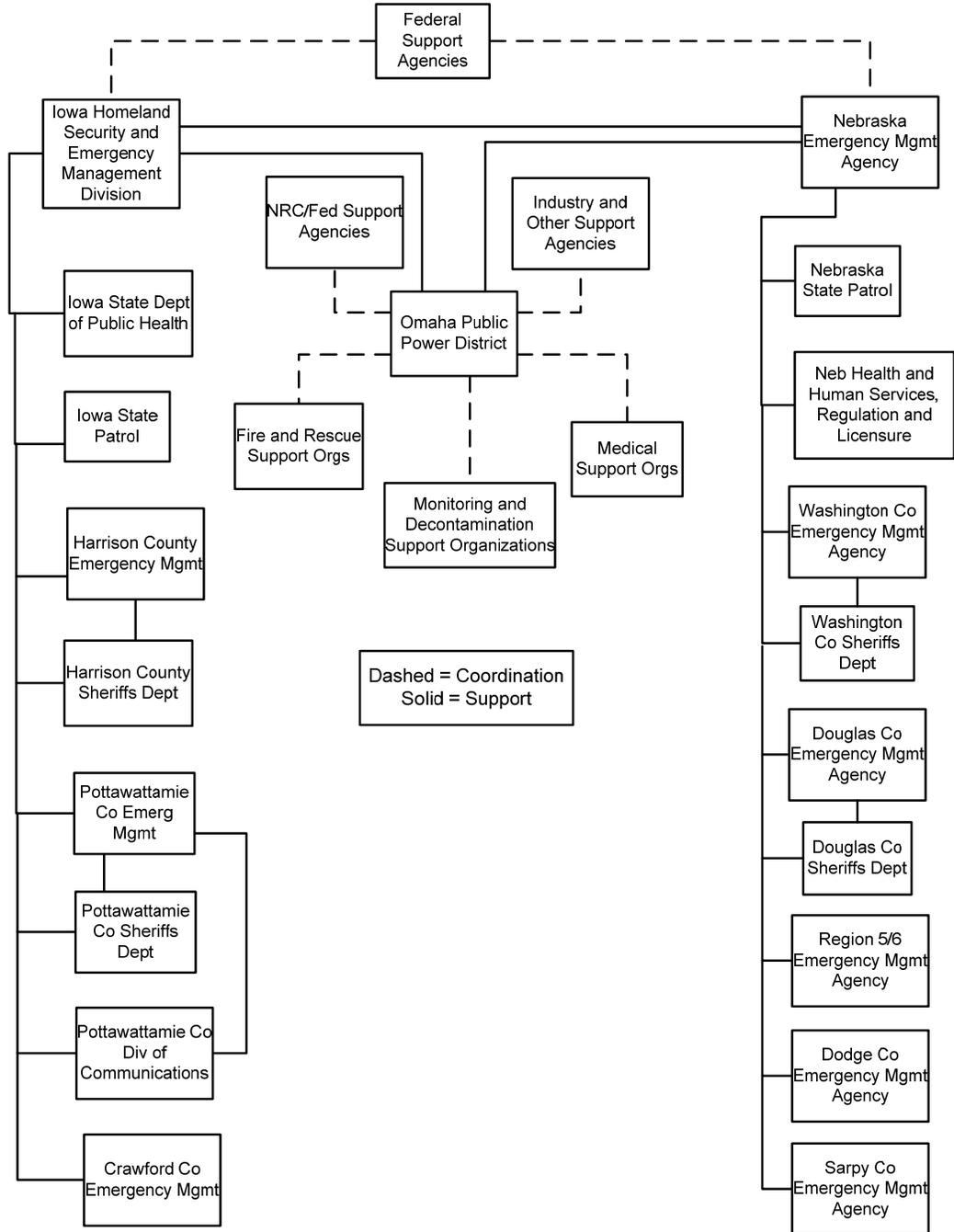
2.3 Responsibility for emergency response initially lies with the Shift Manager. ~~The Shift Manager may be relieved of the task of implementing the RERP by the Control Room Coordinator.~~ If the Technical Support Center (TSC) is activated, command and control may be transferred to the Site Director. The Emergency Director in the Emergency Operations Facility (EOF) may assume command and control if that facility is activated. The command and control position is responsible for ensuring the continuity of resources throughout an event.

### **3.0 LETTERS OF AGREEMENT**

- 3.1 Letters of agreement between OPPD and the organizations outlining their roles in the event of an emergency are on file with the Fort Calhoun Station Emergency Planning Department. These letters are reviewed annually in accordance with Emergency Preparedness recurring tasks.

ASSIGNMENT OF ORGANIZATIONAL RESPONSIBILITY (ORGANIZATIONAL CONTROL)

Figure A-1 - Organizational Interrelationships



## ORGANIZATIONAL CONTROL OF EMERGENCIES

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### 1.0 PURPOSE AND SCOPE

#### 1.1 Purpose

1.1.1 This PSRERP Section establishes the organizational requirements, reporting locations and duties for the Fort Calhoun Station (FCS) Emergency Response Organization (ERO).

#### 1.2 Scope

1.2.1 The positions established in this PSRERP Section upon declaration of an emergency will comprise the ERO. The ERO's responsibility is to mitigate the consequences of an event using the facilities and resources described elsewhere in the PSRERP and the supporting Emergency Plan Implementing Procedures (EPIP).

### 2.0 DEFINITIONS

None

### 3.0 RESPONSIBILITIES

#### 3.1 Emergency Response Organization (ERO):

3.1.1 OPPD has issued a resolution which authorizes the ERO to provide an immediate and decisive response to mitigate the consequences of any nuclear emergency and for the protection of the health and safety of the public. Resolution No. 4731, as approved by the Board of Directors on January 15, 1998, is Appendix D of the PSRERP.

3.1.2 The ERO is intended to provide a pre-qualified organization capable of fulfilling the actions described above. The ERO is not confined to utilize only those personnel that are currently listed as qualified. Other OPPD personnel may be assigned and utilized to perform necessary functions at the discretion of the Command and Control positions. Assignment of any non-ERO qualified individual(s) should include adequate instruction to ensure the individual(s) is capable of performing the necessary functions and is knowledgeable of any potential hazards associated with responding to the designated facility.

#### 3.2 Command and Control:

3.2.1 The position performing the duties of the Emergency Director is referred to as the Command and Control Position.

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- 3.2.2 The Command and Control position has the following responsibilities that cannot be delegated to other personnel. The position may assign other personnel to assist in conducting the actions necessary, but the responsibility of their completion rests with the position, until relieved by another Command and Control position or qualified individual, or the emergency is terminated:
- A. Overall command and control of the ERO.
  - B. Ensuring that the proper classification of the emergency has been made in accordance with the established EAL/Classification scheme and is periodically reviewed to determine if the classification should be upgraded, downgraded or terminated.
  - C. Ensuring that all required notifications are made to appropriate state, local and federal officials.
  - D. Ensuring that appropriate Protective Action Recommendations (PARs) are provided to offsite officials.
  - E. Authorizing OPPD emergency worker exposure extensions beyond the Federal Radiation Protection Guidance.
  - F. Authorizing issuance of Potassium Iodide for OPPD emergency workers.
- 3.2.3 The Command and Control position also has the following responsibilities that can be delegated to other personnel, as necessary:
- A. Requests for assistance from federal agencies.
  - B. Authorizing any emergency information to be released to the media or the general public.
  - C. Coordinating the transfer of the emergency information from the ERO to other OPPD and non-OPPD organizations called upon to assist.
  - D. Ensuring a timely and complete turnover of information to any qualified relief.
  - E. Declaring the termination of an emergency and transfer into a Recovery Operations Organization, when appropriate.
  - F. Providing information to the authorized representatives of the states of Nebraska and Iowa, and associated local governments.
  - G. Ensuring that the plant is in compliance with Technical Specifications and other licensee conditions, and if deviations are necessary to protect the public health and safety, they are approved, as a minimum, by a Senior Reactor Operator, prior to taking the action.

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### 4.0 PROCEDURE

#### 4.1 ERO Staff On-Shift

4.1.1 The staffing of the normal operating organization for each shift is shown in Table B-1. This staffing consists of, as a minimum:

- One Shift Manager (Senior Reactor Operator (SRO)/Certified Fuel Handler (CFH))
- One ~~Unit Control Room Supervisor Operator~~ (Senior Reactor Operator SRO or Reactor Operator (RO)/CFH)
- ~~Two Reactor Operators~~
- ~~Two~~One Equipment Operators/Non-Certified Operator (NCO)
- ~~One Control Room Communicator~~
- ~~One Chemistry Technician~~
- One Radiation Protection Technician
- ~~One Habitability Technician~~
- ~~One Shift Technical Advisor~~
- Additionally, there are several shift Security personnel assigned

4.1.2 All or part of these shift personnel may comprise the initial ERO, and are responsible for taking immediate protective measures in any emergency and implementing this Post-Shutdown Radiological Emergency Response Plan when necessary.

#### 4.2 Activation of the ERO

4.2.1 At a Notification of Unusual Event (NOUE), the Shift Manager may elect to not activate the ERO. In this instance, a notification to certain management personnel is performed and other personnel may be notified to assist as necessary.

A. If the Shift Manager elects to activate the ERO, the notification process will call out the entire ERO (with the exception of the JIC).

4.2.2 It is OPPD's goal that the ERO personnel can staff their emergency positions within one hour following declaration of an Alert or higher classification. In the event of adverse weather and/or other conditions that may limit or slow response, either manmade or natural, it is understood that staffing time may exceed this goal.

#### 4.3 Facility Activation and Operation

4.3.1 There are some functional group activities that may be performed within an Emergency Response Facility prior to actually activating the facility. To be beneficial to the Command and Control facility, these activities, such as dose

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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assessment and field team functions, are dependent upon the establishment of proper communications between the facilities.

- 4.3.2 OPPD Emergency Response Facilities are considered activated when minimum staffing and basic setup requirements have been attained to allow the facility to provide minimum support to the operating staff and other facilities.
- A. It is OPPD's goal that the OSC, EOF and TSC be activated within one hour following an Alert classification. The JIC will be activated following a Site Area or General Emergency classification, and can be activated at an earlier classification based on the decisions of the Corporate Communications Division.
- 4.3.3 Minimum staffing for activation of the OSC is as follows:
- One OSC Director
  - One Radiation Protection Technician ~~or Radiation Protection Coordinator~~
  - One other person to form a team
- 4.3.4 Minimum staffing for activation of the TSC is as follows:
- One Site Director
  - ~~One TSC COP Communicator~~
  - One TSC Protective Measures Coordinator
  - One ~~Reactor Safety~~Engineering Coordinator
- 4.3.5 Minimum staffing for activation of the EOF is as follows:
- One Emergency Director
  - One EOF COP Communicator
  - One EOF Protective Measures Manager ~~or EOF Dose Assessment Coordinator~~
  - One EOF Dose Assessment Specialist
- 4.3.6 OPPD Emergency Response Facilities are considered augmented when all minimum and augmenting staffing positions are filled.
- 4.3.7 Selected support staff, which assists the minimum and augmenting staff, is shown on Attachment 1 - Table B-1 - OPPD Emergency Response Organization (ERO) Functions and Shift Staff Augmentation Plan. The support staff is intended to supplement and enhance operation of their respective facilities. Additional personnel may respond.
- 4.3.8 If a toxic chemical/hazardous material or other significant event occurs that threatens the habitability of the station, an option exists to have all or part of

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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the TSC and OSC staffs report to the EOF to provide assistance as necessary.

- 4.3.9 Some ERO personnel may elect to maintain an assistant position. This is acceptable when additional coordination of activities is required or to aid in the turnover process. The primary assignee must maintain overall responsibility of the position, and ensure that 24 hour staffing of the position can be implemented.

### 4.4 Command and Control Positions

4.4.1 The positions that have Emergency Director Authority are:

- The Shift Manager
- ~~The Control Room Coordinator~~
- The Site Director
- The EOF Emergency Director

4.4.2 The Shift Manager ERO duties are to:

- A. Perform as Emergency Director until properly relieved by a qualified position.
- B. Direct medical and fire response efforts.
- C. Coordinate in-plant operations response with the TSC and OSC. After being relieved by another Command and Control position, the Shift Manager will provide assistance and direction to the Control Room staff as necessary.

G.D. Ensure Control Room communications are established with the TSC, OSC, and EOF.

~~4.4.3 The Control Room Coordinator position is intended to provide a prompt transition of Command and Control functions from the Shift Manager within the Control Room complex. This position may assume Command and Control at any emergency classification, and is not dependent on the reporting or activation of any other portion of the ERO.~~

~~The Control Room Coordinator duties are to promptly relieve the Shift Manager and perform as Emergency Director until properly relieved by a qualified position. Additional duties of the Control Room Coordinator are to:~~

- ~~0. Ensure a qualified Control Room Operations Liaison establishes communications with the TSC, OSC and EOF to provide operational information.~~

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~~0. Coordinate in-plant operations response with the TSC and OSC.~~

~~0. Assist the Shift Manager and on-shift operators with plant operations.~~

~~4.4.84.4.3~~ The Site Director position is intended to assume Command and Control functions from the Control Room if the EOF is not available or cannot assume Command and Control. This position may assume Command and Control at any emergency classification. The Site Director may assume Command and Control in the Control Room proper at any time. If the Site Director elects to assume Command and Control within the TSC, the TSC must meet activation requirements.

A. The Site Director duties are to promptly relieve the Control Room Command and Control position and perform as Emergency Director until properly relieved by a qualified position, if the EOF is not available or cannot assume Command and Control. Additional duties of the Site Director are to:

1. Manage the onsite activities of the ERO.
2. Keep the Emergency Director informed of those onsite activities as necessary.

~~4.4.94.4.4~~ The EOF Emergency Director position is intended to assume all Command and Control functions from the plant site. This position may assume Command and Control at any emergency classification, but the EOF must meet activation requirements prior to the transfer of Command and Control duties.

A. The Emergency Director duties are to promptly relieve the onsite Command and Control position and perform as Emergency Director until properly relieved by a qualified position or termination of the emergency response phase.

## 4.5 Control Room Positions

4.5.1 The following positions are on-shift staff, and augmenting positions for the Control Room. Additional Control Room support staffing is identified on ~~Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization~~Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization. Control Room on-shift staff positions are:

A. Shift Managers duties are described in Sections 4.2, 3.2 and 4.4.2.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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B. Unit Control Room Supervisor Operator duties include:

- ~~a~~Assessment of plant conditions,
- ~~e~~Ensuring requirements of the AOPs and EOPs are met, and supervision of on-shift operations staff.
- Notifications as directed by the Shift Manager. These notifications include the following:
  - Required notifications to the states and counties
  - Notifications to the Emergency Response Organization

~~B. Reactor Operators (2) duties include implementation of the AOPs and EOPs under the direction of the Unit Supervisor.~~

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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~~C. Control Room Communicator duties include notifications as directed by the Control Room Command and Control position. These notifications include the following:~~

- ~~• Required notifications to the states and counties~~
- ~~• Notifications to the Emergency Response Organization~~

~~D.C. Equipment Operators/NCO (2) duties include making repairs and corrective actions on plant equipment until augmented plant maintenance staff arrives. NCOs also assist in performing notifications/communications and dose assessment as needed.~~

~~E. Shift Technical Advisor duties include providing technical support for plant systems, engineering, providing input on repair and corrective actions and making initial notifications to the NRC.~~

~~F. Shift Chemistry Technician duties include chemistry and radiochemistry analysis, radiological accident assessment and support and offsite dose assessment.~~

~~G.D. Shift Radiation Protection Technician duties include conducting radiological accident assessment and support, offsite dose assessment and onsite in-plant surveys.~~

~~. Habitability Technician duties include conducting surveys and verifying Control Room habitability using available equipment and initiating protective actions if needed.~~

~~4.5.34.5.2 The Control Room (CR) Operations Liaison is an augmenting position are: Duties include transmitting plant status/Control Room information, etc. to the TSC, OSC, and EOF.~~

~~A. Coordinator duties are described in Section 3.2 and 4.4.3.~~

~~B. Operations Liaison duties include transmitting plant status/Control Room information, etc. to the TSC and, EOF, and OSC Operations Liaison positions.~~

~~C. ENS Communicator duties include maintaining an ENS link with the NRC.~~

~~D. Equipment Operator duties include providing operations support to repair teams.~~

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### 4.6 Technical Support Center Positions

4.6.1 The following are minimum staffing and augmenting positions for the Technical Support Center (TSC). Additional TSC support staffing is identified on ~~Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization~~~~Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization~~~~Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization~~. Minimum staffing positions for the TSC are:

A. Site Director duties are described in Steps 3.2 and 4.4.3.

B. ~~Reactor Safety~~Engineering Coordinator duties include:

1. Directing ~~the~~ activities of ~~the~~ engineering ~~staff~~ resources requested by in the TSC.
2. Analyzing plant problems and providing recommendations for plant modifications to mitigate the effects of the accident.

~~3. Directing core damage assessment calculations.~~

~~4.3. Directing the evaluation of~~Evaluating possible radiological release paths to the environment.

C. Protective Measures Coordinator duties include:

1. Coordinating the dispatch of the TSC field team from the site and performing field team direction until the EOF assumes this duty.
2. Monitoring and coordinating on site dose assessment operations performed, and keep the Site Director informed of dose projections and field sample results.
3. Evaluating site radiological conditions, and necessary personnel protective measures.
4. Evaluating and making recommendations for plant evacuation and evacuation routes.
5. Preparing and submitting state update information, including Protective Action Recommendations, to the Site Director for approval and transmittal to state and federal officials if TSC has Command and Control.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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~~D. COP Communicator duties include performing notifications as directed by the Command and Control position. These notifications include the following:~~

- ~~• Required notifications to states and counties~~
- ~~• Required notifications to the NRC~~
- ~~• Notifications to the Emergency Response Organization. This position also assists in maintaining status boards within the TSC~~

4.6.2 Augmenting positions for the TSC are:

A. TSC Field Team duties include providing off-site monitoring in the areas potentially affected by a radiological release.

~~B. I&C Electrical Systems Engineer duties include providing engineering analysis and troubleshooting in that field of expertise.~~

B. Operations Liaison duties include:

1. Obtaining plant status/Control Room information from the Control Room Operations Liaison and transmitting this information to the TSC staff as needed. [AR 11390]
2. Assisting the Site Director in formulating appropriate protective action recommendations when necessary. [AR 11390]

~~• Primary Systems Engineer duties include providing engineering analysis and troubleshooting in that field of expertise.~~

### 4.84.7 Operations Support Center Positions

~~4.8.14.7.1~~ The following are minimum staffing and augmenting positions for the Operations Support Center (OSC). Additional OSC support staffing is identified on Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization~~Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization~~Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization. Minimum staffing positions for the OSC are:

B. OSC Director duties include:

1. Coordinating the development of plans for required maintenance activities.
2. Keeping the Site Director informed of OSC activities.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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3. Coordinating emergency team response as requested by the TSC/Control Room to perform search and rescue, damage assessment, damage control, repair and modification, and in-plant radiological monitoring.

C. Radiation Protection Technician duties include coordination of on-site radiation protection activities.

D. One other person to form a team.

### 4.8.24.7.2 Augmenting positions for the OSC are:

A. Chemistry Technician duties include evaluating and performing all chemistry activities on-site. ~~Act as Chemistry Coordinator until relieved.~~

~~B. Dosimetry Technician duties include issuing Dosimetry and performing dose extensions as needed.~~

~~C.B.~~        Electrical Maintenance Technicians (~~two positions~~) duties include providing repairs and corrective actions for plant electrical equipment as directed.

~~D.C.~~        I&C Technician duties include providing repairs and corrective actions to plant instruments as directed.

~~E.D.~~        Machinist or Steam Fitter Mechanic duties include providing repairs and corrective actions to plant mechanical equipment as directed.

~~F. Operations Liaison duties include obtaining plant status/Control Room information from the Control Room Operations Liaison and transmitting this information to the OSC staff as needed. [AR 11390]~~

~~G.E.~~        Radiation Protection Technicians (~~five three~~ positions) duties include providing radiological surveys and job coverage to repair and corrective action teams as directed.

~~H.F.~~        The ~~Radiation Protection~~Protective Measures Coordinator duties include coordinating all radiation protection activities onsite.:

~~1. Forming and preparing emergency response teams as directed by the OSC Director.~~

~~2. Coordinating all radiation protection activities onsite.~~

~~3. Keeping the OSC Director and TSC Protective Measures Coordinator informed of the status of all radiation protection activities onsite.~~

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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- ~~4. Fulfilling the minimum staffing position of Radiation Protection Technician, if required.~~

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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### 4.8 Emergency Operations Facility Positions

4.8.2 The following positions are minimum staffing and augmented positions for the Emergency Operations Facility (EOF). Additional EOF support staffing is identified on ~~Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization~~Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization~~Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization~~. Minimum staffing positions for the EOF are:

- A. Emergency Director ~~Duties~~duties are described in Section 3.2 and ~~4.4.54.4.4~~.
- B. COP Communicator duties include performing notifications as directed by the Command and Control position. These notifications include the following:
  - Required notifications to states and counties
  - Required notifications to the NRC
  - Notifications to the Emergency Response Organization. This position also assists in maintaining status boards within the EOF

	<b>NOTE</b>	
<del>Only one of the positions described in Step 4.8.1C or Step 4.8.10 is required for minimum staffing.</del>		

- C. Protective Measures Manager duties include:
  1. ~~Monitoring-Directing~~Monitoring-Directing dose assessment operations performed, coordinating OPPD field teams, and keeping the Emergency Director informed of projections and field survey results.
  2. Evaluating site radiological conditions and necessary personnel protective measures.
  3. Preparing and submitting state update information, including Protective Action Recommendations, to the Emergency Director, state and federal officials.
  4. Coordinating technical briefings for the offsite agencies as requested.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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~~A. Dose Assessment Coordinator duties include:~~

~~7. Directing offsite dose assessments and the associated Protective Action Recommendations (PARs).~~

~~8. Coordinating OPPD field teams.~~

~~9.5.~~ Comparing dose projections against field team results.

~~10.6.~~ Comparing dose projections and field team results with state and federal agency results.

D. Dose Assessment Specialist duties include performing offsite dose assessments and submitting the results to the Emergency Director for approval and transmittal to state and federal officials.

### 4.8.3 Augmenting positions for the EOF are:

A. Administrative Logistics Manager duties include:

1. Coordinating administrative personnel support to the EOF.

2. Coordinating scheduling and callout of ERO personnel for 24 hour coverage.

3. Activating the Alert Notification System as requested.

4. Coordinating OPPD resources for the establishment of emergency logistics for the ERO, such as food, beverages, medical and administrative supplies, transportation, special equipment, etc.

B. The EOF Field Team duties include providing off-site monitoring in the areas potentially affected by a radiological release.

1. Field Team Specialist duties include coordinating the activities of the OPPD and state Field Teams to achieve the most efficient use of teams for plume tracking.

C. Information Specialist duties include:

1. Preparing information for use in periodic press releases.

2. At an Alert or higher emergency classification, submitting all press releases to the Emergency Director (or designee) for approval prior to forwarding the release to the JIC.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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- D. Operations Liaison duties include: 1) obtaining plant status/Control Room information from the Control Room Operations Liaison and transmitting this information to the EOF and NRC staff as needed; and, 2) assisting the Emergency Director in the review of classifications and formulating appropriate protective action recommendations when necessary. **[AR 11390]**

### 4.9 Joint Information Center Positions

#### 4.9.2 The Joint Information Center Manager duties include:

- A. Coordinating with government authorities and to provide periodic briefings and news releases to news media personnel.
- B. Providing public inquiry services.
- C. Keeping OPPD personnel, including senior management, informed of the status of the emergency and emergency response effort. OPPD's Corporate Crisis Communication Plan lists other JIC positions.

### 4.10 Emergency Response Organization Interface with Onsite and Offsite Organizations

4.10.2 ~~Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization~~~~Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization~~~~Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization~~ illustrates the interface between the EOF and other onsite support centers. ~~Attachment 2 - Figure B-3 - Organization Interrelationships~~~~Attachment 2 - Figure B-3 - Organization Interrelationships~~~~Attachment 2 - Figure B-3 - Organization Interrelationships~~ illustrates the interface of the EOF with federal, state, and local support agencies.

4.10.3 The EOF interfaces with each of the onsite support centers on a continuous basis. Even though the EOF serves as the primary interface with the various offsite support agencies, the TSC interfaces with various contractors and vendors to gather needed design data, consultation, and evaluation concerning the plant's status.

### 4.11 Emergency Response Organization Notification

4.11.2 Emergency Response Organization notification occurs as shown in Sections E and M of the PSRERP. The Shift Manager is responsible for initiation of the notification process after an emergency condition has been classified.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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### 4.12 Service Provided by Local Agencies

- 4.12.2 The Nebraska State Patrol and the Washington County Sheriff's Department have agreed to provide the primary law enforcement support to the Fort Calhoun Station Security Department.
- 4.12.3 The Blair Volunteer Fire Department has agreed to provide the primary fire support services for the Fort Calhoun Station. The Fort Calhoun Volunteer Fire Department has agreed to provide backup fire response.
- 4.12.4 OPPD vehicles may transport non-injured potentially contaminated personnel. The Blair Volunteer Fire Department has agreed to provide primary rescue and transportation support, for injured and/or contaminated personnel. The Fort Calhoun Volunteer Fire and Rescue, Missouri Valley Fire and Rescue and the Council Bluffs Ambulance and Fire Departments have agreed to provide backup services.
- 4.12.5 The Blair Hospital has agreed to provide medical support for work related injuries. Nebraska Health Services University Hospital in Omaha, maintains a regional Radiation Health Center which provides services for the treatment of radiologically contaminated injuries and radiation exposure evaluation.
- 4.12.6 The majority of the organizations listed in this section maintain a Letter of Agreement with OPPD. These letters are on file in the Emergency Planning Department at the Fort Calhoun Station.

### 5.0 **RETENTION/RECORDS**

None

### 6.0 **REFERENCES AND COMMITMENTS**

6.9 AR 11390, LIC-065R

6.10 [Fort Calhoun Station Analysis of Proposed Post-Shutdown On-Shift Staff, August 2016](#)~~EP-FC-1001 Addendum 1, On-Shift Staffing Analysis Report.~~

### 7.0 **ATTACHMENTS**

7.9 Attachment 1 - Table B-1 - OPPD Emergency Response Organization (ERO) Functions and Shift Staff Augmentation Plan

7.10 ~~Attachment 2 - Figure B-1 - Normal Fort Calhoun Station Management Organization~~  
~~Attachment 2 - Figure B-1 - Normal Fort Calhoun Station Management Organization~~  
~~Attachment 2 - Figure B-1 - Normal Fort Calhoun Station Management Organization~~

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### Organization

- 7.11 Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response  
~~Organization~~Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response  
~~Organization~~Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response  
~~Organization~~
- 7.12 Attachment 2 - Figure B-3 - Organization InterrelationshipsAttachment 2 - Figure  
B-3 - Organization Interrelationships~~Attachment 2 - Figure B-3 - Organization~~  
~~Interrelationships~~

ORGANIZATIONAL CONTROL OF EMERGENCIES

Attachment 1 - Table B-1 - OPPD Emergency Response Organization (ERO) Functions and Shift Staff Augmentation Plan

NUREG 0654			Omaha Public Power District	
Major Functional Area	Major Tasks	Emergency Positions	On Shift Minimum Number/Title	Goals for 1 hour Augmentation Minimum Number/Title
Plant Operations and Assessment of Operational Aspects		Shift Manager (SRO) Shift Foreman (SRO) Control Room Operators Auxiliary Operators	1 Shift Manager (SRO/CFH) 1 <del>Unit Control Room Operator (SRO or RO/CFH)</del> *** Supervisor(SRO) 2 Reactor Operators (RO) 21 Equipment Operators/NCO	
Emergency Command and Control (Emergency Coordinator)*		Shift Technical Advisor, Shift Manager or designated Facility Manager	1** Shift Manager	1 CR Coordinator OR 1 Site Director OR 1 Emergency Director
Notification/ Communication	Notify License, State local and Federal personnel and maintain communication		1 Control Room Communicator 1 Control Room Operator (SRO or RO/CFH)***	1 CR ENS Communicator 1 Communicator in TSC 1 Communicator in EOF
Radiological Accident Assessment and Support of Operational Accident Assessment	Emergency Operations Facility (EOF) Director  Offsite Dose Assessment  Offsite Surveys  Onsite (Out of plant)  In Plant surveys Chemistry/Radiochemistry	Senior Manager  Senior Health Physics (HP) Expertise	1 R.P Technician     1 Habitability Technician 1 Chemistry Technician	1 Emergency Director  1 Prot. Meas. Coord  4 Field Team Technicians 2 R.P. Technicians  2-1 R.P. Technicians  1 Chemistry Technician
Plant System Engineering, Repair and Corrective Actions	Technical Support    Repair and Corrective Actions	Shift Technical Advisor  Core/Thermal hydraulics Electrical  Mechanical  Mechanical Maintenance  Electrical Maintenance  Instrument and Control (I&C) Technician	1 Shift Technical Advisor**      1** Equipment Operator/NCO  1** Equipment Operator/NCO	1 Reactor Safety Engineering Coord 1 Electrical and I&G Engineer 1 Primary Systems Engineer 1 Machinist OR Steam Fitter Mechanic  1 Equipment Operator/NCO 2-1 Electrical Maintenance Technicians  1 I&C Technician
Protective Actions (Plant)	Radiation Protection: a. Access Control b. HP Coverage for repair, corrective actions, search and rescue, first aid and firefighting c. Personnel monitoring d. Dosimetry	HP Technicians	2-1** R.P. Technicians	2-1 R.P. Technicians 1 R.P. Coordinator 1 Dosimetry Technician
Firefighting			Fire Brigade per SO-G-28, Station Fire Plan	Blair Fire Department
Rescue Operations and First Aid			2** Equipment Operators/NCOs	Blair Rescue Squad

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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NUREG 0654			Omaha Public Power District	
Major Functional Area	Major Tasks	Emergency Positions	On Shift Minimum Number/Title	Goals for 1 hour Augmentation Minimum Number/Title
Site Access Control and Personnel Accountability	Security, Firefighting, communications, personnel accountability	Security Personnel	All per Security Plan	

\* Emergency Command and Control responsibility is transferred in accordance with Section B of this plan.

\*\* May be provided by Shift personnel assigned other functions.

\*\*\* Performs initial notification to NRC.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

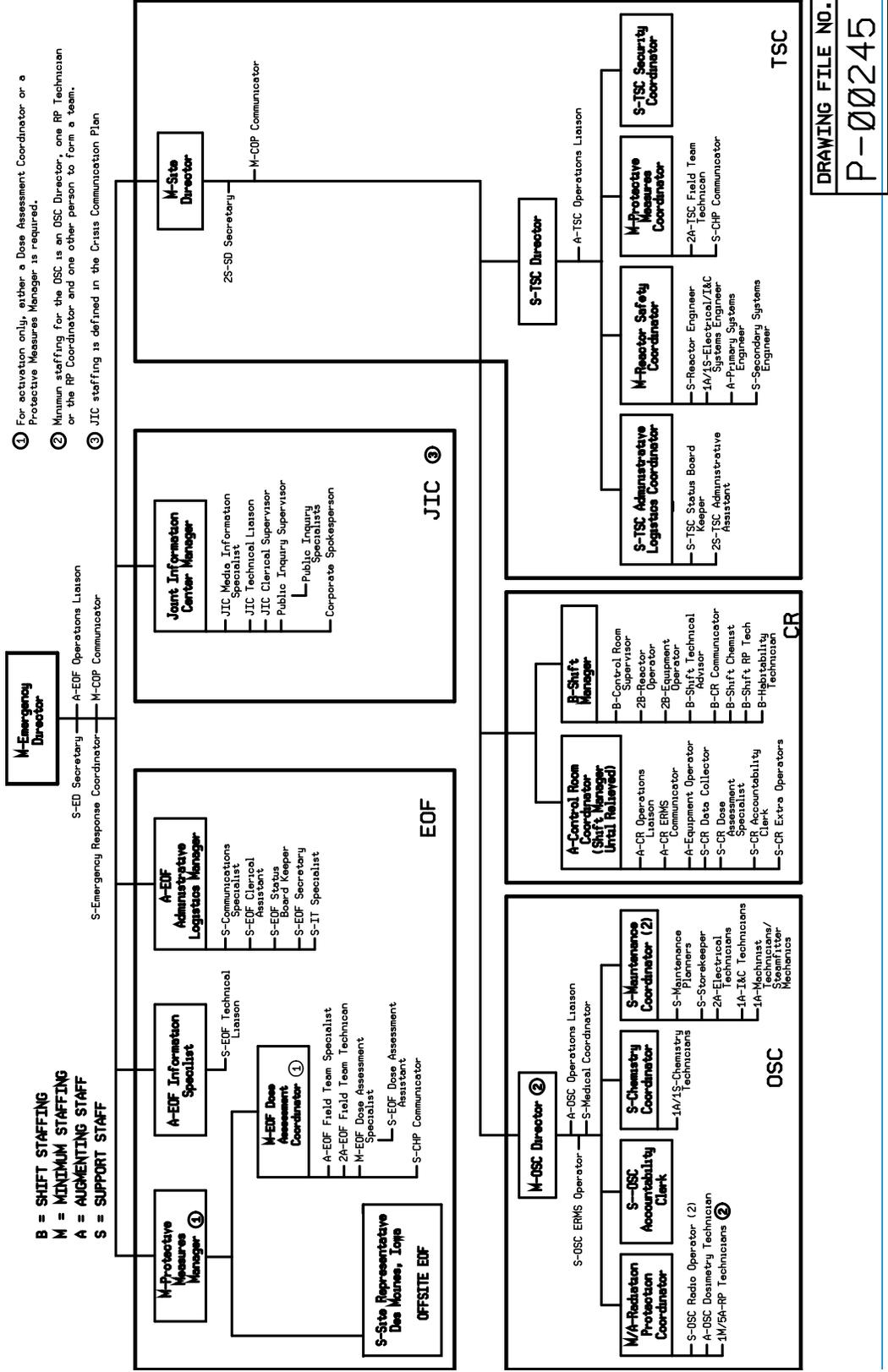
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### Attachment 2 - Figure B-1 - Normal Fort Calhoun Station Management Organization

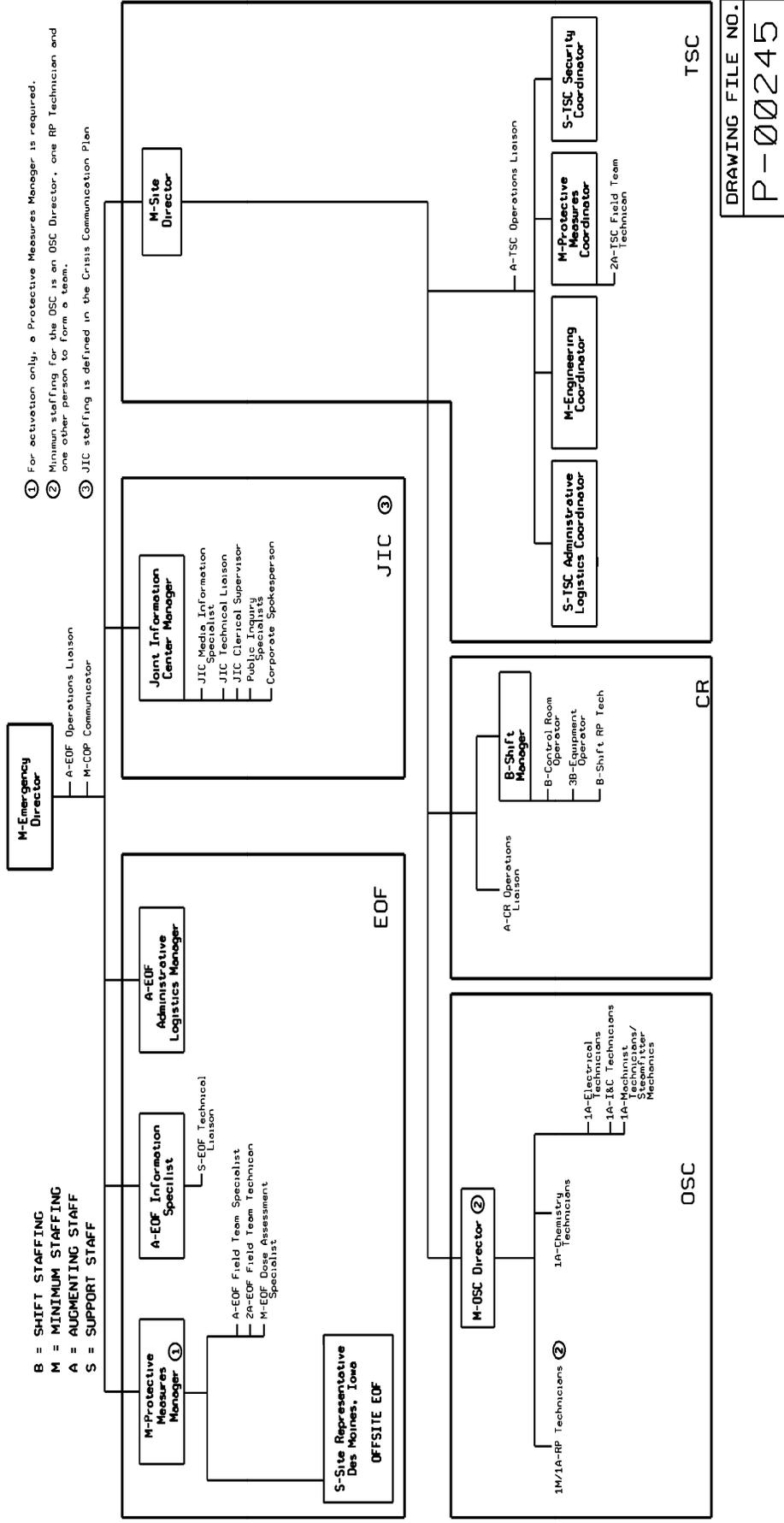
The Fort Calhoun Organization is described in Chapter 12 of the USAR.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization



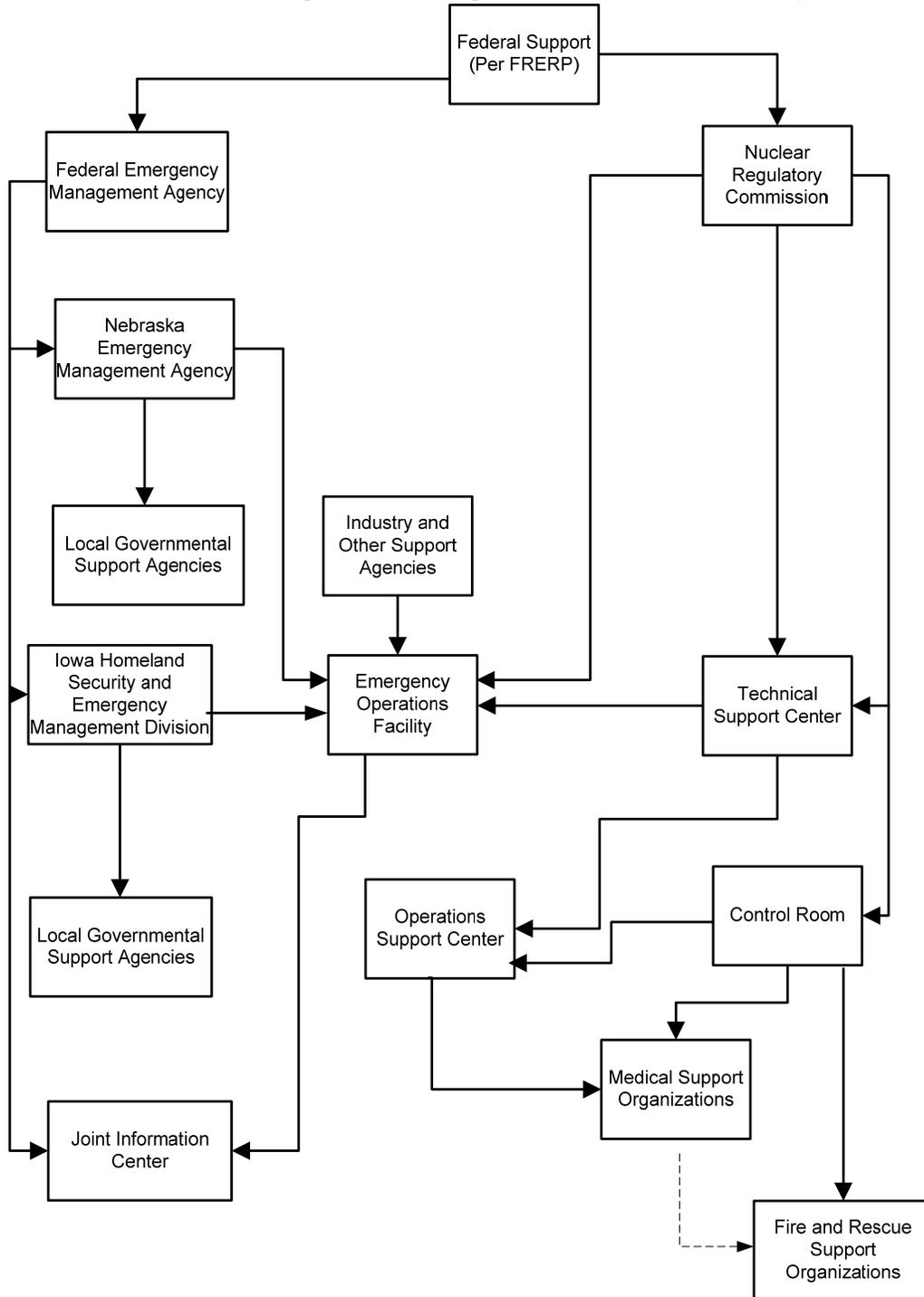
## ORGANIZATIONAL CONTROL OF EMERGENCIES



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## ORGANIZATIONAL CONTROL OF EMERGENCIES

Attachment 2 - Figure B-3 - Organization Interrelationships



## EMERGENCY RESPONSE SUPPORT AND RESOURCES

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### 1.0 **FEDERAL RESPONSE**

#### 1.1 Personnel Authorized to Request Federal Assistance

The Emergency Director typically coordinates with the states to secure federal assistance. However, the Emergency Director may also request federal assistance directly, if timely assistance has not been provided as requested by the states. The states will be kept informed of such requests.

#### 1.2 Federal Response Organizations

The Federal Radiological Emergency Response Plan (FRERP) and the Federal Response Plan (FRP) outline the federal response to any type of emergency, including an emergency at a fixed nuclear facility. Some of the typical federal organizations which could respond to an emergency at the Fort Calhoun Station are as follows:

##### 1.2.1 U.S. Coast Guard

Upon notification, the U.S. Coast Guard will control traffic on the Missouri River in the area of Fort Calhoun Station. They will provide waterborne patrols for extended periods if contamination levels persist.

A U.S. Coast Guard cutter is based at the Florence Boat Yard, approximately 18 river miles downstream of the Fort Calhoun Station.

##### 1.2.2 U.S. Environmental Protection Agency (EPA)

Upon request, the EPA will provide trained manpower to assist in reviewing survey data, offsite evaluations and advise on protective actions for the public. They also provide assistance in the collection and analysis of environmental samples.

## EMERGENCY RESPONSE SUPPORT AND RESOURCES

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### 1.2.3 U.S. Department of Energy (DOE)

DOE is the technical support branch of the Federal Radiological Emergency Response Plan (FRERP). DOE would typically be the agency in charge of initial establishment and control of the Federal Radiological Monitoring and Assessment Center (FRMAC).

Some of the capabilities of DOE and the FRMAC operations are as follows:

- A. Support to the state(s) in the coordination of offsite radiological monitoring assessment, evaluation, and reporting activities of all federal agencies during the initial phases of an accident and maintain a technical liaison with the states and local agencies with similar responsibilities.
- B. Ensure the orderly transfer of responsibility for coordinating the intermediate and long term radiological monitoring function at the FRMAC to EPA after the initial phases of the emergency.
- C. Provide the personnel and equipment required to coordinate and perform the offsite radiological monitoring and evaluation activities.
- D. Assist the NRC in assessing the accident potential and in developing technical recommendations on protective measures.
- E. Maintain a common set of offsite radiological monitoring data and provide this data and interpretation to the NRC and to appropriate state and local agencies requiring direct knowledge of radiological conditions and monitoring results.
- F. Provide consultation and support services to all other entities (e.g. private contractors) having radiological monitoring functions and capabilities.
- G. Assist other federal, state and local agencies by providing technical and medical advice concerning treatment of radiological contamination.
- H. Provide telecommunications support and capabilities.
- I. Assist other federal agencies in developing and establishing guidelines on effective systems of emergency radiation detection and measurement, including instrumentation.

## EMERGENCY RESPONSE SUPPORT AND RESOURCES

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### 1.2.4 U.S. National Weather Service (NWS)

The National Weather Service operates on a twenty-four (24) hour per day basis. Upon request, this organization can provide the Fort Calhoun Station with meteorological conditions including predicted temperature inversions, precipitation, wind patterns and velocity.

### 1.2.5 U.S. Nuclear Regulatory Commission (NRC)

The NRC becomes the Lead Federal Agency (LFA) in a response to a fixed nuclear facility, such as the Fort Calhoun Station. In their role as LFA, the NRC will directly coordinate response activities with OPPD and determine the need for appropriate federal response organizations. The NRC will perform the function of LFA from several response locations including the NRC Operations Center, Region IV's Incident Response Center, all OPPD Emergency Response Facilities (once a site team has arrived), and other federal response facilities established.

### 1.2.6 Federal Emergency Management Agency (FEMA)

FEMA is responsible for coordinating the non-technical federal support to state and local governments which could include such tasks as logistics and telecommunications. The senior FEMA official on the scene will notify the federal agency(ies) most capable of meeting the state and local governmental needs. FEMA would take the lead at the federal Disaster Field Office, if such location is established. Fort Calhoun Station is located within FEMA, Region VII.

### 1.2.7 Federal Aviation Administration (FAA)

The FAA controls and directs air traffic in and around the affected area. The FAA has the authority to close the area surrounding the Fort Calhoun Station to all non-response air traffic.

### 1.2.8 U.S. Department of the Interior

The U.S. Department of the Interior, Branch of Global Seismology has the capability to monitor and provide specific seismic activity data should such an event occur in the vicinity of the Fort Calhoun Station.

## EMERGENCY RESPONSE SUPPORT AND RESOURCES

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### 1.3 Response Times

It is anticipated that response time will be based on the level of assistance provided. For example, information on upcoming weather conditions would be expected to be available in a matter of minutes over the telephone from the National Weather Service. Conversely, radiological assistance from the Department of Energy would be expected to take considerably longer. It is expected that the federal assistance requested would be available within 8 to 72 hours.

## 2.0 **RESOURCES TO SUPPORT RESPONDING AGENCIES**

Resources are provided by OPPD in order to support the various federal organizations which respond to an emergency as follows:

### 2.1 Air fields are available for the use of the radiological monitoring teams as follows:

2.1.1 Eppley Air Field, 18 miles South of Fort Calhoun Station, on Abbott Drive in Sector G.

2.1.2 Eagle Field (City of Blair's Air Field), seven (7) miles Southwest of Fort Calhoun Station on State Hwy. 133 in Sector K.

2.1.3 North Omaha Airfield, eleven (11) miles South Southeast of Fort Calhoun Station, on North 72nd street in Sector H.

2.2 A laboratory for radioisotopic analysis is available at the Fort Calhoun Station and Cooper Nuclear Station near Brownsville, Nebraska.

2.3 A laboratory for non-radiological chemical analysis is available at the Fort Calhoun Station and OPPD's North Omaha Power Station.

2.4 Onsite and offsite survey teams with necessary radiation monitoring instruments are available.

2.5 A boat is available for obtaining river samples.

2.6 Space and communication lines have been set aside to accommodate some federal agencies at the Control Room, Technical Support Center, Emergency Operations Facility, and Joint Information Center.

2.7 Electrical and communication access is available at the Emergency Operations Facility for the federal mobile analytical laboratory.

## EMERGENCY RESPONSE SUPPORT AND RESOURCES

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### 3.0 SITE REPRESENTATIVES

The Nebraska State Governor's Authorized Representative (GAR) reports to the state Field Command Post, located at OPPD's Emergency Operations Facility. The GAR is in direct contact with OPPD personnel and has the authority to approve and issue all protective actions for the public in the State of Nebraska.

The State of Iowa's Governor's Authorized Representative (GAR) typically remains in the State Emergency Operations Center. The Iowa GAR has the authority to approve and issue all protective actions for the public in the State of Iowa. A command and control telephone link exists between this position and OPPD's EOF. If personnel are available, an Iowa liaison is sent to work directly with the staff at the EOF.

An OPPD Site Representative is available for dispatch from the utility to the Iowa State EOC. This position can be staffed on a 24 hour a day basis.

### 4.0 RADIOLOGICAL ASSISTANCE

#### 4.1 Nebraska Public Power District (Cooper Nuclear Station)

The Cooper Nuclear Station is capable of providing a backup facility in the event Fort Calhoun's radiochemistry laboratory is not functional. The Cooper Station's radiochemistry laboratory is equipped to do gross and isotopic determinations on radionuclides in concentrations and counting geometries necessary for nuclear power plant operation and emergency monitoring. They will provide analysis of liquid, air particulate and cartridges on a priority basis after receiving the sample.

Additionally, Cooper Station could provide monitoring teams equipped with air sampling, radiation and contamination monitoring equipment.

#### 4.2 Contractor Assistance

In the event of an emergency, it is anticipated that further assistance could be contracted directly from firms currently being utilized by OPPD for non-emergency work at the Fort Calhoun Station or through the assistance of such organizations as the Institute of Nuclear Power Operations (INPO).

#### 4.3 The analysis of field monitoring data by the states is specified in each respective state plan. OPPD field monitoring data can be analyzed by an independent facility providing such services.

## EMERGENCY CLASSIFICATION SYSTEM

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### 1.0 INTRODUCTION

- 1.1 This section describes the emergency classification scheme adopted by the Omaha Public Power District for Fort Calhoun Station. The Emergency Classification scheme is based on NEI-99-01, Revision 56, [Methodology for Development of Emergency Action Levels for Non-Passive Reactors](#).
- 1.2 The State of Nebraska and the State of Iowa review the Fort Calhoun Station EALs once per year to ensure that they are consistent with their respective emergency classification schemes in their respective emergency plans. The purpose of this standardized classification is to provide a framework within which all emergency actions can be taken and notifications can be made in response to abnormal plant situations.
- 1.3 Table D-1 shows the projected worst case emergency classification for certain postulated accidents identified in the Fort Calhoun Station Updated Safety Analysis Report.

### 2.0 CLASSIFICATION OF EMERGENCIES

- 2.1 Emergency conditions are classified into one of four severity levels which cover the spectrum of postulated accidents. The postulated accidents range from precursors to potential degradation of plant safety to those involving actual failure of plant safety systems. Emergency preparedness, including a standardized classification system, is based primarily on preventing or minimizing radiation exposure to individuals onsite and offsite.
- 2.2 The specific Initiating Conditions (ICs) are contained within EP-FC-1001 Addendum 3, Emergency Action Levels For Fort Calhoun Station. The ICs are based on one or more of the key types of initiating conditions, including; symptom based, event based, barrier breach, and essential equipment/system(s) out of service. The ICs at Fort Calhoun Station are presented using six recognition categories as listed below:
  - R - Abnormal Rad Levels/Radiological Effluent
  - C - Cold Shutdown/Refueling System Malfunction
  - E - Events Related to ISFSI
  - F - Fission Product Barrier Degradation
  - H - Hazards and Other Conditions Affecting Plant Safety
  - M - System Malfunction

## EMERGENCY CLASSIFICATION SYSTEM

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- 2.3 Each one of the recognition categories contains ICs as outlined in EP-FC-1001 Addendum 3, Emergency Action Levels For Fort Calhoun Station. Each specific IC is detailed in individual sections which contain predetermined, site-specific, observable thresholds, such as; instrument readings, equipment status indicators, measurable parameter(s), discrete and observable event(s), results of analysis, entry into specific emergency/abnormal procedures, applicable operating mode(s), and/or any other cautions and/or notes pertaining to that particular IC.
- 2.4 To the extent feasible, the ICs are based on readily available information such as Control Room instrumentation readings, Emergency Response Facility Computer System (ERFCS) output, specific station procedure steps, and/or dose projection results. The intent is to eliminate "ambiguity" for command and control positions in determining appropriate emergency classifications. Immediate actions to be taken in response to conditions involving abnormal plant operating parameters are detailed in the Fort Calhoun Station ~~Emergency Operating Procedures~~, Abnormal Operating Procedures and Operating Instructions. Other immediate actions and follow-up actions are identified in Section J of this plan and are described in detail in applicable Emergency Plan Implementing Procedures, listed in Appendix C of this plan.
- 2.5 The ICs do not signify the need for immediate implementation of protective or corrective measures. They do, however, signify the need for implementation of dose assessment measures both onsite and offsite and assessment of plant status, as applicable.
- 2.6 In using the ICs as the basis for initiating emergency response activity, there may be instances when the plant ~~operating~~ staff cannot determine which of two emergency classifications is appropriate for a particular occurrence. In those cases where the appropriate classification can-not be defined in a short period of time, the occurrence should be treated as the higher of the two classifications and the appropriate response for that level should be initiated.
- 2.7 Notification of Unusual Event
- 2.7.1 Notification of Unusual Event (NOUE) – Events are in process or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs. Some of these events could indicate a potential degradation in the level of plant safety and/or could escalate to a more severe condition if appropriate action is not taken.
- 2.7.2 The primary purpose for this classification is to ensure that the plant ~~operating~~ staff recognizes the initiating condition, takes appropriate action, such as assessment and verification, and comes to an appropriate state of readiness to respond in the event that the condition worsens.

## EMERGENCY CLASSIFICATION SYSTEM

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2.7.3 With the exception of possible assistance by local support groups such as fire departments or medical facilities, activation of offsite facilities by offsite organizations is not anticipated for events within this classification. The command and control position at Fort Calhoun Station has the option to call all or part of the Emergency Response Organization (ERO) for support at this emergency classification.

2.7.4 Notification of Unusual Event will be made to offsite authorities in accordance with Section E of this plan.

### 2.8 Alert

2.8.1 Alert – Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of intentional malicious dedicated efforts of **HOSTILE ACTION**. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels. It requires response by the onsite Emergency Response Organization which augments on-shift emergency resources, and constitutes a “standby” initiation of the offsite emergency plan provisions. Generally, offsite emergency response agencies notify their key staff, and may begin to activate offsite response such as activation of facilities and offsite radiological monitoring. Offsite agencies will maintain this level of preparedness until termination or escalation of the Alert classification.

2.8.2 OPPD will augment the Control Room, staff the Technical Support Center and Operations Support Center at the Alert level. Typically, the Emergency Operations Facility staff will also be augmented to be placed in "standby" mode, ready to assume Command and Control if necessary.

2.8.3 Notification to offsite authorities of the Alert will be made in accordance with Section E of this plan.

### 2.9 Site Area Emergency

2.9.1 Site Area Emergency – Events are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or security events that result in intentional damage because of intentional malicious dedicated efforts of **HOSTILE ACTION**; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) prevents effective access to, equipment needed for the protection of the public. Any releases are not expected to result in exposure levels that exceed EPA Protective Action Guideline exposure levels beyond the site boundary. Offsite response agencies are fully mobilized along with notification to the general public by the sounding of the Alert Notification System (ANS) sirens surrounding the plant site.

## EMERGENCY CLASSIFICATION SYSTEM

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2.9.2 OPPD staffs all designated Emergency Response Facilities at a Site Area Emergency or General Emergency. The full Emergency Response Organization will be activated.

2.9.3 Notification to offsite authorities of the Site Area Emergency will be made in accordance with Section E of this plan.

### 2.10 General Emergency

2.10.1 General Emergency – Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or security events that result in an actual loss of physical control of the facility. Release can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area. Total activation of the onsite and offsite emergency response organizations is required. Protective actions involving offsite populations are highly probable.

2.10.2 OPPD staffs all designated Emergency Response Facilities at a Site Area Emergency or General Emergency. The full Emergency Response Organization will be activated.

2.10.3 Notification to offsite authorities of the General Emergency will be made in accordance with Section E of this plan.

EMERGENCY CLASSIFICATION SYSTEM

Table D-1 - Emergency Classification of Postulated Accidents

Postulated Accident	Projected Worst Case Emergency Classification	Key Concern
Fuel Handling Accident (in Spent Fuel Pool Area)	General Emergency	Radiological Effluents
<del>Fuel Handling Accident (in Containment)</del>	<del>General Emergency</del>	<del>Radiological Effluents</del>
Gas Decay Tank Rupture	Site Area Emergency	Radiological Effluents
<del>Control Element Assembly Ejection Incident</del>	<del>General Emergency</del>	<del>Radiological Effluents</del>
<del>Loss of Coolant Accident</del>	<del>General Emergency</del>	<del>Loss of fission product barrier</del>
<del>Single Reactor Coolant Pump Seizure</del>	<del>General Emergency</del>	<del>Loss of fission product barrier</del>
<del>Steam Generator Tube Rupture</del>	<del>Site Area Emergency</del>	<del>Loss of fission product barrier</del>
<del>Main Steam Line Break</del>	<del>Site Area Emergency</del>	<del>Radiological Effluents</del>
Waste Liquid Incident	Alert	Radiological Effluents
Control Room Habitability During Toxic Chemical Release Accident	Alert	Plant Control

## NOTIFICATION METHODS AND PROCEDURES

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### 1.0 PURPOSE AND SCOPE

#### 1.1 Purpose

1.1.1 The purpose of this PSRERP is to provide guidance for notifying state and local response organizations, the Nuclear Regulatory Commission, and members of the OPPD Emergency Response Organization during radiological emergencies.

#### 1.2 Scope

1.2.1 This PSRERP applies to OPPD Emergency Response Organization personnel responsible for notifying state and local response organizations, the Nuclear Regulatory Commission and members of the OPPD Emergency Response Organization during a radiological emergency.

### 2.0 PROCEDURE

#### 2.1 Notifications

2.1.1 The decision to make notifications is based on the emergency action levels and corresponding emergency classifications described in Section D of this Plan. As discussed in that section, they are consistent with NEI-99-01, Methodology for Development of Emergency Action Levels for Non-Passive Reactors, which has been approved by the NRC replacing NUREG-0654, Rev. 1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Appendix 1. The EALs are reviewed annually by the States of Nebraska and Iowa.

2.1.2 OPPD is capable of notifying and activating its Emergency Response Organization 24 hours per day. It is also able to make notifications to the states, Nuclear Regulatory Commission and, if required, local counties on a 24 hour per day basis. The applicable state plans detail the provisions for 24 hour per day notification and activation of their response organizations.

2.1.3 The Command and Control position is responsible for ensuring appropriate notifications are initiated when an emergency is classified. Fort Calhoun Station personnel in the protected area are notified via the Emergency or Fire Alarm and a public address system message. Personnel outside the protected area are notified by public address systems installed in the Administrative and Training buildings. Site Security personnel may assist in the notification of all other personnel on OPPD property. The OPPD Emergency Response Organization is activated as appropriate for the emergency classification level. This is accomplished by an automated call-out system which activates phone calls, text messages, e-mails, and other functions. Maintenance of telephone numbers is discussed in Section P of

## NOTIFICATION METHODS AND PROCEDURES

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this Plan.

- 2.1.4 Initial notification of the states of Nebraska and Iowa is made within 15 minutes after declaration of an emergency classification. The states, in turn, notify other governmental response agencies as appropriate for the emergency classification. Notification is also made to Washington, Harrison, and Pottawattamie counties within 15 minutes.
- 2.1.5 The primary means of notification to the states and counties is via the Conference Operations Network (COP) which is a dedicated telephone system. The COP and backup communications systems are discussed in Section F of this plan. Provisions have been made for verification of notification messages when communications are via means other than the COP.
- 2.1.6 Notification to the NRC is the next contact made. This notification occurs immediately after state and local notifications, not to exceed one hour after the declaration of the emergency classification. The primary means for this notification is the Federal Telecommunications System, Emergency Notification System lines (FTS-ENS). The FTS-ENS system is maintained by the NRC, however, it is routinely tested by OPPD. If the FTS-ENS is not available, notifications are made using the normal commercial telephone system.

## 2.2 Emergency Messages

### 2.2.1 Initial Emergency Message

The Omaha Public Power District and the states of Nebraska and Iowa have established the contents of the initial emergency messages to be sent from Fort Calhoun Station in the event an emergency is declared. These messages contain such information as the class of emergency, whether a release is taking place, potentially affected population and areas, and whether protective measures may be necessary. This information is transmitted by a dedicated telephone system, normal telephone systems or by facsimile. Forms are used to record the information for verbal or hard copy transmission to ensure each organization receives identical information.

## NOTIFICATION METHODS AND PROCEDURES

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### 2.2.2 Follow-Up Emergency Messages

- A. The follow-up emergency messages to the states incorporate the majority of the elements of Criteria E.4 of NUREG 0654, Rev. 1, as determined necessary by the states. These messages are transmitted to the states by telephone, dose assessment computer or facsimile. Update messages are sent to the states and counties at least every 60 minutes. Updates may be decreased to shiftily during ongoing events if requested by the states and the status of the event has not changed.
- B. It is the goal of Fort Calhoun to attempt to provide dose assessment updates at 15 minute intervals during a Radiological Release. During a Site Area Emergency or General Emergency, the Conference Health Physics (CHP) Network, a dedicated telephone system, can be used to maintain communications as needed. This ensures rapid transmittal of dose assessment information and protective action recommendations to the states.
- C. Emergency information to the county Emergency Operations Centers (Washington, Harrison and Pottawattamie Counties) is given verbally using the Conference Operation (COP) Network. These messages discuss general operational progress conditions of the plant.
- D. The NRC will be kept informed as significant events occur which warrant the upgrading or downgrading of the emergency classification. These communications with the NRC will be via the NRC's FTS-ENS (Emergency Notification System). Dose Assessment personnel will keep the NRC informed of dose assessment information using the NRC's FTS-HPN (Health Physics Network).
- E. OPPD has the capability to transmit key plant parameter information directly to the NRC. This system is entitled the Emergency Response Data System (ERDS). This system is normally activated and will be verified to be functioning within one hour of declaring an Alert or higher. Initiation of this system can be accomplished in either the Control Room or the Technical Support Center.
- F. Requests for assistance from local support agencies, and others, are made using normal telephone systems.

## NOTIFICATION METHODS AND PROCEDURES

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### 2.3 Alert Notification System

- 2.3.1 A system called the Alert Notification System (ANS) has been designed to provide warning to the public within 15 minutes of the decision by offsite authorities to activate the system. The system includes a series of sirens which provide essentially 100 percent coverage of the population within 10 miles of Fort Calhoun Station.
- 2.3.2 The states Emergency Response Plans provide guidance as to when the system should be activated. The counties will then perform the actual activation.
- 2.3.3 Each county has control of only the sirens located within its borders. The exception is one siren which is located in Douglas County, but activated by Washington County. All sirens within a county are sounded simultaneously, and cannot be activated individually.
- 2.3.4 The sirens are activated by radio signal. The county agencies and the activation locations for the sirens are as follows:
- A. Washington County Emergency Communications Center located in the County Court House, Blair, Nebraska.
  - B. Harrison County Emergency Communications Center located in the County Jail Complex, Logan, Iowa.
  - C. Pottawattamie County Emergency Communications Center located in the County Court House, Council Bluffs, Iowa.
- These locations are continuously staffed, providing the capability to activate the siren system 24 hours per day.
- 2.3.5 The Omaha Public Power District has made provisions to sound the sirens when requested to do so by government officials, should a county be unable to activate its sirens. This process can be accomplished from the Emergency Operations Facility or the E.O.-Communications division offices.
- 2.3.6 It is not intended that county or city governments use the ANS for weather alerts or fire signals as frequent use of the system for other purposes would tend to reduce the effectiveness of the sirens if they are needed for a nuclear power plant incident.
- 2.3.7 In the event that one or more sirens activates during non-emergency conditions, provisions have been made to inform the public that no emergency exists, and initiate repairs to the errant siren(s).

## NOTIFICATION METHODS AND PROCEDURES

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2.3.8 System operability is tested periodically in accordance with the updated design report to FEMA for the outdoor public warning system and backup alert and notification.

2.3.9 Backup ANS for the EPZ is achieved through route alerting by the affected county.

### 2.4 Emergency Alert System

2.4.1 Members of the public have been instructed (via the Emergency Planning Booklet discussed in Section G of this Plan) to tune to their Emergency Alert System (EAS) station for emergency instructions when the sirens are activated.

2.4.2 Radio station KGOR- 99.9 FM is the Local Primary I (LP1) control station for Omaha, NE. It has the capability to broadcast emergency instructions 24 hours per day. Most other television and radio broadcast stations have the capability of carrying EAS messages during their normal hours of broadcasting.

2.4.3 For messages the risk counties will contact the National Weather Service (NWS) and request that EAS be activated. The NWS will then send out the signal to activate the EAS. KGOR has agreed to pick up this signal and broadcast the message.

2.4.4 While follow-up messages are the responsibility of the states, Omaha Public Power District has the capability to make similar information releases to the media. This is described in Section G of this plan.

### 3.0 REFERENCES AND COMMITMENTS

3.1 NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plant

## EMERGENCY COMMUNICATIONS

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### 1.0 INTRODUCTION

This section describes the available communications for use among the principal response organizations and between the Omaha Public Power District emergency response facilities. Provisions for 24-hour per day notification to and activation of the state and local emergency response organizations are discussed in Section E of this plan. Also discussed in Section E are the provisions for activating Omaha Public Power District emergency response personnel. Provisions for periodic testing of the emergency communications system are described in Section N of this plan.

### 2.0 COMMUNICATIONS SYSTEMS

- 2.1 A number of varied communications systems are available for communications between emergency response facilities. These systems are described in this section and are summarized in Figure F-1.
- 2.2 In the conduct of drills and exercises, OPPD may make use of its training simulator to provide a broad range of Control Room like amenities, without impacting the operating FCS Control Room. The communications equipment in the FCS Control Room is, for the most part, duplicated in the simulator.

## EMERGENCY COMMUNICATIONS

2.3 Each emergency response facility and the personnel responsible for 24 hour communications in each facility is listed below:

Emergency Facility	Primary/Alternate Communications Responsibility
Control Room Fort Calhoun Station	Shift Manager- <del>/(Control Room Coordinator)/</del> Control Room Communicator <del>Operator)</del>
TSC, Fort Calhoun Station	Site Director/ <del>TSC COP Communicator</del>
EOF, North Omaha Station	Emergency Director/EOF COP Communicator
EOC, State of Nebraska	Operations Officer/Communications and Warning Officer
Forward Command Post, State of Nebraska	Nebraska Emergency Management Agency Director/Asst Nebraska Emergency Management Agency Director
EOC, Washington Cnty (Nebraska)	Washington County Communications Center/County Emergency Management Director
EOC, State of Iowa	Director, Iowa Emergency Management Division/National Guard Adjutant General
Forward Command Post State of Iowa	Harrison County Sheriff's Department/State Liaison Officer
EOC, Harrison County (Iowa)	Communications Director/Harrison County Sheriff's Department
EOC, Pottawattamie County (Iowa)	Communications Director/County Emergency Management Director

### 2.4 Fort Calhoun Station Alarm System

#### 2.4.1 Emergency and Fire Alarms

These alarms are sounded from the Control Room when an emergency requiring ERO activation or fire is declared. Their function is to alert personnel within the Protected Area to an emergency condition.

### 2.5 Fort Calhoun Station Paging Systems

2.5.1 The Protected Area paging system (Gaitronics) provides a means of intra-plant communications. Stations on this system provide access to the plant paging system and to intercom lines. These stations and speakers are placed throughout the plant including the Control Room, the Technical Support Center and the Operations Support Center.

## EMERGENCY COMMUNICATIONS

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2.5.2 The Administrative and Training buildings at the Fort Calhoun Station also have public address announcing capabilities. Access to the public address system in either or both locations can be accomplished via the site's telephone system. This system can be used to notify personnel of a plant emergency.

### 2.6 Local Private Automatic Branch Exchanges (PABX)

#### 2.6.1 Omaha Public Power District PABXs

- A. Company telephone systems link Omaha Public Power District facilities with those located in Omaha, Nebraska. These systems provide intracompany telephone communications and access to the public telephone network.
- B. The Emergency Operations Facility has installed lines designated for emergency use. These lines are dedicated to specific emergency response positions. Telephone sets for all lines are available in the Emergency Operations Facility.
- C. Trunk lines between the company PABX systems in Omaha and the Fort Calhoun Station PABX systems provide the primary means of communication with the plant. Additional lines can be provided by the local telephone company, as requested.
- D. This system also provides a redundant means of providing emergency notifications to the states and counties, and is the primary backup to the Conference Operations Network (COP).

#### 2.6.2 Fort Calhoun Station PABXs

- A. These dedicated telephone systems provide communications within Fort Calhoun Station locations.
- B. The Technical Support Center has designated extensions for use during an emergency. They include extensions designated for use by NRC personnel. Additional lines can be diverted from other office areas as required.
- C. Dedicated lines from this system are extended to the Emergency Operations Facility. This system is also connected to the company telephone system in Omaha to provide intracompany telephone communications which are not affected by the public telephone network.
- D. Redundant routing of access to the public telephone network is provided via links to the public system in Blair, Nebraska as well as Omaha.

## EMERGENCY COMMUNICATIONS

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### 2.7 Conference Operations (COP) Network

- 2.7.1 The COP system is primary emergency notification system between OPPD, state and county agencies. It is used to provide, initial, and update notifications and for general information flow between these agencies. See Figure F-1 for a list of COP locations.
- 2.7.2 COP is a dedicated system; each location is capable of making group calls or calling station to station within the network. See Figure F-2 for a system diagram.
- 2.7.3 A recorder located at the EOF records all conversations on the COP system. The Nebraska State Patrol and the Iowa Dispatcher also have voice recording capability.

### 2.8 Conference Health Physics (CHP) Network

- 2.8.1 This network provides a dedicated means for communicating radiological information between the Technical Support Center, Emergency Operations Facility, Nebraska and Iowa Emergency Operations Centers and the Nebraska and Iowa Radiological Emergency Response Team Coordinators. The system is shown on Figure F-3.
- 2.8.2 This system provides the capability for conference conversations between the Technical Support Center or Emergency Operations Facility and any one or all of the agencies on the system. A voice recorder in the Emergency Operations Facility provides a record of conversations on this system.

### 2.9 Facsimile (FAX) Capability

- 2.9.1 Facsimile machines provide the capability to link the Control Room, Technical Support Center, Operations Support Center, Emergency Operations Facility, Joint Information Center, other OPPD Headquarters facilities, the Nebraska and Iowa Emergency Operations Centers and the Nebraska and Iowa Forward Command Posts. Capability also exists to access any FAX machine via commercial telephone networks.
- 2.9.2 The facsimile machines can be used to transmit health physics, operational and dose assessment information from Omaha Public Power District emergency response facilities to state emergency response facilities. They can also be used to disseminate emergency status information to OPPD management. Some of these extensions have voice capabilities and serve as a backup means of voice communications for those locations.

## EMERGENCY COMMUNICATIONS

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### 2.10 800 MHz Radio System

2.10.1 A 800 MHz radio communications system links Fort Calhoun Station onsite emergency response facilities, Emergency Operations Facility, plant portable radios, and mobile radios used by radiological monitoring teams. The multi-talk group/channel system is illustrated by Figures F-6, F-7, F-8, F-9 and F-10.

2.10.2 Figure F-6 illustrates the talk groups available for the Fort Calhoun Station. Figure F-7 illustrates the dedicated subfleet for the Emergency Response Organization. Figure F-8 illustrates the shared subfleet which the ERO can utilize during emergencies. Figure F-9 provides the details for the "Talk-Around" capability which can be utilized when the 800 MHz trunking system is out of service. Figure F-10 summarizes the subfleets assigned to the Fort Calhoun Station.

### 2.11 NRC Emergency Notification System (FTS-ENS)

2.11.1 This NRC Operations Center is contacted via this telephone network. The FTS-ENS is a portion of the Federal Telecommunications System (FTS) and is located in the Control Room, Technical Support Center and Emergency Operations Facility. It provides plant operations information to the NRC Operations Center, in Rockville, Maryland.

### 2.12 NRC Health Physics Network (FTS-HPN)

2.12.1 The FTS-HPN is a portion of the Federal Telecommunications System (FTS) and is located in the Technical Support Center and Emergency Operations Facility. The network is used to exchange radiological and dose assessment information between NRC facilities and OPPD.

### 2.13 Priorities System

2.13.1 The Technical Support Center establishes priorities for accident mitigation and transmits the priorities to the Operations Support Center and the Emergency Operations Facility for display.

### 2.14 State of Nebraska Emergency Management Radio System

2.14.1 The Emergency Operations Facility is equipped with various radio equipment for use by Nebraska Emergency Management personnel. This equipment may be used either alone or in conjunction with the State of Nebraska Emergency Management Mobile Van.

## EMERGENCY COMMUNICATIONS

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### 2.15 State of Iowa Emergency Management Radio System

2.15.1 The Emergency Operations Facility can support radio equipment for use by Iowa State Emergency Management personnel. This equipment may be used either alone or in conjunction with the State of Iowa Emergency Management Mobile Van.

### 2.16 Management Operations (MOP) Network

2.16.1 This system (similar to the COP and Ops Liaison Network) provides dedicated conference capability between the Control Room-~~Coordinator~~, TSC Site Director, OSC Director, EOF Emergency Director and the JIC Manager. The purpose of the system is to provide information flow between the directors of all the emergency facilities.

2.16.2 The system allows conferencing without dialing, each set is capable of conferences and individual call capability. Records of conversations on this system are captured by a voice recorder in Emergency Operations Facility.

### 2.17 ~~joint~~-Joint Information Center Hot Line

2.17.1 A dedicated telephone circuit is provided between the Emergency Operations Facility and Joint Information Center. The telephone sets are equipped with a blank dial plate. Lifting either handset causes a connecting ring at the other set.

2.17.2 This system provides a means for uninterrupted private communications for coordination of information releases to the public.

### 2.18 NAWAS

2.18.1 NAWAS equipment in the Control Room provides a redundant means of providing emergency notifications to the States of Nebraska and Iowa. It also provides the Control Room personnel with weather information.

### 2.19 Emergency Response Message System (ERMS)

2.19.1 A network of computer terminals is used to link the Technical Support Center, Operations Support Center and Emergency Operations Facility. It provides rapid dissemination of plant status information between facilities and ensures consistency of information at all facilities. The JIC is also equipped with a monitor which provides read-only capability. The software used for this function can be any type that provides for electronic log keeping of emergency response actions (~~WEBeOC~~WebEOC, ERMS, etc.)

## EMERGENCY COMMUNICATIONS

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### 2.20 Telephone Service Pedestal for State Mobile Communication Vehicles

2.20.1 A telephone service pedestal is located outside of the Emergency Operations Facility near the designated parking area for the mobile communication vehicles. This pedestal is fed by a 12-pair cable from the Emergency Operations Facility and allows quick connection of various telephone facilities to the mobile vehicles. Several telephone lines and dedicated communication facilities are prewired and operational. Spare pairs are available to add additional telephone facilities quickly as the need arises.

### 2.21 Telephone Junction Box for NRC Mobile Vehicle

2.21.1 A telephone junction box is located on the outside wall of the Emergency Operations Facility near the designated parking area. This junction box is fed by a 12 pair cable and is equipped with four standard modular telephone jacks. These jacks are prewired to a distribution frame and allow quick connection of telephone lines to support the NRC as required. Additional jacks can be added up to the 12 pair capacity of the feeder cable.

### 2.22 Operations Liaison Network

2.22.1 This system provides dedicated conference capabilities between the Fort Calhoun Station Control Room/Simulator, TSC, OSC, EOF and JIC. The purpose of the system is to provide operational information from the Control Room to the other facilities for the purpose of developing response plans, determining emergency classifications and implementing assistance to the Control Room.

2.22.2 The system allows conferencing without dialing, and thus permits rapid access to the conference by the Operations Liaisons. Each station is equipped with group call and individual call capability. Records of conversations on this system are captured by a voice recorder in the Emergency Operations Facility.

### 2.23 Emergency Response Data System (ERDS)

2.23.1 This system provides selected ERFCS data to the NRCs Operations Center for the purpose of evaluating plant conditions. Certain data points from the ERFCS are included in the ERDS data library, and when activated, these data points are transmitted to the Operations Center. The system is normally activated and is required to be activated at an ALERT or higher classification.

## EMERGENCY COMMUNICATIONS

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### 2.24 Interactive Notification System (INS)

2.24.1 This system provides rapid notification to Emergency Response Organization personnel in the event of an emergency where the ERO is activated. The system is also used to perform the Management Notification function, and can be adapted to perform other notification functions as determined necessary by the Fort Calhoun Station. A backup ERO notification process is available in the event of failure of the INS.

2.24.2 The system is activated using the internet or contacting a live operator, normally from the Control Room. The system 1) initiates a call-out to ERO members at home, mobile, or work locations, 2) sends text messages to ERO positions that provide a contact number and 3) sends e-mails to ERO personnel.

### 2.25 Satellite Phones

2.25.1 Satellite Phones are located in the Control Room, Technical Support Center, and Emergency Operations Facility to serve as an alternate communications option in the event normal communications equipment is unavailable.

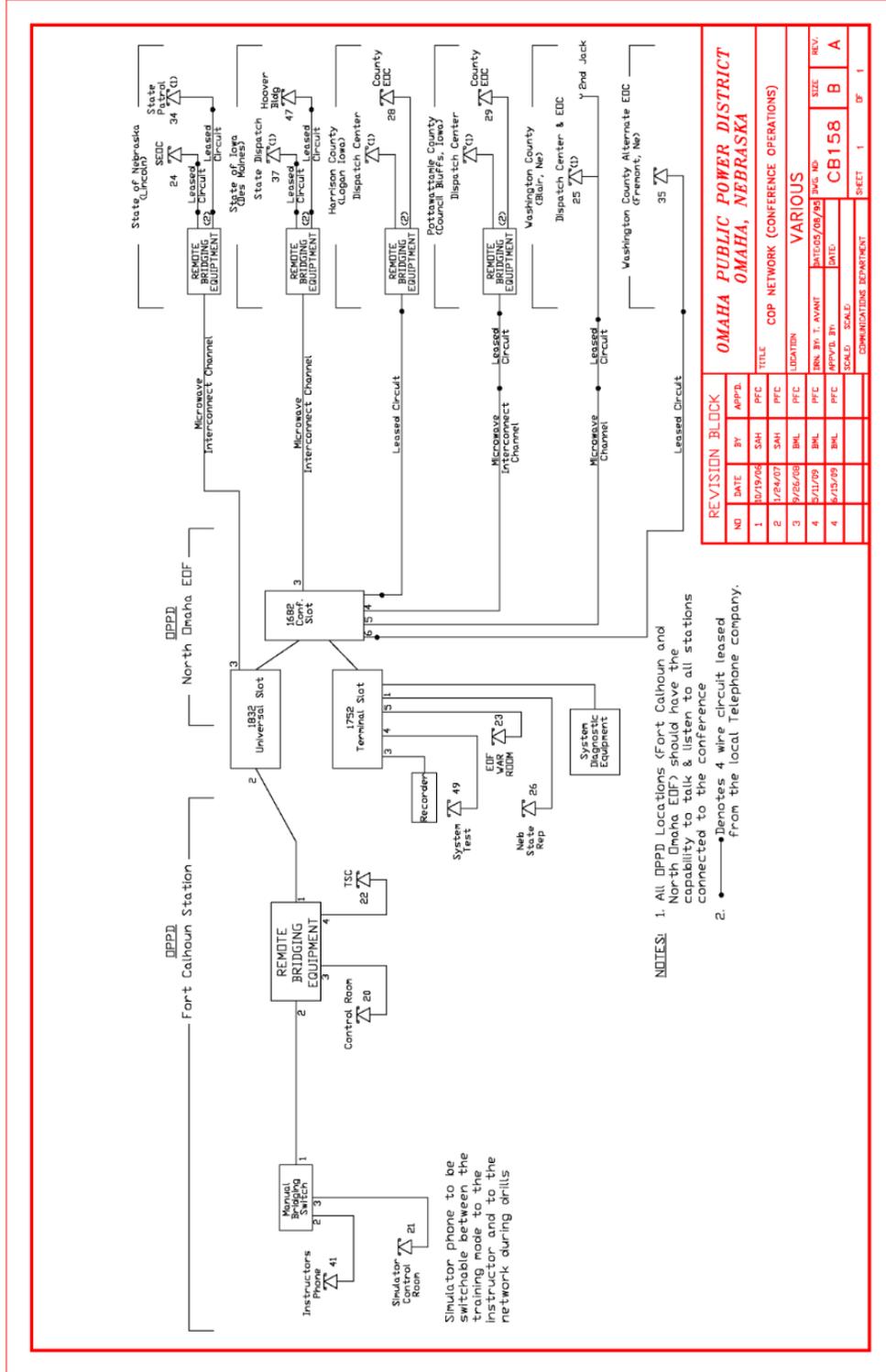
## 3.0 **COMMUNICATIONS WITH MEDICAL SUPPORT FACILITIES**

3.1 Fort Calhoun Station emergency response organization personnel can communicate with medical support facilities, Washington County Emergency Communications Center or the University of Nebraska Medical Center, via the site telephone systems described earlier in this section.

3.2 Non-OPPD radio systems provide communications between medical support facilities and mobile rescue units as well as inter-unit communications. These radio systems have the capability to use the common medical emergency frequency which ensures coordinated communications.



Figure F-2 - Conference Operations Network

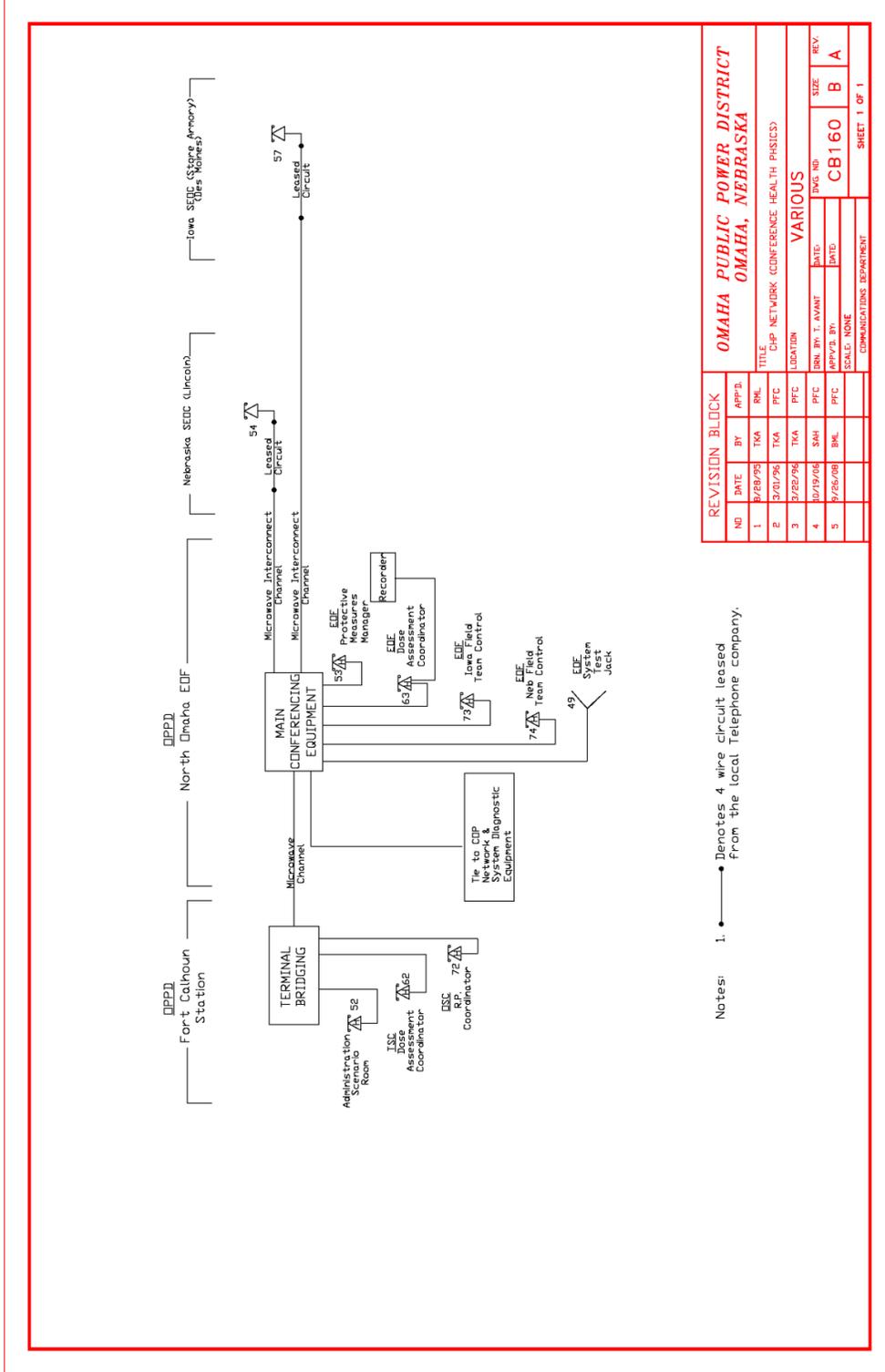


REVISION BLOCK				OMAHA PUBLIC POWER DISTRICT OMAHA, NEBRASKA			
NO	DATE	BY	APP'D.	TITLE	LOCATION	DATE	REV.
1	10/19/92	SAH	PFC	VARIOUS			B
2	1/24/07	SAH	PFC				A
3	9/26/08	BML	PFC				A
4	2/17/09	BML	PFC				A
4	5/29/09	BML	PFC				A

BOOK NO.	DATE	SCALE	REV.
COMMUNICATIONS DEPARTMENT			SHEET 1 OF 1

Figure F-3 - Conference Health Physics Network



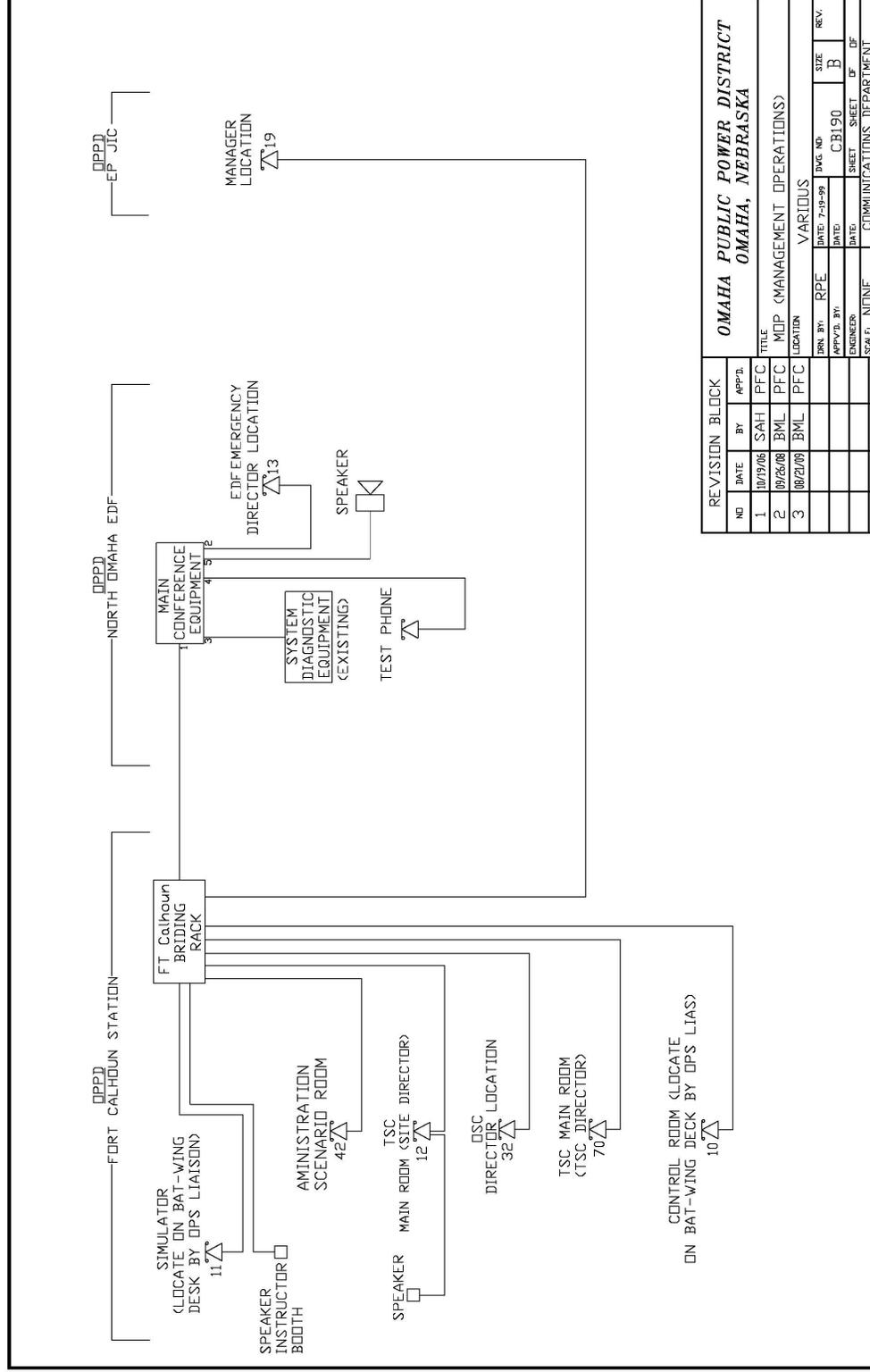
REVISION BLOCK		OMAHA PUBLIC POWER DISTRICT OMAHA, NEBRASKA	
NO	DATE	BY	APPR'D.
1	8/28/95	TKA	RHL
2	3/21/96	TKA	PFC
3	3/22/96	TKA	PFC
4	10/19/06	SAM	PFC
5	7/26/08	RHL	PFC

TITLE	LOCATION	DWG NO	REV
CLIP NETWORK (CONFERENCE HEALTH PHYSICS)	VARIOUS		
APPROVED BY:	DATE:	SCALE:	SIZE:
		NONE	B A

COORDINATIONS DEPARTMENT  
 SHEET 1 OF 1

## EMERGENCY COMMUNICATIONS

Figure F-4 - MOP (Management Operations)

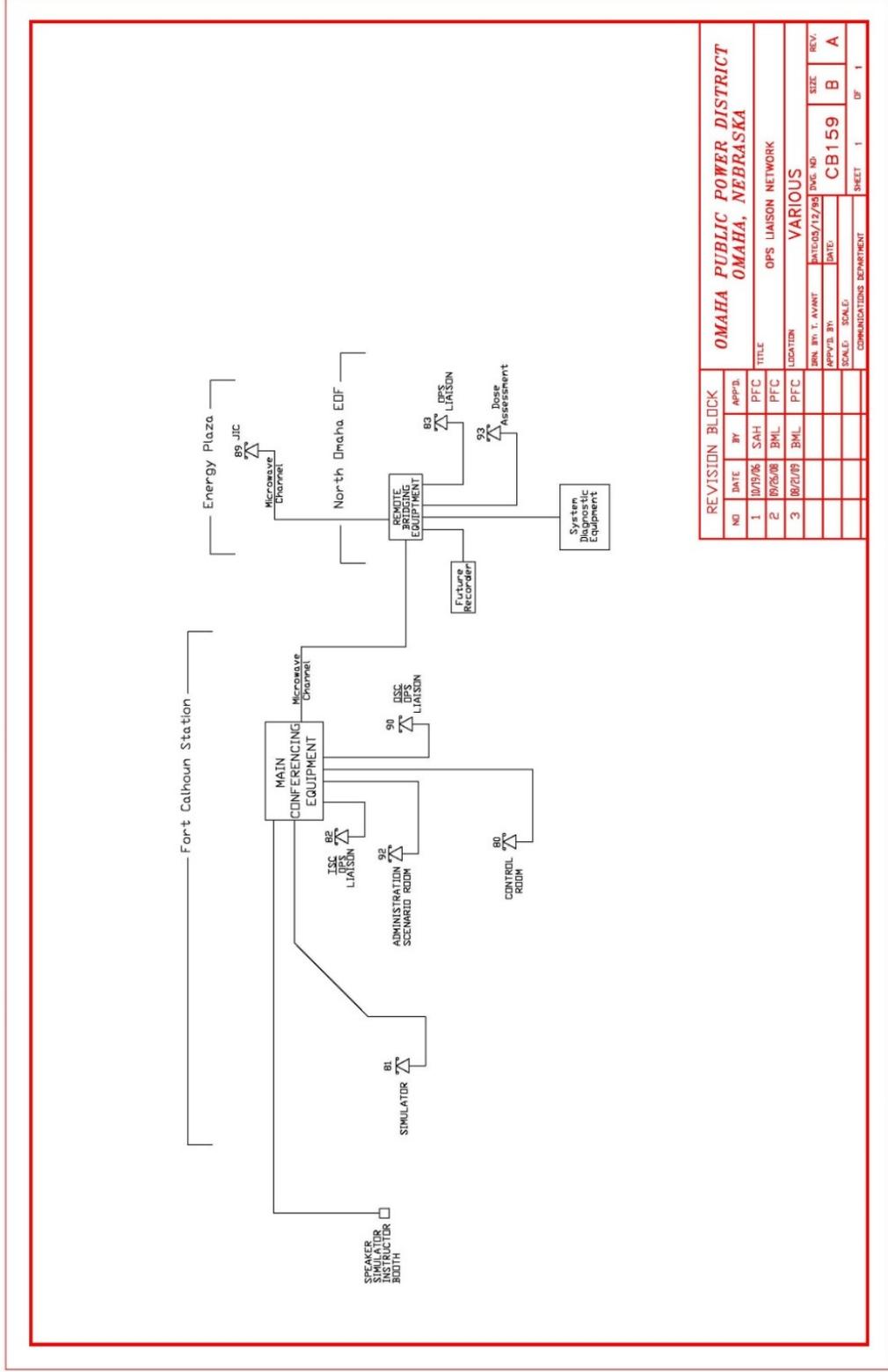


REVISION BLOCK		APP'D.	
NO	DATE	BY	
1	10/19/06	SAH	PFC
2	09/28/08	BML	PFC
3	08/21/09	BML	PFC

TITLE			
OMAHA PUBLIC POWER DISTRICT			
OMAHA, NEBRASKA			
LOCATION			
MOP (MANAGEMENT OPERATIONS)			
VARIOUS			
DRN. BY:	RPE	DATE: 7-19-99	SCALE: NONE
APPR'D. BY:		DATE:	SHEET: CBI90
ENGINEER:		DATE:	SHEET: B
SCALE:	NONE	DATE:	SHEET: DF
DEPARTMENT: COMMUNICATIONS DEPARTMENT			

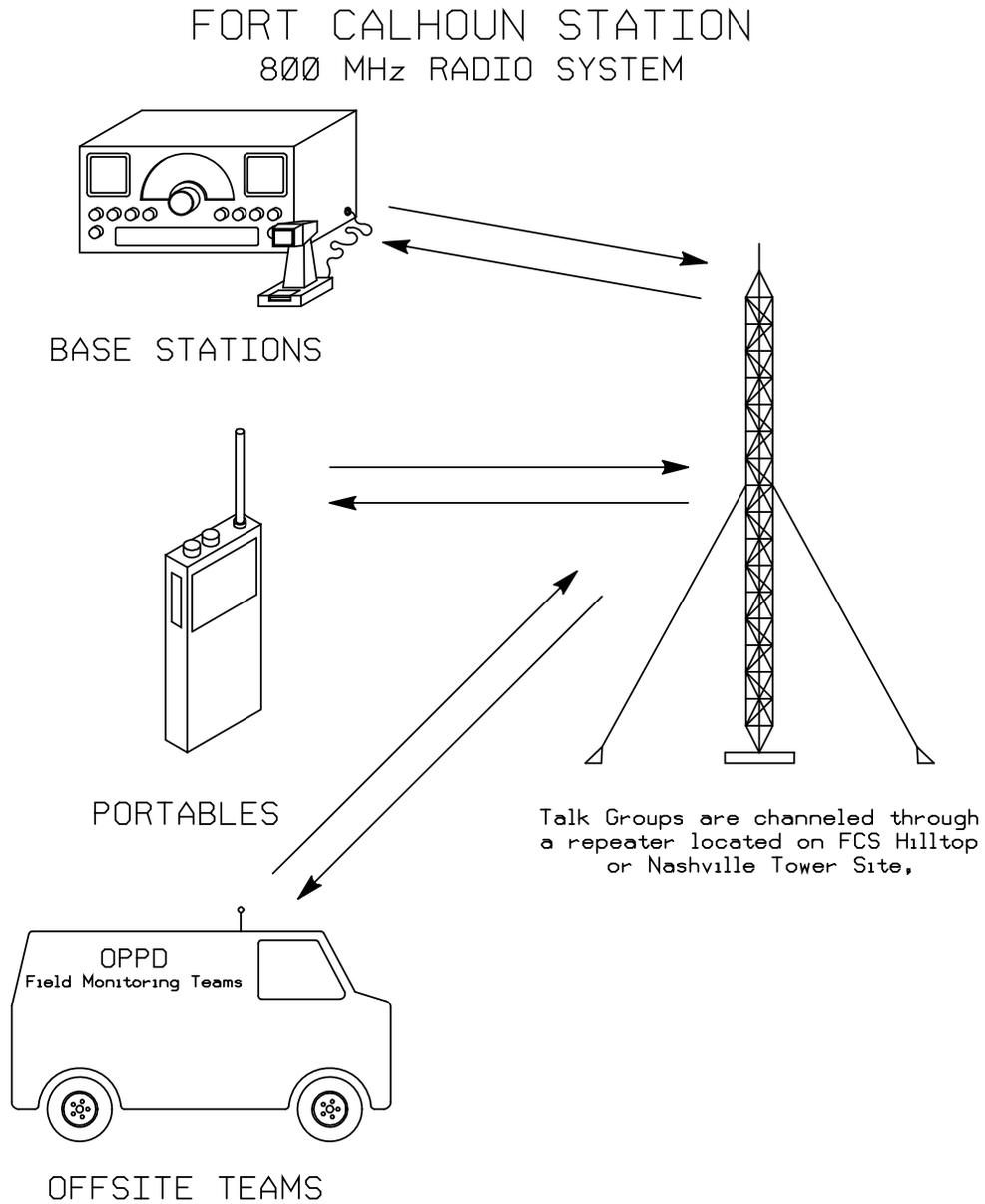
Figure F-5 - Operations Liaison Network



REVISION BLOCK		OMAHA PUBLIC POWER DISTRICT OMAHA, NEBRASKA	
NO	DATE	BY	APP'D.
1	10/19/06	SAH	PFC
2	09/06/08	BML	PFC
3	08/22/09	BML	PFC
TITLE OPS LIAISON NETWORK			
LOCATION VARIOUS			
DRN. BY: T. AVANT	DATE: 05/12/04	ENG. NO.	SIZE
APPV'L. BY:	DATE:	CB159	B
SCALE:	SCALE:		A
COMMUNICATIONS DEPARTMENT			SHEET 1 OF 1

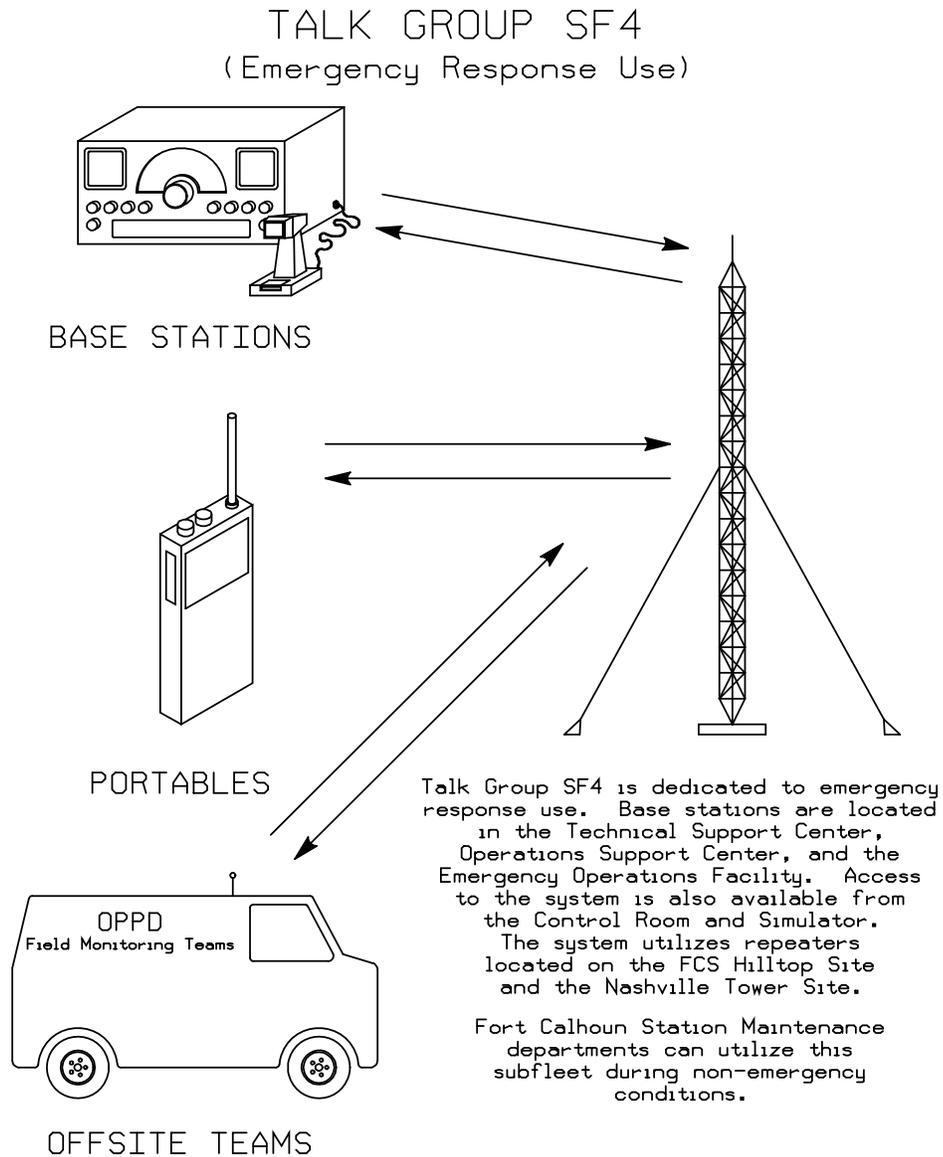
## EMERGENCY COMMUNICATIONS

Figure F-6 - OPPD/Fort Calhoun Station 800 MHz Radio System



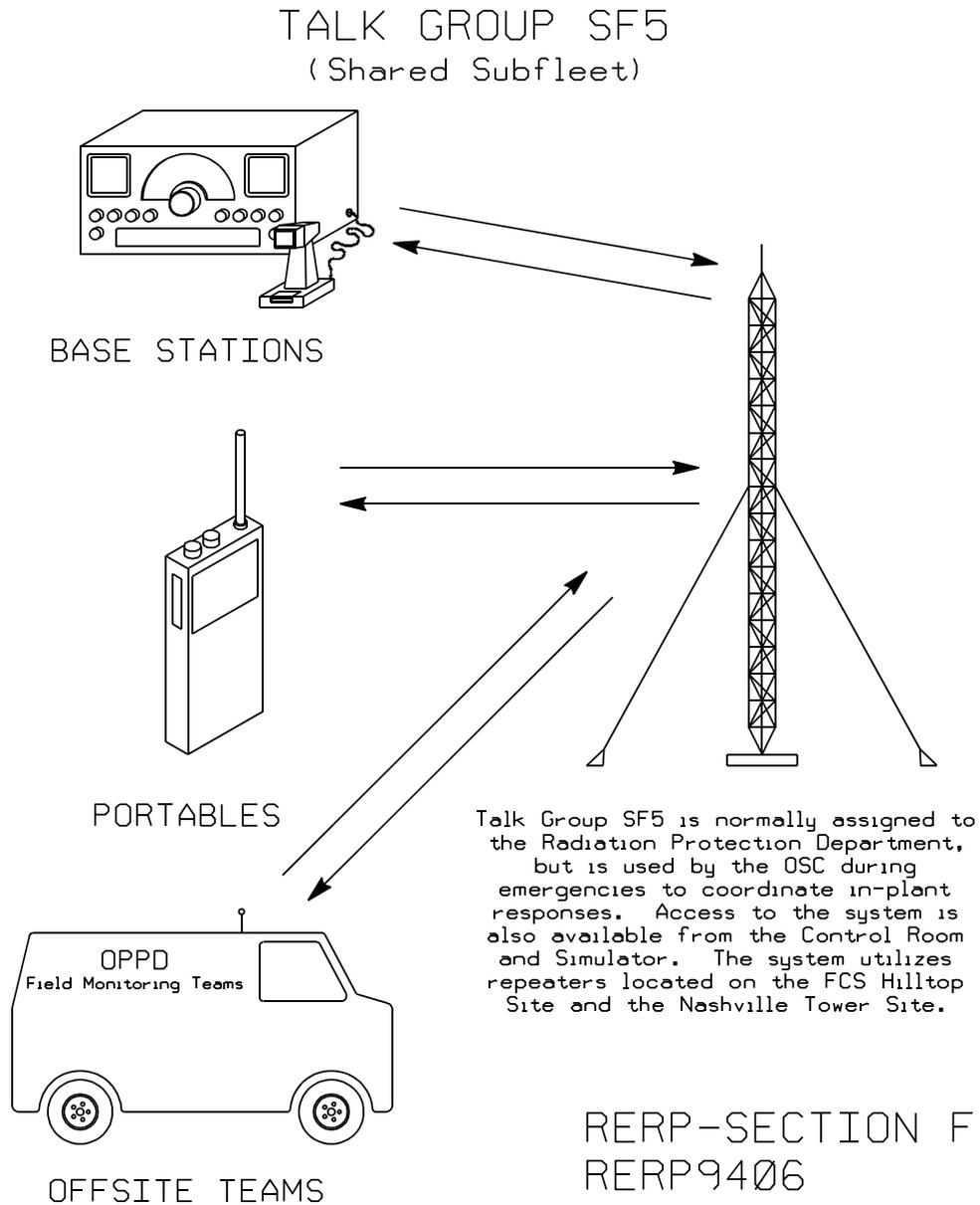
## EMERGENCY COMMUNICATIONS

Figure F-7 - Fort Calhoun Station Subfleet - SF4



## EMERGENCY COMMUNICATIONS

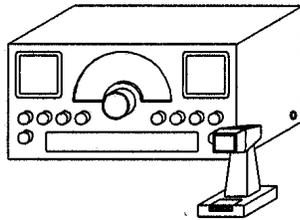
Figure F-8 - Fort Calhoun Station Subfleet - SF5



## EMERGENCY COMMUNICATIONS

Figure F-9 - Fort Calhoun Station Talk-Around Channel (TA)

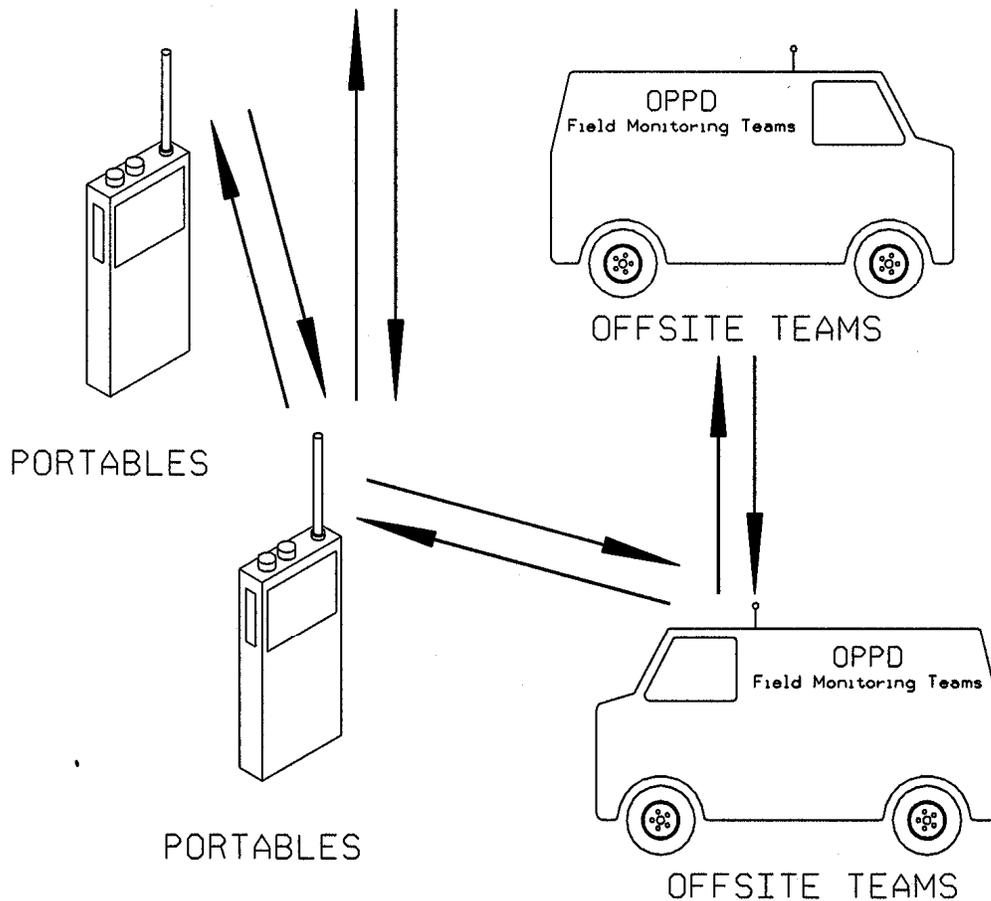
### TALK-AROUND CHANNEL (TA)



BASE STATIONS

The TA Channel provides an alternate (or back-up) means of radio communications.

The TA Channel provides radio transmissions without the benefit of a repeater, therefore, the effective range of coverage is greatly reduced. This option is only good for two closely located units to communicate together. It does not utilize the 800 MHz trunking system.



EMERGENCY COMMUNICATIONS

Figure F-10 - Summary of 800 MHz Radio Uses

Channel	Display	Normal Use	Emergency Use
1	SF1 Sec 1	Security-Primary	Security-Primary
2	SF2 Sec 2	Security-Secondary	Security-Secondary
3	SF3 Ops	Operations	Operations
4	SF4 EP	Emergency Planning	Field Team Control
5	SF5 RP	Radiation Protection	In-Plant Team Control
6	SF6 Maint.	Maintenance	In-Plant Team Control
7	SF7 ERO	Emergency Planning	Emergency Planning
8	SF8 Work Ch	Work Channel	Available for Use
9	SF9 EP Cntrl	EP Controller	Available for Use
10	Spare 1	Future	
11	Spare 2	Future	
12	Spare 3	Future	
13	Talk Around	Talk Around	Emergency Use
14	Unprogrammed	Not Available	Not Available
15	Unprogrammed	Not Available	Not Available
16	Unprogrammed	Not Available	Not Available

## PUBLIC EDUCATION AND INFORMATION

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### **1.0 PUBLIC INFORMATION CONTENT AND DISSEMINATION**

#### 1.1 Public Information Content

The Omaha Public Power District (OPPD) Corporate Communications Division has coordinated with the States of Nebraska and Iowa in the preparation and dissemination of educational information. A brochure entitled Fort Calhoun Nuclear Station Emergency Planning Information incorporates the following information:

- 1.1.1 A description of natural background and manmade radiation, including estimated annual doses from various sources of radiation.
- 1.1.2 Public warning procedures and use of radio and television following an emergency at the Fort Calhoun Station.
- 1.1.3 Radiation protection, including such protective actions as in-house sheltering and evacuation.
- 1.1.4 Special evacuation notes, including special needs of the handicapped, medical and nursing home patients, registration centers, evacuation routes and a Sub Area map of the EPZ.
- 1.1.5 Information concerning the primary Emergency Alert System.
- 1.1.6 Additional protective actions including ad hoc respiratory protective devices.
- 1.1.7 A list of contact points to obtain additional information.

#### 1.2 Public Information Dissemination

The Public Information Brochure is distributed in written form annually by mail to the permanent adult population within an approximate 10-mile radius of Fort Calhoun Station. A general distribution to reach the transient population is achieved by posting information in public areas and by placing supplies of prepared written material in motels, service stations, and government buildings. Media advertisements, utility bill inserts, telephone tape messages, news releases, and public seminars may also be utilized for public education and information.

An Emergency Planning recurring task verifies the content and dissemination of this information.

## 2.0 **NEWS MEDIA COORDINATION AND FACILITIES**

There are two (2) locations available for use of the news media. The Joint Information Center (JIC) is the primary facility for the release of all information; the Emergency Operations Facility (EOF) has limited space for press briefings and may be used on a selective basis. The Corporate Crisis Communication Plan provides the guidance for the operation of the Joint Information Center during emergencies. This plan is reviewed annually in accordance with an Emergency Planning Test.

### 2.1 Joint Information Center (JIC)

The primary information point is the Joint Information Center located within OPPD's Energy Plaza at 444 South 16th Street Mall, Omaha, Nebraska. This center is activated for either a Site Area Emergency or General Emergency and will accommodate Joint Information Center personnel as well as local, State and Federal public information personnel.

For Classifications below Site Area Emergency, the Division Manager-Corporate Communications shall determine the corporate response for media coordination efforts.

The Joint Information Center also serves as the public inquiry center for OPPD, State and Federal authorities. ~~The Public Inquiry Supervisor will serve as OPPD's representative in this area.~~

### 2.2 Emergency Operations Facility Briefing Room

A secondary facility is located in the Emergency Operations Facility located at the North Omaha Power Station. However, the Joint Information Center is the preferred point of news media information.

The EOF Briefing Room was constructed as working space for 25 news correspondents. It is anticipated that space in this facility will be for the local media which routinely cover OPPD activities. Remaining space will be allocated to the national and regional media on a pool basis.

### **3.0 EMERGENCY CLASSIFICATION INFORMATION RELEASES**

Following the classification of an emergency, Corporate Communications Division representatives will be informed of the emergency action level invoked at the plant and the reason or reasons thereof. Once such notification has been made, release of information to the news media will be coordinated by the Division Manager - Corporate Communications or the Joint Information Center Manager. That position will also coordinate the timely exchange and release of information with the official spokespersons for Federal and State agencies. The JIC Manager will report directly to the Emergency Director. ~~Ann~~ JIC Technical Liaison at the Joint Information Center will assist in nuclear related information matters. The JIC Technical Liaison will also be in direct contact with the EOF Information Specialist or the EOF Technical Liaison who will provide prompt and accurate information regarding plant status. The Corporate Crisis Communication Plan activates and augments the JIC staff. During all emergency classifications, the Corporate Spokesperson is the official designated spokesperson for OPPD.

### **4.0 NEWS MEDIA EXPOSURE TO EMERGENCY PLANNING INFORMATION**

The Corporate Communications Division mails an annual information packet or conducts an annual seminar to acquaint the local news media with the operation of Fort Calhoun Station and its emergency plan, including the public information procedures to be followed in an emergency. The mailing\seminar also provides educational information concerning radiation, and nuclear related subjects deemed appropriate. An Emergency Planning recurring task verifies the transmittal of the information packet or conduct of the seminar to the local news media outlets.



## EMERGENCY FACILITIES AND EQUIPMENT

<b>i</b>	<b>NOTE</b>	<b>i</b>
	<p>This section lists the Emergency Response Facilities (ERF) available for activation in the event of an emergency at the Fort Calhoun Nuclear Station, including the ISFSI. General equipment and staffing of emergency facilities are also included in this section. Communications equipment is covered in Section F. Assessment equipment is covered in Section I.</p>	

### 1.0 **TECHNICAL SUPPORT CENTER (TSC)**

#### 1.1 Facility Function and Description

- 1.1.1 The TSC's primary function is the collection, analysis, and distribution of technical data required to support plant ~~operations~~ personnel during an emergency. This ~~operational~~ support is provided from a separate and distinct center, thus reducing personnel congestion in the Control Room. The TSC has the capability to perform EOF functions and responsibilities until that facility can be fully activated.
- 1.1.2 The TSC building is located on the north side of the Auxiliary Building. (See Figure H-1). The north wall of the auxiliary building is shared as the south wall of the TSC. To the east of the building is the maintenance shop. To the north and west of the TSC is the Chemistry/Radiation Protection Building. The TSC building was designed to meet the criteria of NUREG 0696 and is less than a two minute walk from the Control Room.
- 1.1.3 The TSC is composed of a protected area and an equipment area. It is comprised of heavy concrete mat construction with 1-1/2 foot thick reinforced concrete walls and ceiling. This part of the structure is kept at positive pressure and the building air can be filtered through a pre-filter, HEPA filter and charcoal filter. Flood barriers in various locations of the plant protect the TSC from flooding and are designed for a 100 year recurrence frequency.
- 1.1.4 An "L" shaped equipment area is located to the east and south of the TSC protected area. The equipment area has concrete footings and common steel construction with concrete block walls. Items included in the equipment area are the batteries and UPS power distribution systems, HVAC and HEPA filters.

## EMERGENCY FACILITIES AND EQUIPMENT

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### 1.2 Equipment and Supplies

1.2.1 The TSC is typically equipped with the following items:

- A. System Drawings for the nuclear power plant and the ISFSI
- B. Vendor Manuals
- C. An official copy of the Fort Calhoun Station Operating Manual. (This includes the Operating Procedures and Instructions, ~~Emergency Operation Procedures~~, the Post Shutdown Radiological Emergency Response Plan and Emergency Plan Implementing Procedures.
- D. Updated Safety Analysis Report (USAR) for the nuclear power plant and the NUHOMS Storage System FSAR for the ISFSI (electronically)
- E. Technical Specifications for the nuclear power plant and the ISFSI (electronically)
- F. Direct and Airborne Radiation Monitoring Equipment which is permanently installed:
  - 1. Area Monitor (RM-093):

The area monitor in the TSC is a GM detector (or equivalent) that detects gamma radiation.
  - 2. Particulate, Iodine and Noble Gas (PING) Monitor:

The sampler and detector subsystem contains a combined particulate, iodine and noble gas sampler in one compact, lead-shielded assembly. Three read-outs contain all alarm functions of alert, high and failure, along with check source actuation controls. The PING is piped directly to the TSC ventilation system to monitor TSC supply air at all times.
- G. Emergency Response Facilities Computer System/Safety Parameter Display System (ERFCS/SPDS).
- H. Personal Computer(s) with printers.
- I. Emergency Response Message System.
- J. Sign-in Board with identification tags.
- K. Emergency logs.
- L. ~~St4atus~~ Status boards.

## EMERGENCY FACILITIES AND EQUIPMENT

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M. The ability to provide output displays to the OSC and EOF.

### 1.3 Staffing

1.3.1 The TSC affords ample space and equipment to support the Emergency Response Organization (ERO) as stated in Section B and additional TSC personnel as defined in the Fort Calhoun ERO Roster. In addition, space has been allocated for NRC representatives.

## 2.0 **EMERGENCY OPERATIONS FACILITY (EOF)**

### 2.1 Facility Functions and Description

- 2.1.1 The function of the Emergency Operations Facility is to serve as the support facility for the licensee's overall management of emergency response activities (including coordination with Federal, State and local officials), the central collection and coordination point for all off-site radiological and environmental samples and assessments in order to make public protective action recommendations (PARs).
- 2.1.2 The Emergency Operations Facility is located 17 miles from the Fort Calhoun Station at the North Omaha Power Station. This site was chosen to ensure continuous habitability and is the only Emergency Operations Facility in the district. The building is capable of providing working space for a minimum of 35 persons consistent with the requirements of NUREG-0696, Revision 1. Space for data systems equipment, communications and storage activities is also available.
- 2.1.3 The alternative facility maintains the capability for staging the TSC/OSC emergency response organization personnel in the event of a hostile action. The alternative facility has the capability for communications with the control room, and plant security; the capability to perform offsite notifications; and the capability for engineering assessment activities. The EOF will satisfy the offsite notification responsibilities for the alternative facility. The EOF staff will support offsite notification responsibilities while the TSC/OSC ERO are performing activities supported by the alternate facility. The alternate facility is co-located with the EOF at OPPD's North Omaha Station.

## EMERGENCY FACILITIES AND EQUIPMENT

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### 2.2 Equipment and Supplies

2.2.1 The EOF is typically equipped with the following emergency response items:

- A. Emergency Status Boards
- B. 10-Mile EPZ Maps
- C. Emergency Monitor Kits
- D. Assignment Board with identification tags
- E. Portable Calculator(s)
- F. Emergency Telephone Books
- G. Emergency Logs
- H. Personal Computers and Printers
- I. Technical Specifications for the nuclear power plant and the ISFSI (electronically)
- J. System Drawings for the nuclear power plant and the ISFSI
- K. Complete latest revision of the Fort Calhoun Station Operating Manual. (This includes the Operating Procedures and Instructions, ~~Emergency Operating Procedures~~, the Post Shutdown Radiological Emergency Response Plan and Emergency Plan Implementing Procedures).
- L. Emergency Response Facilities Computer System/Safety Parameter Display System (ERFCS/SPDS)
- M. Emergency Response Message System (ERMS)

### 2.3 Staffing

2.3.1 The EOF affords ample space and equipment to support the Emergency Response Organization as stated in Section B. In addition, space has been allocated for NRC Representatives.

## EMERGENCY FACILITIES AND EQUIPMENT

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### **3.0 OPERATIONS SUPPORT CENTER (OSC)**

#### 3.1 Facility Function and Description

3.1.1 The Operations Support Center (OSC) is an onsite facility, separate from the Control Room (CR) and the Technical Support Center (TSC) where support personnel assemble and prepare to perform investigative or corrective actions as deemed necessary by the CR or TSC.

3.1.2 The OSC communicates with the CR and the TSC and is located in the TSC Building.

#### 3.2 Equipment and Supplies

3.2.1 Equipment lockers are provided in the OSC for storage of instruments, SCBAs, supplies and reference documents.

#### 3.3 Staffing

3.3.1 OSC management is comprised of an OSC Director and three ~~coordinators~~ technicians representing the radiation protection, chemistry and maintenance disciplines. ~~Technicians comprise the balance of the OSC personnel~~ (See Section B of this plan for a comprehensive organization definition).

### **4.0 CONTROL ROOM**

#### 4.1 Facility Description and Function

4.1.1 The Control Room functions as the onsite location from which the ~~nuclear power plant is operated~~ FCS systems are monitored and controlled and from which any ISFSI operations are coordinated. It is large enough to contain all the instrumentation, controls and displays for the nuclear systems, reactor coolant systems, steam systems, electrical systems, safety and accident monitoring systems. The Control Room plays a vital role in the Emergency Response Organization by providing the initial response actions needed to react to any emergency situation. The Control Room personnel will respond to all emergency situations in an attempt to mitigate the emergency and minimize the impact on the surrounding environment, health and safety of the public as well as plant personnel and equipment.

## EMERGENCY FACILITIES AND EQUIPMENT

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### 4.2 Equipment and Supplies

4.2.1 The Fort Calhoun Station Control Room is typically supplied with the following emergency supplies:

- Emergency Locker (Computer Room)
- Operating and Emergency Procedures and Manuals
- Radiological Monitoring Equipment
- Technical Specifications for ~~the nuclear power plant~~FCS and the ISFSI (electronically)
- System Drawings for the nuclear power plant and the ISFSI (electronically)

### 4.3 Staffing

4.3.1 In addition to normal CR personnel, additional positions are called out in the event of an emergency situation as stated in Section B.

## 5.0 EMERGENCY KITS

5.1 The emergency kits and equipment are inventoried in accordance with Fort Calhoun Station Surveillance Tests Procedures. Extra quantities of equipment, spare parts and supplies are located at the Fort Calhoun Station Warehouse to support extended emergencies.

### 5.2 Radiological Emergency Kits

5.2.1 These kits include protective equipment, radiological monitoring equipment and emergency supplies. Kits are located in the Control Room, Technical Support Center, Operations Support Center and the Emergency Operations Facility.

5.2.2 The Radiation Protection Department establishes the method and frequency for instrument calibration. Individual instruments are calibrated using approved calibration procedures. Repair/replacement of equipment is coordinated through the Radiation Protection Department.

### 5.3 Dosimetry Kits

5.3.1 These kits include dosimetry, dosimeter chargers and appropriate paperwork. Kits are located in the Control Room, Technical Support Center, Operations Support Center and Emergency Operations Facility.

## EMERGENCY FACILITIES AND EQUIPMENT

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### 5.4 Medical Kits

#### 5.4.1 First Aid Equipment and Supply Kits

- A. First aid equipment and supplies are located in the First Aid Room. Trauma and primary response kits are available throughout the plant. These kits are inspected and maintained by the Industrial Safety Coordinator.

#### 5.4.2 Contaminated/Injured Person Kit

- A. These kits are located in the Operations Support Center and near the RP Count Room. These kits are maintained by the Radiation Protection Department.

### 5.5 Decontamination Area

- 5.5.1 Decontamination equipment and supplies are located in the main warehouse and the radiation protection work area.

### 5.6 Field Monitoring Kits

- 5.6.1 OPPD maintains two vehicles designated for emergency use, each vehicle is equipped with radiological monitoring equipment, emergency supplies, and other equipment/supplies that may be used by teams monitoring radiological conditions on and off site. Each vehicle also has a permanently installed communications system as described in Section F.
- 5.6.2 Radiological equipment or other equipment that is/or may be affected by climate changes may be stored in a designated storage area.
- 5.6.3 Use of these emergency vehicles is authorized by the Manager-Emergency Planning or designee. In the event a vehicle requires servicing every effort will be made to have it returned on the same day. A sign reminding users that the vehicle shall be returned to its home base in the event of a declared emergency at Fort Calhoun Station is posted in each vehicle.

## EMERGENCY FACILITIES AND EQUIPMENT

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### 5.7 Other OPPD Resources

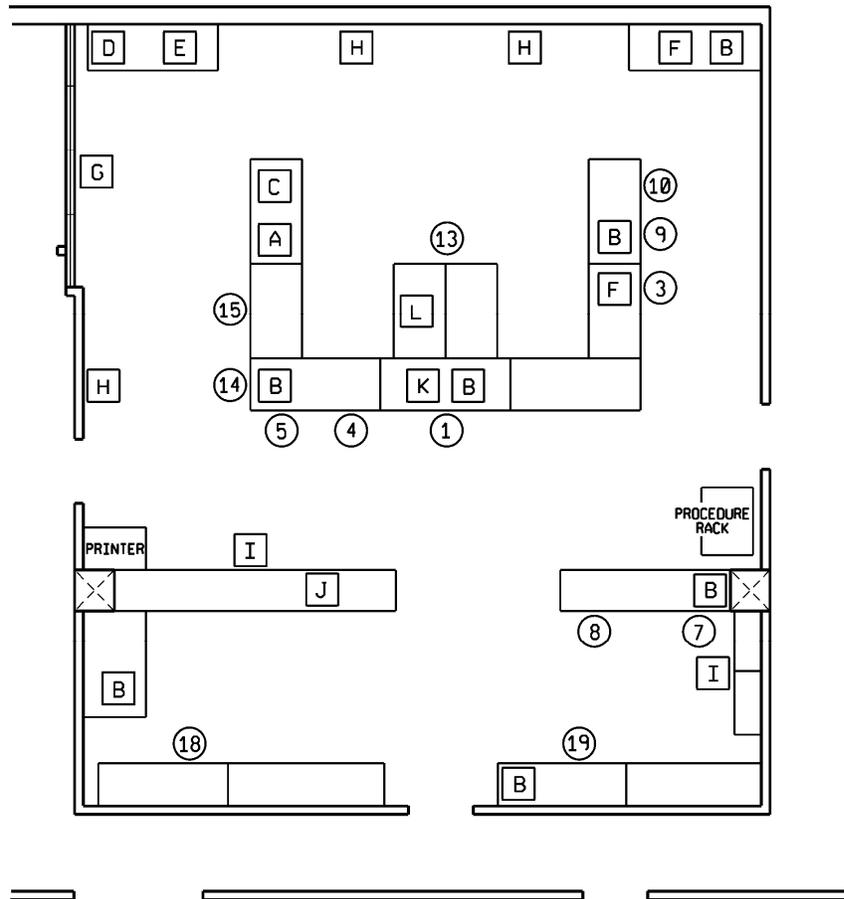
5.7.1 OPPD has other facilities and resources that may be useful in support of an emergency at Fort Calhoun Station. Examples are:

- A. Fort Calhoun Station Simulator could be used to model plant transients or serve as an alternate location for support and technical personnel. The simulator has the following communications equipment: Conference Operation Network (COP), Operations Liaison Network, FTS-ENS Phone, Gai-tronics, remote radio base station, regular phone systems, computer terminal for dose assessment, and FAX machine.
- B. The FCS Training Center, the FCS Administration Building, and Energy Plaza make available resources such as: briefing rooms, classrooms, technical libraries, a chemistry laboratory, a radiation protection laboratory, communications, computers, food storage and preparation facilities, alternate water supply, and shop areas.



Figure H-2 - Typical Technical Support Center Layout

## EMERGENCY FACILITIES AND EQUIPMENT



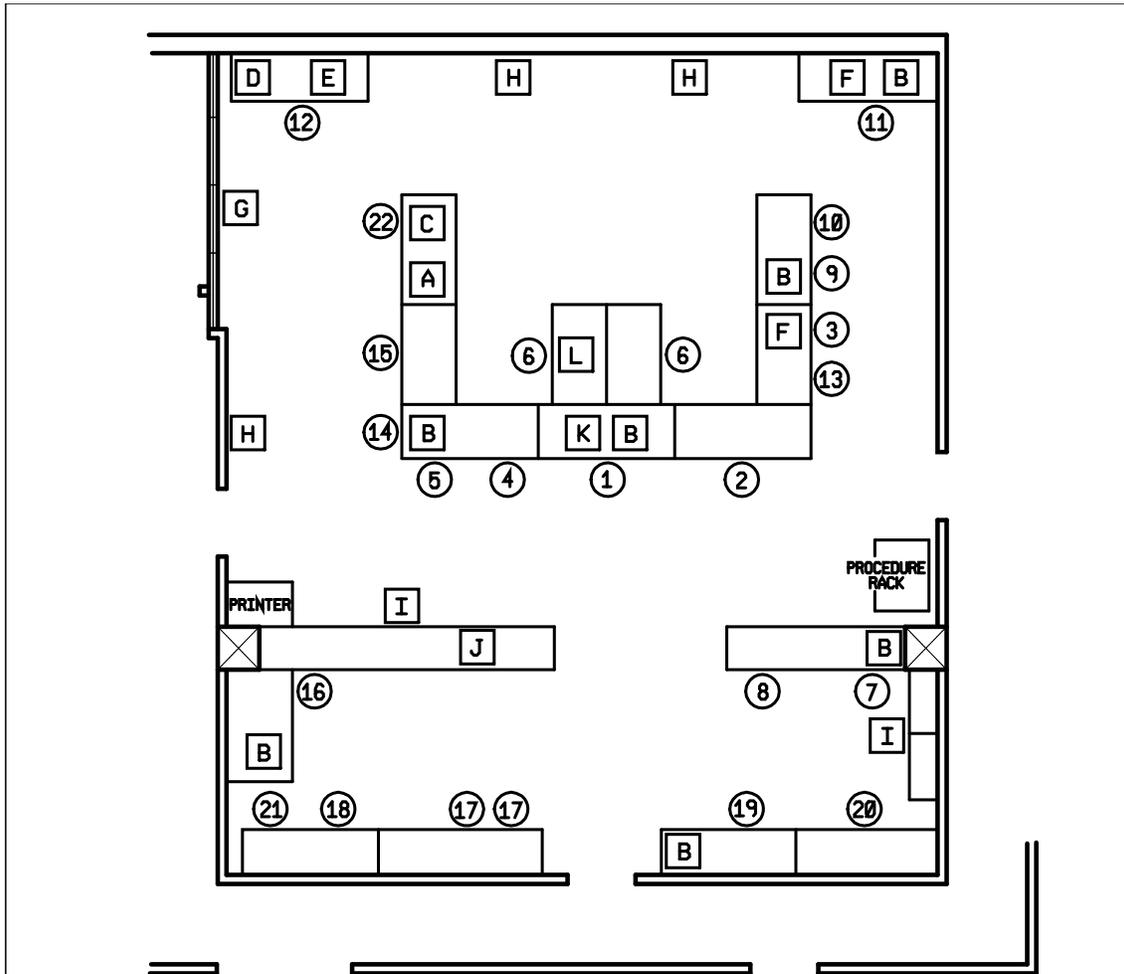
### LEGEND

- |                                     |  |
|-------------------------------------|--|
| A - DOSE ASSESSMENT WORKSTATION     | G - EPZ MAP                              |
| B - ERF WORKSTATION                 | H - STATUS BOARD                         |
| C - CHP                             | I - PROCEDURES (OFFICIAL COPIES)         |
| D - FAX MACHINE                     | J - P & IDS                              |
| E - COP                             | K - MOP                                  |
| F - ENS PHONE                       | L - ERMS                                 |
| 1 - SITE DIRECTOR                   | 13 - TSC ADMIN LOGISTICS CORRD.          |
| 3 - TSC OPS. LIAISON                | 14 - NRC SITE PROTECTIVE MEASURES COORD. |
| 4 - NRC RESIDENT INSPECTOR          | 15 - PROTECTIVE MEASURES COORDINATOR     |
| 5 - NRC SITE TEAM LEADER            | 18 - NRC REACTOR SYSTEMS SPECIALIST      |
| 7 - ENGINEERING COORDINATOR         | 19 - NRC CORE DAMAGE ASSESSOR            |
| 8 - NRC REACTOR SAFETY COORD.       |  |
| 9 - TSC SECURITY COORDINATOR        |  |
| 10 - NRC SAFEGUARDS/SECURITY COORD. |  |

TSC ROOM

DRAWING FILE NO.
P-00243

EMERGENCY FACILITIES AND EQUIPMENT



**LEGEND**

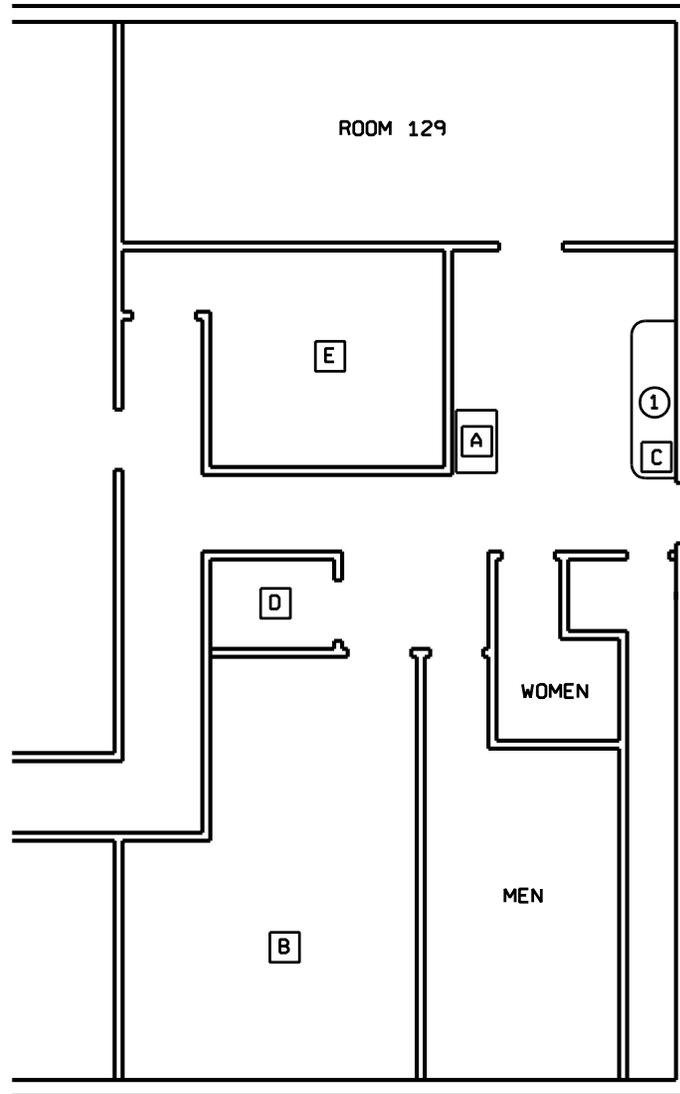
- |                                 |                                  |
|---------------------------------|----------------------------------|
| A - DOSE ASSESSMENT WORKSTATION | G - EPZ MAP                      |
| B - ERF WORKSTATION             | H - STATUS BOARD                 |
| C - CHP                         | I - PROCEDURES (OFFICIAL COPIES) |
| D - FAX MACHINE                 | J - P & IDS                      |
| E - COP                         | K - MOP                          |
| F - ENS PHONE                   | L - ERMS                         |
- 
- |                                     |  |
|-------------------------------------|--|
| 1 - SITE DIRECTOR                   | 12 - COP COMMUNICATOR                    |
| 2 - TSC DIRECTOR                    | 13 - TSC ADMIN LOGISTICS CORRD.          |
| 3 - TSC OPS. LIAISON                | 14 - NRC SITE PROTECTIVE MEASURES COORD. |
| 4 - NRC RESIDENT INSPECTOR          | 15 - PROTECTIVE MEASURES COORDINATOR     |
| 5 - NRC SITE TEAM LEADER            | 16 - ELECTRICAL/I & C ENGINEER           |
| 6 - SITE DIRECTOR SECRETARY         | 17 - PRIMARY SYSTEMS ENGINEER            |
| 7 - REACTOR SAFETY COORDINATOR      | 18 - NRC REACTOR SYSTEMS SPECIALIST      |
| 8 - NRC REACTOR SAFETY COORD.       | 19 - NRC CORE DAMAGE ASSESSOR            |
| 9 - TSC SECURITY COORDINATOR        | 20 - REACTOR ENGINEER                    |
| 10 - NRC SAFEGUARDS/SECURITY COORD. | 21 - SECONDARY SYSTEMS ENGINEER          |
| 11 - TSC STATUS BOARD KEEPER        | 22 - CHP COMMUNICATOR                    |

**TSC ROOM**

DRAWING FILE NO.  
P-00243

## EMERGENCY FACILITIES AND EQUIPMENT

Figure H-3 - Typical TSC Entry/Briefing Area



**LEGEND**

- A - COPY MACHINE
- B - BRIEFING ROOM
- C - TSC CARD READER
- D - ADMIN. SUPPLIES
- E - NRC CONFERENCE ROOM

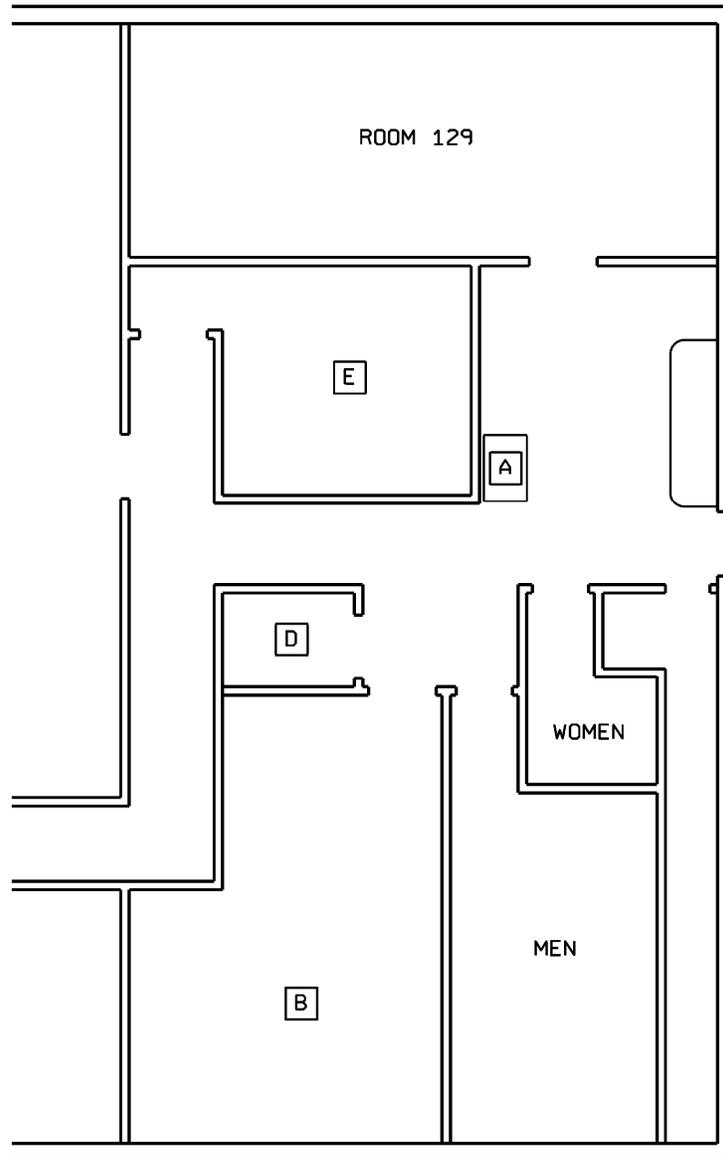
1 - TSC ACCOUNTABILITY CLERK

**TSC ENTRY / BRIEFING AREA**

DRAWING FILE NO.

P-00273

## EMERGENCY FACILITIES AND EQUIPMENT



### LEGEND

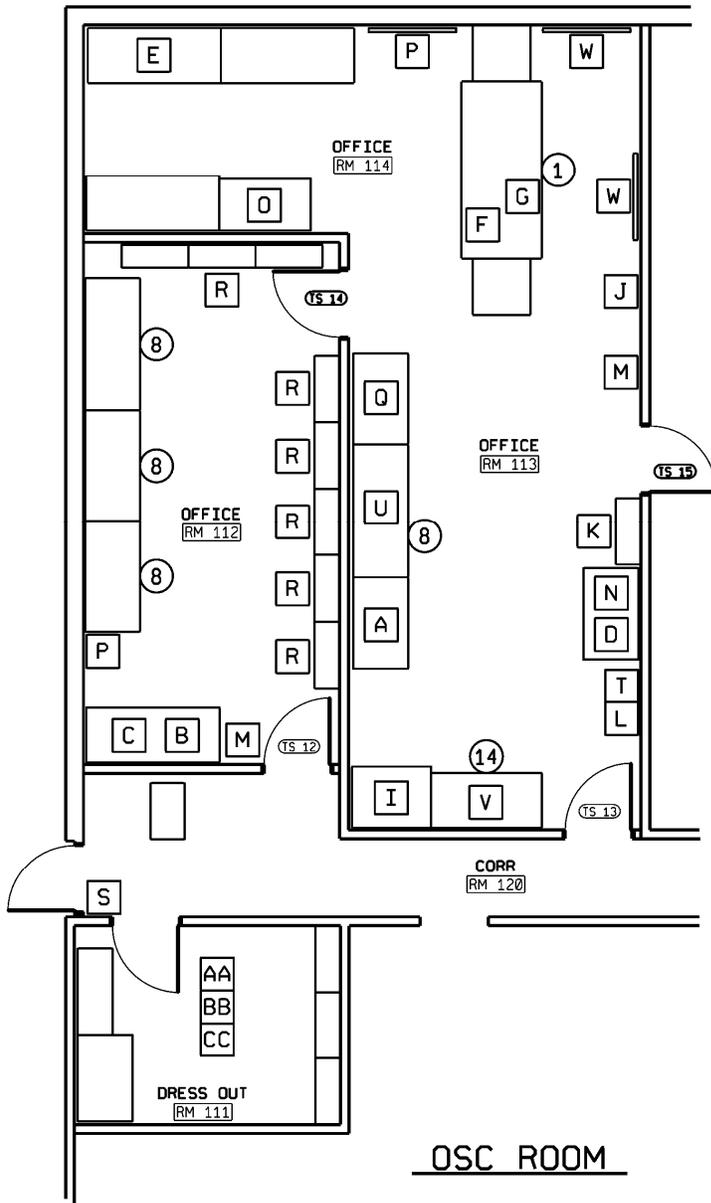
- A - COPY MACHINE
- B - BRIEFING ROOM
- C - TSC CARD READER
- D - ADMIN. SUPPLIES
- E - NRC CONFERENCE ROOM

### TSC ENTRY / BRIEFING AREA

DRAWING FILE NO.
P-00273

Figure H-4 - Typical Operations Support Center Layout

EMERGENCY FACILITIES AND EQUIPMENT



**LEGEND**

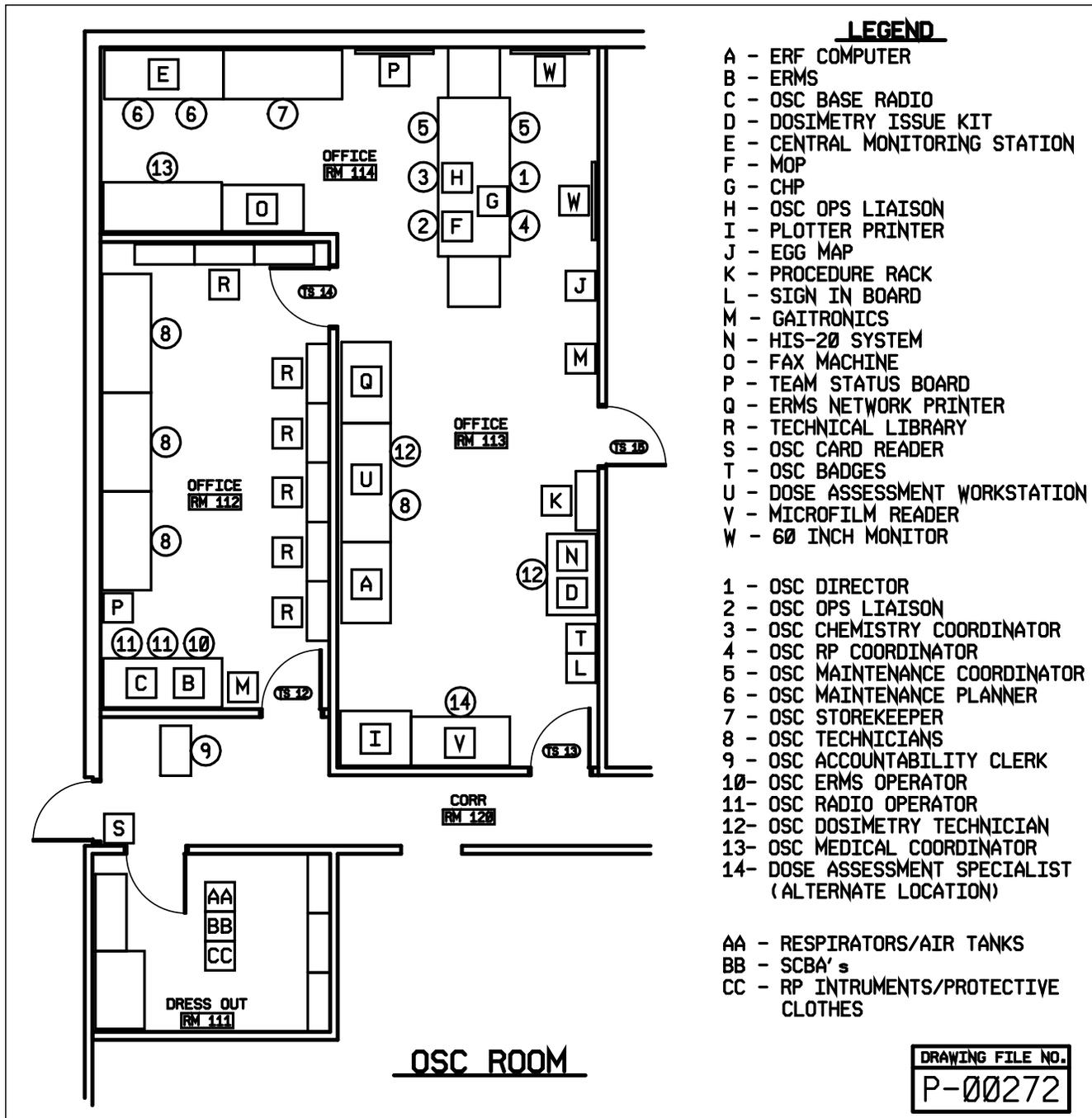
- A - ERF COMPUTER
- B - ERMS
- C - OSC BASE RADIO
- D - DOSIMETRY ISSUE KIT
- E - CENTRAL MONITORING STATION
- F - MOP
- G - CHP
- I - PLOTTER PRINTER
- J - EGG MAP
- K - PROCEDURE RACK
- L - SIGN IN BOARD
- M - GAITRONICS
- N - HIS-20 SYSTEM
- O - FAX MACHINE
- P - TEAM STATUS BOARD
- Q - ERMS NETWORK PRINTER
- R - TECHNICAL LIBRARY
- S - OSC CARD READER
- T - OSC BADGES
- U - DOSE ASSESSMENT WORKSTATION
- V - MICROFILM READER
- W - 60 INCH MONITOR

- 1 - OSC DIRECTOR
- 8 - OSC TECHNICIANS
- 14- DOSE ASSESSMENT SPECIALIST (ALTERNATE LOCATION)

- AA - RESPIRATORS/AIR TANKS
- BB - SCBA's
- CC - RP INSTRUMENTS/PROTECTIVE CLOTHES

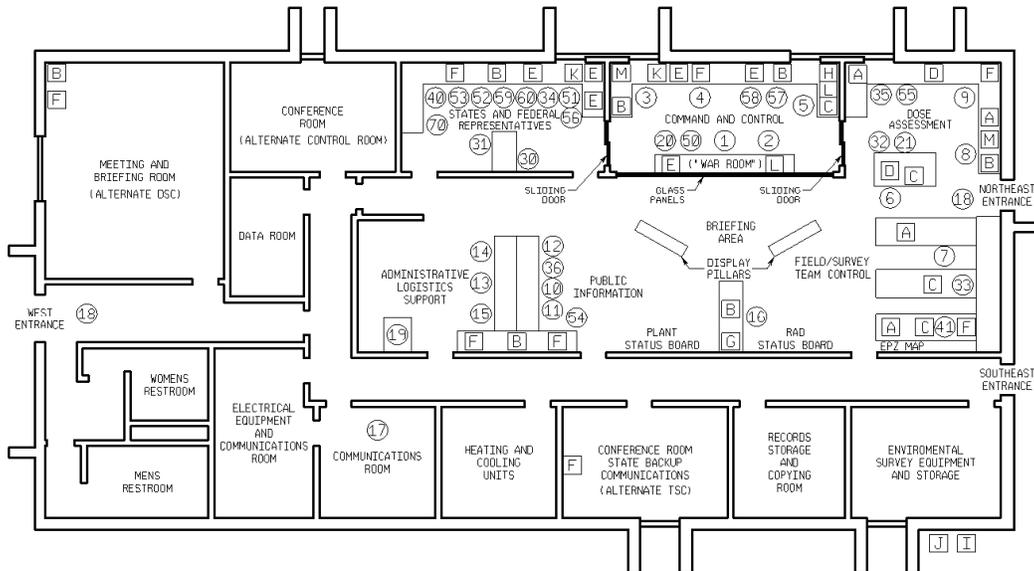
DRAWING FILE NO.  
P-00272

EMERGENCY FACILITIES AND EQUIPMENT

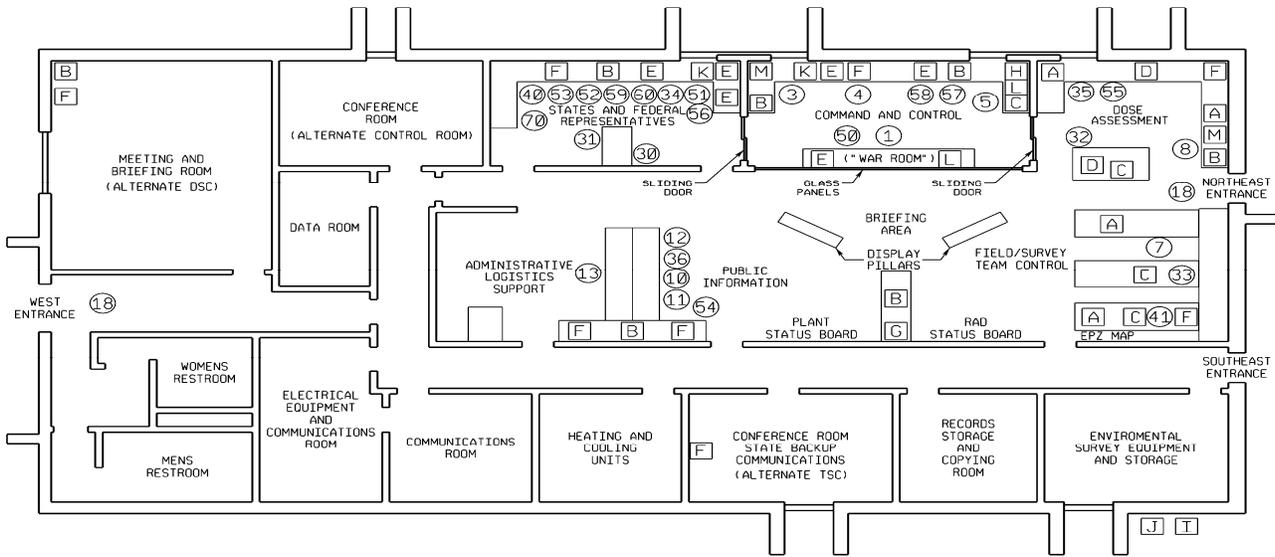


## EMERGENCY FACILITIES AND EQUIPMENT

Figure H-5 - Typical Emergency Operations Facility Layout



DRAWING FILE NO.  
P-00244



DRAWING FILE NO.  
P-00244

- |                                      |                   |  |                             |
|--------------------------------------|-------------------|--|-----------------------------|
| A. Dose Assessment Terminals         | E. ENS Phones     | I. NRC Van Elect/Tele Hookup                 | M. Operations Liaison Phone |
| B. ERF Terminals                     | F. Fax Machines   | J. Nebr. "CRUSH" Elect/Tele Hookup           |                             |
| C. CHP Phones                        | G. ERF Printer    | K. COP Phone                                 |                             |
| D. HPN Phones                        | H. Siren Terminal | L. Mop Phone                                 |                             |
| 1. Emergency Director                |                   | 30. NE. Governor's Authorized Representative |                             |
| 2. Emergency Director Secretary/ERMS |                   | 31. NE. GAR Advisor                          |                             |

## EMERGENCY FACILITIES AND EQUIPMENT

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3. EOF Operations Liaison
4. EOF COP Communicator
5. Protective Measures Manager
- ~~6. EOF Dose Assessment Coordinator~~
7. EOF Field Team Specialist
8. EOF Dose Assessment Specialist
- ~~9. EOF Dose Assessment Assistant~~
- ~~10. EOF Information Specialist~~
11. EOF Technical Liaison
12. Des Moines Site Representative
13. EOF Administrative Logistics Manager
- ~~14. EOF Secretary~~
- ~~15. EOF Clerical Assistant~~
- ~~16. EOF Status Board Keeper~~
- ~~17. EOF Communications Specialist~~
18. EOF Security Personnel
- ~~19. EOF Information Technology Specialist~~
- ~~20. EOF Emergency Response Coordinator~~
- ~~21. CHP Communicator~~
32. NE. Manager
33. NE. RAD. Team Coordinator
34. NE. Recorder
35. NE. Dose Calculations
36. NE. Public Information Officer
40. IA. Representative
41. IA. RAD. Team Coordinator
50. NRC Site Team Leader/DSO/MCL
51. NRC Emergency Response Coordinator
52. NRC Status Summary Coordinator
53. NRC Governmental Liaison Coordinator
54. NRC Public Information Representative
55. NRC Dose Assessment Representative
56. NRC Reactor Safety Coordinator/RSCL
57. NRC Protective Measures Team Leader
58. NRC Protective Measures Coordinator/PMCL
59. NRC Status Summary Communicator
60. NRC Emergency Response Assistant
70. FEMA Representative

## ACCIDENT ASSESSMENT

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### 1.0 ACCIDENT ASSESSMENT SUMMARY

Accident assessment is divided into initial and long term phases. At the beginning of an event initial assessments are performed in the Control Room. These early assessments are used as a basis for classifications, immediate actions and emergency response. The Shift Manager is responsible for initial event assessment, classification and initiation of appropriate notifications. Initial dose assessment with recommended protective actions can be performed and evaluated as soon as practical by onsite staff. These projections will be made available to offsite governmental agencies.

Initial assessments using plant parameters or other indicators are compared to pre-determined emergency action levels to select the proper emergency classification. The plant parameters may be system conditions, system configuration, radiological parameters, etc. The Control Room is equipped with adequate monitoring equipment to determine these parameters for rapid assessment and decision-making.

The long term or continuing accident assessment is performed using the Control Room monitoring equipment and other methods made possible by additional resources from the Emergency Response Organization and offsite organizations. This includes radiological information gathered from field monitoring and environmental monitoring teams.

### 2.0 ASSESSMENT CAPABILITIES

#### 2.1 Resources for Detection/Assessment of Non-Radiological Events

##### 2.1.1 Fire Detection

The fire detection system is detailed in the Station Fire Plan.

##### 2.1.2 Seismic Monitoring

Plant seismic instrumentation is provided to determine the response of the containment and auxiliary building structures in the event of an earthquake so that such response can be compared with that used as the basis of design.

Should a seismic disturbance occur in the neighborhood of the plant, the accelerations recorded within the plant will be the basis for a decision as to continued plant operation.

Seismic information is also available offsite through the U.S. Department of the Interior, United States Geologic Survey, National Earthquake Information Service, Boulder, Colorado.

## ACCIDENT ASSESSMENT

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### 2.1.3 River Level

River level is available from local read-out in the intake structure, the plant computer and offsite sources.

## 2.2 Resources for Detection/Assessment of Radiological Releases

### 2.2.1 Plant Process Radiation Monitors

This instrumentation, a part of the Radiation Monitoring System (RMS), is provided to monitor systems in strategic locations throughout the plant for normal and emergency conditions. The monitors are used for trending, determining radioactive material release permit limits, initiating safety signals to limit releases and assessing release rates during an emergency.

The channels of this system provide data both in the Control Room and on the Emergency Response Facility Computer System (ERFCS).

Depending on the type, the various monitors in the system can be used to detect particulate and gaseous radioactivity levels at release points throughout the plant, including containment. The system also provides accident range capability on the Auxiliary Building Ventilation Stack and the Main Steam line.

### 2.2.2 Area Radiation Monitors

Area Radiation Monitors are strategically located throughout the plant to monitor gamma radiation levels.

### 2.2.3 Meteorological Instrumentation

The plant has a permanent 110m meteorological tower with detectors at 10 and 60 meters, and a redundant power supply; the sole output of information from the tower is the ERFCS. In the event of failure of this system, wind speed and direction can be obtained from the National Weather Service in Valley NE, or the Offutt Air Force Base.

The USAR Section 2.5 discusses the terrain around Fort Calhoun Station and its effects on an airborne plume. Historical meteorological data is also available from the plant computer. This data will be made available by OPPD to the appropriate government agencies.

## ACCIDENT ASSESSMENT

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### 2.2.4 Water Analyses

Analyses of plant liquid systems may be performed to help ascertain the nature of problems detected by other instrumentation (prior to an emergency situation). The samples will be collected and analyzed per applicable Fort Calhoun Station procedures.

### 2.2.5 Post Accident Sampling

Methods have been established to collect and analyze samples from the primary coolant system, containment atmosphere, auxiliary building ventilation duct pathway, the main steam safety relief and atmospheric dump valve pathway, and the occupied areas. These methods are described in applicable Fort Calhoun Station procedures.

## 2.3 Field Monitoring

### 2.3.1 Monitoring Operations

In the event of an unplanned airborne materials release following an accident, field monitoring teams will be dispatched to evaluate activity levels.

River water samples can be collected and analyzed in the event radioactive water or liquid is discharged without proper monitoring per the Environmental Monitoring Program. The Metropolitan Utilities District will be notified when accidental liquid discharges occur.

The primary objective of the emergency onsite and offsite field monitoring teams is to survey areas downwind of the plant site in order to determine the extent and magnitude of any unplanned release of radioactive material following an incident.

The task of each monitoring team is to collect air samples and survey data and transmit information and results to the appropriate emergency response facility. This information will be used to define affected areas, and assess the extent and significance of the release. Surveys are done per the applicable Radiation Protection or Emergency Plan procedures.

### 2.3.2 Personnel

#### A. Onsite Field Monitoring

The onsite field monitoring teams focus is primarily on obtaining radiological data within the protected area. These teams are typically dispatched from either the Control Room or Operations Support Center.

## ACCIDENT ASSESSMENT

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### B. Offsite Field Monitoring

The offsite field monitoring team(s) focus is on obtaining radiological data outside the owner controlled area. Primary direction of the off-site field monitoring teams is from the EOF, with back up capability at the TSC.

### C. Environmental Monitoring

Environmental monitoring may be done as a function of recovery from an emergency. Types of sample media and team makeup are dependent upon the needs determined by management personnel.

#### 2.3.3 Equipment

Section H of this plan and the applicable station procedures list the Emergency Kit locations.

## 3.0 **ASSESSMENT OF RADIOLOGICAL RELEASES**

### 3.1 Methods of Assessment

The methods used for the assessment of radioactivity released to the environs are detailed in the Emergency Plan Implementing Procedures.

## PROTECTIVE RESPONSE

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### **1.0 PUBLIC INFORMATION CONTENT AND DISSEMINATION**

#### 1.1 Notification

1.1.1 Onsite personnel are notified of a nuclear emergency via the emergency alarm. This alarm is identified by an intermittent howl and is distinguished from the fire alarm which is a continuous howl. Once the emergency alarm is sounded, the command and control position will give the emergency classification, with other pertinent information, using the intra-plant communication system (Gaitronics). If the owner-controlled area is to be evacuated, personnel will be notified by: 1) Gaitronics System, 2) Administration and Training Building paging systems, 3) Security Personnel, and/or 4) Alert Notification System, if used.

#### 1.2 Evacuation

1.2.1 If the emergency requires Protected Area evacuation, all onsite personnel considered nonessential to the mitigation of the event will normally proceed to a designated location or to their homes. If a release has occurred or there is reason to suspect contamination the evacuees will be sent to the OPPD Elkhorn Center.

1.2.2 Approximately 600 persons might be evacuated during normal work hours and operation; approximately 900 persons might be evacuated during a major outage. During normal operating off-shift hours, no evacuation of onsite individuals is expected. Both OPPD and personal vehicles are used for site evacuation transportation. Agreements with the State of Nebraska and specifically the State Patrol guarantee professional handling and control of traffic. Normal travel time to Elkhorn Center is 37 minutes using the normal evacuation route and 53 minutes using the alternate evacuation route at an average speed of 40 mph. Personnel at the Elkhorn Center will coordinate personnel/vehicle monitoring and decontamination activities, if required.

1.2.3 Security and RP personnel inspect the owner controlled area after a site evacuation has taken place. If any persons other than emergency workers are in the owner controlled area during or after site evacuation, they will be given specific directions and/or escorted off-site.

## PROTECTIVE RESPONSE

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### 1.3 Security and Accountability

#### 1.3.1 Security

- A. The security program is designed to deter, delay and detect an intruder. The Security Area of the plant site is enclosed by an eight foot security fence topped by three strands of barbed wire. All gates to the fence are normally kept locked. An inner perimeter consists of personnel doors, roof hatches, and overhead doors equipped with magnetic alarm switches.
- B. Personnel assigned by the Site Director to enter the plant must pass through the main gate which is guarded. It is extremely unlikely that any unauthorized person would be able to enter the site undetected even during an emergency condition.

#### 1.3.2 Accountability

- A. If accountability of onsite personnel is necessary, the onsite command and control position will notify personnel onsite by announcements on the Gaitronics System, and by sounding the Emergency Alarm (if required). At the completion of the notification(s), the accountability process begins, to be completed within 30 minutes.
- B. Accountability is a process taking place in several areas:
  - 1. Accountability of personnel reporting to the Control Room, TSC, or OSC for emergency response will be performed by personnel using the card readers at these locations.
  - 2. Accountability of security force personnel will be accomplished using established security procedures.
  - 3. Once initial accountability is complete, the command and control position, will be notified of the results.
  - 4. Accountability is maintained by the use of rosters at the Control Room, OSC and TSC. Persons must sign in and out as they enter and leave. These rosters will be compared to a list of personnel who accessed the protected area whenever necessary. Continuous accountability of security personnel is accomplished using established security procedures.

## PROTECTIVE RESPONSE

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### 1.4 Protective Measures

- 1.4.1 It is the policy of OPPD to keep personnel radiation exposure within federal regulations, and station limits and guidelines, beyond that, to keep it As Low As Reasonably Achievable (ALARA). Every effort will be made to keep their exposures within the limits of 10 CFR 20.
- 1.4.2 Personnel monitoring devices are required for all personnel meeting the conditions specified in 10 CFR 20 Section 20.1502, Technical Specifications Section 5.11 and in Radiation Protection Procedures. During emergency conditions, implementing procedure EP-FC-113 will be utilized.
- 1.4.3 Dosimeters and TLDs are typically located in each of the emergency lockers in the Control Room, EOF, OSC and the TSC. Additional dosimeters and TLDs may be obtained from the dosimetry group.
- 1.4.4 Clothing
- A. Protective clothing is a normal use item utilizing both washable and disposables. For entry into affected areas, the OSC has approximately 50 complete sets of protective clothing available. The Control Room has approximately 12 complete sets available. Additional sets are available at the Radiation Control Point. Approximately 2000 sets are ready for use and a large supply of washable and/or disposable coveralls is maintained in the warehouse and RP storage areas. Water-proof protective clothing is also a standard stock item.
- 1.4.5 Respiratory Protection
- A. Respiratory protective devices may be required ~~in any situation arising from plant operations~~ where an airborne radioactivity condition is potential or existent. In such cases, the air will be monitored and the necessary protective devices specified according to the concentration and type of airborne contaminants present. Monitoring and issue of respiratory protection equipment will be conducted in accordance with Radiation Protection Manual Procedures. Precautions will be taken to keep airborne contamination to a minimum through the use of proper engineering controls and decontamination.
- B. Limits for inhalation of radionuclides are established in Appendix B, Table 1 of 10CFR20. The Radiation Protection Manual establishes the station's administrative limits for inhalation which will be adhered to in emergencies if possible.
- C. Types and recommended use for each type of respirator is specified in the Radiation Protection Manual.

## PROTECTIVE RESPONSE

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- D. Approximately 35 self contained breathing apparatus are maintained onsite. Of these, a portion is maintained for fire brigade use, or normal use, and the remainder for emergency response. Spare bottles are also stored in some locations. The site has the capability to refill bottles with a compressor/air bank unit, with a cascade tank unit as a backup. Full-face respirators are maintained in some emergency gear lockers. Respirators are staged for use in plant radiation areas. The onsite Stores warehouse stocks approximately 150 full-face respirators for reserve supply.

### 1.4.6 Radioprotective Drugs

- A. The need for issuance of radioprotective drugs, specifically potassium-iodide, is determined using appropriate procedures.
- B. Radioprotective drugs in the form of potassium iodide tablets are available in the Control Room, Technical Support Center, Operations Support Center, Emergency Operations Facility and the Field Team equipment lockers. Each bottle contains dosage supply for 14 days. Emergency workers are instructed on the advantages and disadvantages of taking the tablets to provide thyroid blockage. The final decision for use of the potassium iodide is made by the emergency worker.

## 2.0 PROTECTIVE RESPONSE FOR RESIDENTS WITHIN THE PLUME EXPOSURE PATHWAY

### 2.1 Protective Action Recommendations

#### 2.1.1 OPPD Guidelines

- A. Fort Calhoun Station is designed and equipped with a series of safety systems engineered to meet all of 10 CFR 100 criteria for reactor safety. OPPD recognizes that in any accident situation, it would be prudent and logical to make every effort to further reduce and minimize exposure to the public. OPPD management will recommend to appropriate State and local authorities that protective actions be initiated if any person is expected to receive an emergency exposure in excess of Environmental Protection Agency (EPA) guidelines.
- B. Tables J-1<sup>1</sup> through J-4<sup>1</sup> provides some information and guidance on formulating Protective Action Recommendations (PAR's). Table J-1<sup>1</sup> summarizes the considerations for selecting the evacuation Protective Action Guides (PAG's). Table J-2<sup>1</sup> outlines the early (plume) phase PAG's due to exposure of airborne and deposited radioactivity. Table J-3<sup>1</sup> summarizes the considerations for selecting relocation PAG's. Table J-4<sup>1</sup> outlines the immediate (relocation) phase PAG's due to exposure to deposited radioactivity.

## PROTECTIVE RESPONSE

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- C. During the early (plume) phase of a radiological emergency, professional judgement will be required in the application of PAG's, due to varying characteristics, such as; plant conditions, evacuation time estimates, environmental conditions, affected population groups, etc. In all cases, the PAR's transmitted by OPPD to the states of Iowa and/or Nebraska are strictly recommendations. The respective government agencies in each state have the ultimate responsibility for implementing necessary protective actions for the general public.

1 Taken from "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents." EPA-400-R-92-001, Revised May, 1992.

- D. Tables J-5 and J-6 provide information pertaining to emergency worker exposure limits and health risks associated with exposure to higher dose levels.

### 2.1.2 Initiation of Recommendations

- A. Recommendations will originate from an Emergency Response Facility based upon data derived from implementing procedure, EP-FC-110, Assessment of Emergencies. This procedure establishes a method for determining projected doses to the population-at-risk. Protective action recommendations based on radiological parameters or plant conditions are determined using EP-FC-111, Emergency Classification and Protective Actions. Total population exposure can be estimated using projected or known dose values and population densities.

## 2.2 Notification

- 2.2.1 In the event public notification is required, both transient and resident population within the plume exposure pathway will be initially notified through the Alert Notification System (reference Section E) and as described in state and county radiological emergency plans. Information will be provided for transient and resident population as well as the general public outside the EPZ through the Emergency Alert System.
- 2.2.2 Information brochures describing notification, protective actions and general radiological education are provided to residents by mail and by public service posting to transients within the EPZ. The States of Iowa and Nebraska will issue messages describing the incident and recommended public protective actions.

## PROTECTIVE RESPONSE

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### 2.3 Evacuation

#### 2.3.1 Evacuation Time Estimate Study

- A. Studies estimating the time required to evacuate the residents in the plume exposure pathway from the emergency planning zone were conducted in accordance with NUREG-0654, Rev. 1, Appendix 4 criteria. These studies are supporting documents to this Plan. Summaries of the Nebraska and Iowa evacuation time estimate studies are outlined in KLD Engineering, P.C., Fort Calhoun Nuclear Station, Development of Evacuation Time Estimates (EP-FC-1001 Addendum 2). Reference Figure 6-1, Tables 7-1 through 7-6, and Table 3-7.

#### 2.3.2 Evacuation of Areas within the EPZ

- A. The Governor (or Governor's Authorized Representative) of Nebraska can authorize the Nebraska State Patrol and Emergency Management Agency, based on recommendations of the State Health Department, to evacuate Nebraska residents to the reception center in Fremont, Nebraska.
- B. The Governor (or Governor's Authorized Representative) of Iowa can authorize the Iowa State Patrol and the Emergency Management Division to evacuate Iowa residents to Denison, Iowa, based upon recommendations of the Iowa Department of Public Health.
- C. Evacuees from the Nebraska portion of the EPZ should go to the Fremont Reception Center. Evacuees from the Iowa portion of the EPZ should proceed to the Denison Reception Center. Figure J-5 shows the boundaries and highways leading to the Reception Centers.
- D. The relocation centers for the host areas are as follows:
  - Fremont  
Fremont Middle School  
540 Johnson Rd
  - Denison  
Denison Community High School, North 16<sup>th</sup>
- E. The ingestion planning zone (IPZ) encompasses a 50 mile radius as illustrated in Figure J-6. Population for the IPZ is presented in Figure J-7 by sectors.

## PROTECTIVE RESPONSE

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- F. The plume exposure EPZ encompasses an approximate 10 mile radius as illustrated in Appendix H, (EP-FC-1001 Addendum 2). The EPZ includes portions of Harrison and Pottawattamie Counties in Iowa, Washington and Douglas Counties in Nebraska. The States of Iowa and Nebraska are separated by the Missouri River. Table 3-5 through 3-8, (EP-FC-1001 Addendum 2), shows the total population within the EPZ, and population totals for each Sub Area. This includes showing Estimated Transient population.

### 2.4 Protective Methods (Other than Evacuation)

#### 2.4.1 Sheltering

- A. Remaining indoors during the passage of a radioactive cloud affords the dweller a reduction in the quantity of radionuclides inhaled, as well as providing shielding. Figure J-9 shows the ratio of the inhaled dose inside a shelter to that outside the shelter as a function of the ventilation rate. A ventilation rate survey showed a rate variance of 0.07 to 3.0 per hour. The ventilation rate is affected by temperature differential, wind speed and direction, quality of construction and topographical setting.
- B. Walls of buildings absorb and scatter gamma rays, thus providing a lower dose to the occupants. The shielding factor of a building is the ratio of the interior dose to the exterior dose. Shielding factor estimates applicable to residential housing units were made using the shielding technology by Z. G. Burson and A. E. Profio (1975). Table J-7<sup>2</sup> summarizes shielding factors for designated structures/locations from a gamma cloud source.
- C. <sup>1,2,3</sup> Table J-8<sup>3</sup> summarizes the shielding factors for designated structures/locations from surface deposition of radioactive material. Burson and Profio proved that the fallout shielding technology developed via nuclear weapons tests could be directly applied to radioactivity deposited on surfaces after a reactor accident. The shielding factors listed in Table J-8 assume uniform distribution of the radioactive fallout.
- D. In each of the cases discussed, inhalation and shielding factors from a gamma cloud source and shielding factors from surface deposition of radioactive material, it is noted that the shielding factors using sheltering as a method of protection ranges from 0.6 to 0.005. Although the best protection seems to be the basement of large multi-structured buildings, the basement of any house has been proven to provide significant shelter from airborne and surface deposited radioactive material.

1 Taken from WASH-1400(NUREG-75/014), October 1975, Figure VI.11-4.

2 Taken from WASH-1400(NUREG-75/014), October 1975, Figure VI-11-7.

3 Taken from WASH-1400(NUREG-75/014), October 1975, Figure VI-11-8.

## PROTECTIVE RESPONSE

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### 2.5 Radiological Environmental Monitoring

2.5.1 In the event of an emergency, the permanent air particulate stations are first utilized for immediate data, concerning airborne releases. Background radiation stations (TLDs) provide short term exposure data and are periodically replaced. See the specific Radiological Environmental Monitoring Surveillance Test for more information. TLD use can be increased during the longer term as the District maintains a TLD services contract with an off-site vendor. The environmental laboratory personnel perform accelerated collection and analysis of samples as their primary responsibility after an emergency occurs. Sampling requirements will be determined by the environmental laboratory personnel.

2.5.2 Sample analysis will be performed by the station and at offsite facilities as deemed necessary.

### 3.0 **REFERENCES AND COMMITMENTS**

3.1 EP-FC-1001 Addendum 2, Evacuation Time Estimates KLD TR-535

3.2 EP-FC-1001, Evacuation Time Estimates

- Table 1, 50 Mile 2010 Population Table
- Table 3-5
- Table 3-7, Summary of Population Demand
- Table 3-8
- Table 7-1 through Table 7-6, Time to clear the Indicated Area of 90% of the Affected Population
- Figure 1, 50 Mile 2010 Population Rose
- Figure 5-2, Evacuation Mobilization Activities
- Figure 6-1, FCNS EPZ Sub Areas
- Appendix K

PROTECTIVE RESPONSE

Table J-1 - Summary of Considerations for Selecting the Evacuation PAG's<sup>1</sup>

DOSE Rem (mrem)	Consideration(s)
50 Rem (50000 mrem)	Assumed threshold for acute health effects in adults.
10 Rem (10000 mrem)	Assumed threshold for acute health effects in the fetus.
5 Rem (5000 mrem)	Maximum acceptable dose for normal occupational exposure for adults.
5 Rem (5000 mrem)	Maximum dose justified to average members of the population, based on the cost of evacuation.
0.5 Rem (500 mrem)	Maximum acceptable dose to the general population from all sources from nonrecurring, non-accidental exposure.
0.5 Rem (500 mrem)	Minimum dose justified to average members of the population, based on the cost of evacuation.
0.5 Rem (500 mrem)	Maximum acceptable dose <sup>2</sup> to the fetus from occupational exposure of the mother.
0.1 Rem (100 mrem)	Maximum acceptable dose to the general population from all sources from routine (chronic) non-accidental exposure.
0.03 Rem (30 mrem)	Dose that carries a risk assumed to be equal to or less than that from evacuation.
<sup>1</sup> Taken, in part, from Table C-8, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, EPA-400-R-92-001, May, 1992 <sup>2</sup> This is also the dose to the 8 to 15 week-old fetus at which the risk of mental retardation is assumed to be equal to the risk of fatal cancer to adults from a dose of 5 rem.	

PROTECTIVE RESPONSE

Table J-2 - Protective Action Recommendations Based on  
Dose Assessment/Field Team Radiological Data

Instructions: Compare URI or Field Team Dose Assessment results to the following table.  
Expand PAR to include downwind sectors in accordance with EP-FC-111-AD-F-02.

Projected Dose	Protective Action Recommendation (PAR)
< 1 rem TEDE < 5 rem CDE (thyroid)	<b>NONE (No Par Required)</b> And continue monitoring radiological conditions
≥ 1 rem TEDE ≥ 5 rem CDE	<b>Evacuate *see note</b> And continue monitoring radiological conditions
≥ 50 rem SDE (skin)	<b>Evacuate</b> And continue monitoring radiological conditions
<b>NOTE: SHELTERING</b> may be considered for doses up to 5 rem TEDE in special situations such as (1) the presence of severe weather (2) competing disasters (3) institutionalized people who are not readily mobile; and (4) other local factors, which may impede evacuation.	

PROTECTIVE RESPONSE

Table J-3 - Summary of Considerations for Selecting PAG's for Relocation<sup>1</sup>

<b>DOSE Rem (mrem)</b>	<b>Consideration(s)</b>
50 Rem (50000 mrem)	Assumed threshold for acute health effects in adults.
10 Rem (10000 mrem)	Assumed threshold for acute health effects in the fetus.
6 Rem (6000 mrem)	Maximum projected dose in first year to meet 0.5 Rem in the second year <sup>2</sup> .
5 Rem (5000 mrem)	Maximum acceptable dose for normal occupational exposure for adults.
5 Rem (5000 mrem)	Minimum dose that must be avoided by one year relocation based on cost.
3 Rem (3000 mrem)	Minimum projected first-year dose corresponding to 5 Rem in 50 years <sup>2</sup> .
3 Rem (3000 mrem)	Minimum projected first-year dose corresponding to 0.5 Rem in the second year <sup>2</sup> .
2 Rem (2000 mrem)	Maximum dose in first year corresponding to 5 Rem in 50 years from a reactor incident, based on radioactive decay and weathering only.
1.25 Rem (1250 mrem)	Minimum dose in first year corresponding to 5 Rem in 50 years from a reactor incident, based on radioactive decay and weathering only.
0.5 Rem (500 mrem)	Maximum acceptable single-year dose to the general population from all sources from non-recurring, non-incident exposure.
0.5 Rem (500 mrem)	Maximum acceptable dose to the fetus from occupational exposure of the mother.
0.1 Rem (100 mrem)	Maximum acceptable annual dose to the general population from all sources due to routine (chronic), non-incident, exposure.
0.03 Rem (30 mrem)	Dose that carries a risk assumed to be equal to or less than that from relocation.
<sup>1</sup> Taken, in part, from Table E-5, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", EPA-400-R-92-001, May, 1992. <sup>2</sup> Assumes the source term is from a reactor incident and that simple dose reduction methods are applied during the first month after the incident to reduce the dose to persons not relocated from contaminated areas.	

PROTECTIVE RESPONSE

Table J-4 - Protective Action Guides for Exposure to Deposited Radioactivity<sup>1</sup>

Protective Action	PAG (projected dose in first year) <sup>2</sup>	Comments
Relocate the general population <sup>3</sup>	≥ 2 Rem (≥ 2000 mrem)	Beta dose to skin may be up to 50 times higher.
Apply simple dose reduction techniques <sup>4</sup>	< 2 Rem (< 2000 mrem)	These protective actions should be taken to reduce doses to as low as practicable levels.
<p><sup>1</sup> Taken, in part, from the "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", EPA-400-R-92-001, May, 1992.</p> <p><sup>2</sup> The projected sum of total effective dose equivalent (TEDE) from external gamma radiation and committed effective dose equivalent (CEDE) from inhalation of resuspended materials, from exposure or intake during the first year. Projected dose refers to the dose that would be received in the absence of shielding from structures or the application of dose reduction techniques. These PAG's may not provide adequate protection from some long-lived radionuclides.</p> <p><sup>3</sup> Persons previously evacuated from areas outside the relocation zone defined by this PAG may return to occupy their residences. Cases involving relocation of persons at high risk from such action (e.g., patients under intensive care) should be evaluated individually.</p> <p><sup>4</sup> Simple dose reduction techniques include scrubbing and/or flushing hard surfaces, soaking or plowing soil, minor removal of soil from spots where radioactive materials have concentrated, and spending more time than usual indoors or in other low exposure rate areas.</p>		

PROTECTIVE RESPONSE

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Table J-5 - Emergency Worker Exposure Limits

<b>Dose Limit</b>	<b>Activity</b>	<b>Condition(s)</b>
≤ 500 mrem TEDE	All Activities	Declared Pregnant Emergency Workers
≤ 5 Rem TEDE	All Activities	Non-Pregnant Emergency Workers
≤ 10 Rem TEDE	Protecting Valuable Property	A lower dose is not practicable
≤ 25 Rem TEDE	Life Saving or Protection of Large Populations	A lower dose is not practicable
>25 Rem TEDE	Life Saving or Protection of Large Populations	Only on a voluntary basis to persons fully aware of the risks involved. (See Table J-6)

PROTECTIVE RESPONSE

Table J-6 - Summary of Risks Involved with Higher Dose Limits  
(taken from EPA 400 R-92-001, May, 1992)

Health Effects Associated with Whole-Body Absorbed Dosed Received Within a Few Hours<sup>a</sup>

Whole Body Absorbed Dose (rad)	Early Fatalities <sup>b</sup> (percent)	Whole Body Absorbed Dose (rad)	Prodromal Effects <sup>c</sup> (percent affected)
140	5	50	2
200	15	100	15
300	50	150	50
400	85	200	85
460	95	250	98

(a) Risks will be lower for protracted exposure periods.

(b) Supportive medical treatment may increase the dose at which these frequencies occur by approximately 50 percent.

(c) Forewarning symptoms of more serious health effects associated with large doses of radiation.

Approximate Cancer Risk to Average Individuals from 25 Rem Effective Dose Equivalent Delivered Promptly

Age at Exposure (years)	Approximate Risk of Premature Death (deaths per 1,000 persons exposed)	Average Years of Life Lost in Premature Death Occurs (years)
20 to 30	9.1	24
30 to 40	7.2	19
40 to 50	5.3	15
50 to 60	3.5	11

PROTECTIVE RESPONSE

Table J-7 - Representative Shielding Factors from Gamma Cloud Source

Structure or Location	Shielding Factor <sup>(a)</sup>	Representative Range
Outside	1.0	----
Vehicles	1.0	----
Wood - frame <sup>(b)</sup> (no basement)	0.9	----
Basement of wood house	0.6	0.1 to 0.7 <sup>(c)</sup>
Masonry house (no basement)	0.6	0.4 to 0.7 <sup>(c)</sup>
Basement of masonry house	0.4	0.1 to 0.5 <sup>(c)</sup>
Large office or industrial building	0.2	0.1 to 0.3 <sup>(c,d)</sup>
<p>(a) The ratio of the interior dose to the exterior dose.</p> <p>(b) A wood frame house with brick or stone veneer is approximately equivalent to a masonry house for shielding purposes.</p> <p>(c) This range is mainly due to different wall materials and different geometries.</p> <p>(d) The reduction factor depends on where the personnel are located within the building (e.g., the basement or an inside room).</p>		
<p><b>NOTE:</b> Consideration is limited to gamma radiation since beta and alpha particles cannot penetrate the walls of structures.</p>		
<p>* Taken from WASH-1400 (NUREG-75/104), October 1975.</p>		

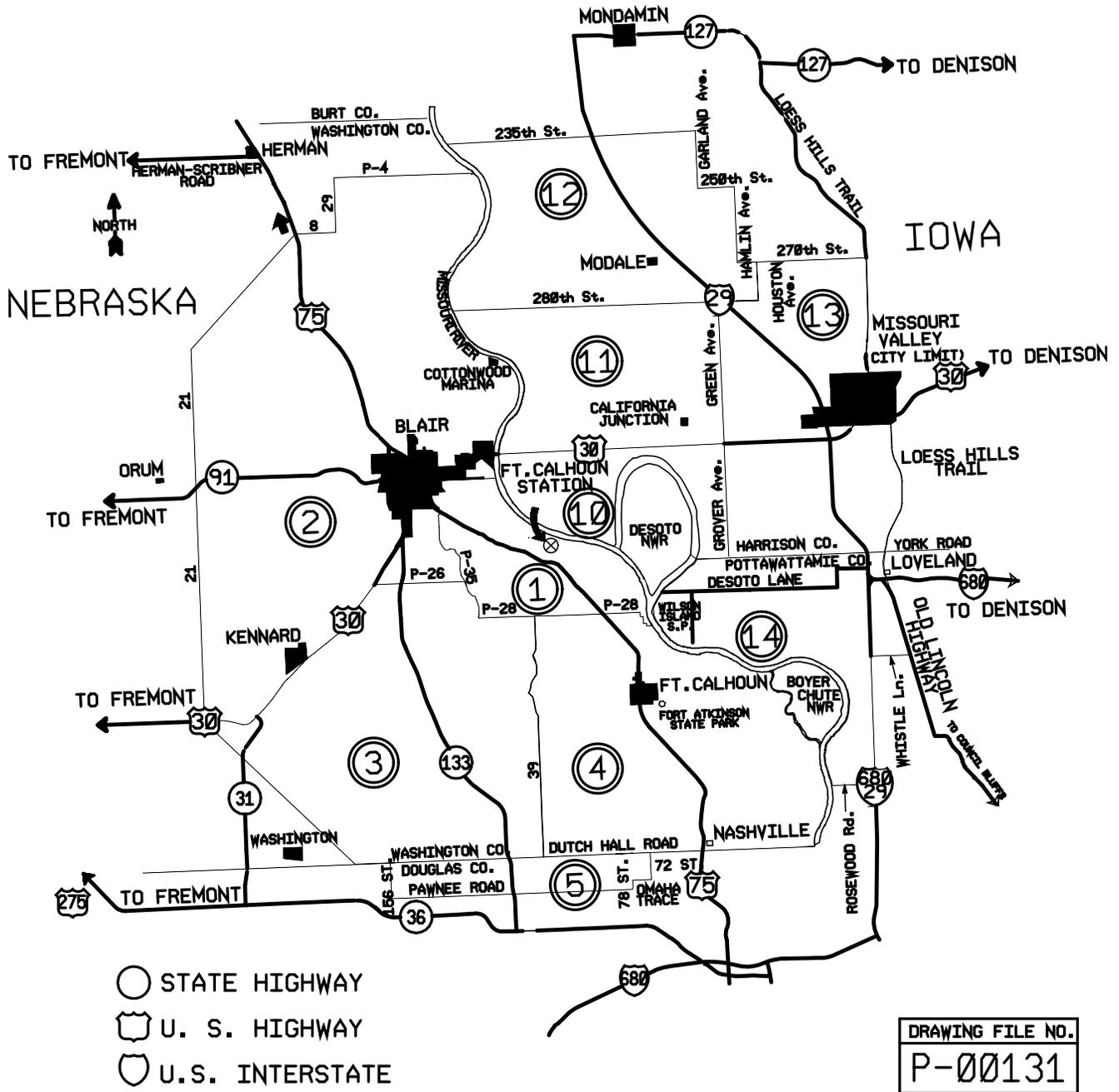
PROTECTIVE RESPONSE

Table J-8 - Representative Shielding Factors for Surface Deposition

Structure or Location	Representative <sup>(a)</sup> Shielding Factor	Representative Range
1 m above an infinite smooth surface	1.00	----
1 m above ordinary ground	0.70	0.47 - 0.85
1 m above center of 50-ft roadways, half contaminated	0.55	0.4 - 0.6
Cars on 50-ft road:		
Road fully contaminated	0.5	0.4 - 0.7
Road 50% decontaminated	0.5	0.4 - 0.6
Road fully decontaminated	0.25	0.2 - 0.5
Trains	0.40	0.3 - 0.5
One and two-story wood-frame house (no basement)	0.4 <sup>(b)</sup>	0.2 - 0.5
One and two-story block and brick house (no basement)	0.2 <sup>(b)</sup>	0.04 - 0.40
House basement, one or two walls fully exposed:	0.1 <sup>(b)</sup>	0.03 - 0.15
One story, less than 2 ft of basement, walls exposed	0.3 <sup>(b)</sup>	0.03 - 0.07
Two stories, less than 2 ft of basement, walls exposed	0.3 <sup>(b)</sup>	0.02 - 0.05
Three or four-story structures, >5,000 ft <sup>2</sup> per floor:		
First and second floor	0.05 <sup>(b)</sup>	0.01 - 0.08
Basement	0.01 <sup>(b)</sup>	0.001 - 0.07
Multistory structures, >10,000 ft <sup>2</sup> per floor:		
Upper floors	0.01 <sup>(b)</sup>	0.001 - 0.02
Basement	0.005 <sup>(b)</sup>	0.001 - 0.015
<sup>(a)</sup> The ratio of the interior dose to the exterior dose.		
<sup>(b)</sup> Away from doors and windows.		

PROTECTIVE RESPONSE

Figure J-5 - Routes to Relocation Centers

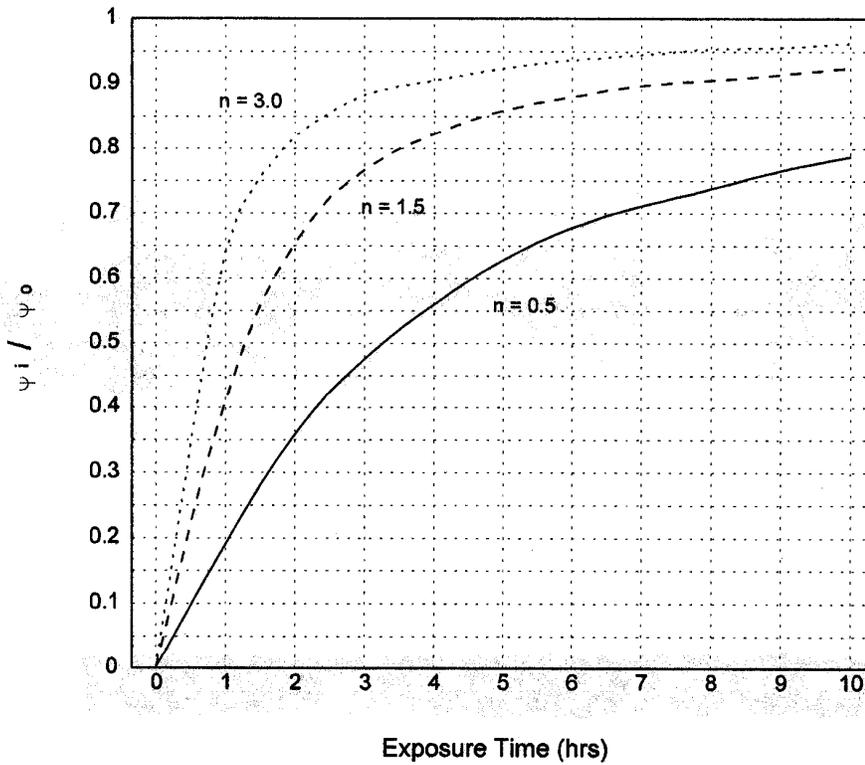


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PROTECTIVE RESPONSE

Figure J-9 - Ratio of Inhaled Dose Inside a Shelter to that Outside the Shelter as a Function of Ventilation Rates



KEY:	
n	— Ventilation Rate
$\psi_i$	- Dosage inside of building
$\psi_o$	- Dosage outside of building

## RADIOLOGICAL EXPOSURE CONTROL

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### 1.0 EXPOSURE GUIDELINES

- 1.1 It is OPPD policy to comply with the ALARA concept, and all efforts shall be made to keep all workers within normal Fort Calhoun Station limits, as listed in the Radiation Protection Manual. However, if it is expected that workers may exceed these limits, any dose received during emergency conditions in excess of 5 Rem TEDE will be assigned as once in a lifetime exposure.
- 1.2 The facility directors, ~~Control Room Coordinator or~~ Shift Manager in the Control Room, Site Director ~~or TSC Director~~ in the TSC, the OSC Director in the OSC or the Emergency Director in the EOF may authorize dose extension up to 5 Rem TEDE per year during declared events for workers in their facility.
- 1.3 The Command and Control position shall authorize any extensions beyond normal occupational exposure limits and direct that any dose received in excess of these limits be assigned as once in a lifetime exposure. The following guidance is from the FCS Radiation Protection Manual, and the Manual of Protective Action Guidelines and Protective Action for Nuclear Incidents, EPA-400-R-92-001.
- 5 Rem TEDE for all emergency workers
  - 10 Rem TEDE when action is necessary to reduce a hazard potential to acceptable levels or to prevent substantial loss of property
  - 25 Rem TEDE when action is necessary to perform lifesaving functions or to reduce the potential hazards to the health and safety of the public
  - >25 Rem TEDE on a voluntary basis and only to save a life or reduce potential hazards to the health and safety of the public
- 1.4 Plant personnel that require access to Radiation Controlled Areas are issued TLDs on a frequency specified by Radiation Protection. Many ERO positions are also issued TLDs depending on the likelihood of having to enter a Radiation Controlled Area under emergency conditions. TLD requirements for ERO positions are identified on the ERO Roster.
- 1.5 Personnel responding to the site that require, but do not have, dosimetry will be issued dosimetry by Security or Radiation Protection personnel. The following ERO positions can also issue dosimetry when necessary:
- Control Room: The Shift RP Technician or OSC RP Technicians
  - TSC: OSC RP Technicians
  - OSC: The ~~OSC Dosimetry Technician or~~ OSC RP Technicians

## RADIOLOGICAL EXPOSURE CONTROL

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### 2.0 CONTAMINATION CONTROL

- 2.1 If actual or potential contamination problems exist onsite, ERO management may elect to establish contamination control and monitoring measures. These may consist of some or all of the following:
- Each Emergency Response Facility onsite has the capability to establish control boundaries to minimize contamination spreading into the facility.
  - Monitoring of personnel evacuating the affected area using installed monitors in the Security Building or personnel with portable equipment. Portable equipment for this purpose is stored both in the warehouse and at the EOF.
- 2.2 If personnel decontamination becomes necessary, the site maintains two facilities for this purpose. One is located in the Auxiliary Building entry/exit point, and is frequently used. It drains to the Radwaste System. The second facility is located in the Warehouse and is designated for emergency use only. It drains to a holding tank, which is controlled after emergency use to ensure that the contents are monitored and processed if necessary.
- 2.3 Contaminated personnel that are evacuated will be decontaminated as determined by Radiation Protection personnel. Additional decontamination facilities are available at state decontamination facilities and at the UNMC Regional Radiation Health Center.
- 2.4 Tools and equipment that become contaminated will be decontaminated as determined by Radiation Protection personnel.
- 2.5 Areas that become contaminated will be decontaminated as determined by Radiation Protection personnel.
- 2.6 Priorities for decontaminating tools, equipment and areas will be established by ERO management, with top priority given to contamination within areas that are or will be inhabited by emergency workers. Decontamination of non-essential areas, tool and equipment should be delayed to allow for natural decay of radioactive materials.
- 2.7 Potable water, normally supplied from the City of Blair, and onsite food supplies can be chemically and radiologically monitored prior to use by emergency workers.
- 2.8 Contamination limits, contamination control, and decontamination criteria may be adjusted based on professional radiological evaluation by the ERO using guidance in the Radiation Protection Manual.
- 2.9 Radioactive waste from any decontamination effort will be prepared and shipped in accordance with Radiation Protection Manual requirements.

## MEDICAL AND PUBLIC HEALTH SUPPORT

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### 1.0 ONSITE FIRST AID

1.1 There are generally four types of response considered at the Fort Calhoun Station:

- 1) Minor injury, no contamination
- 2) Minor injury, contaminated
- 3) Major injury (requiring offsite treatment), no contamination
- 4) Major injury, contaminated

1.2 The order of medical treatment will be:

- 1) Care of severe physical injuries
- 2) Decontamination of personnel
- 3) First aid to other injuries
- 4) Monitor for internal contamination
- 5) Definitive treatment and subsequent therapy as required

1.3 All injuries at the station must be immediately reported to the Shift Manager, who will initiate response according to the Fort Calhoun Station Safety Manual, FCSG-15-7, Medical Emergencies. When the OSC is activated the OSC Director ~~and the OSC Medical Coordinator~~ will be responsible for response to medical emergencies.

1.4 When personnel are severely injured and contaminated, first aid shall take precedence over decontamination. In cases where internal exposure is suspected, a bioassay program may be performed as directed by the Radiation Protection Manual.

1.5 First Aid Facilities

1.5.1 A First Aid Room is located in the Maintenance Building. This room is equipped with various medical supplies to provide emergency first aid to injured personnel.

1.5.2 Other equipment located throughout the plant include first aid kits, Emergency Medical Technician (EMT) kits, personnel carriers, a wheelchair, and contaminated/injured personnel response kit. The Industrial Safety Coordinator inspects and maintains this equipment.

## MEDICAL AND PUBLIC HEALTH SUPPORT

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### 1.6 Medical Response

#### 1.6.1 Minor Injury, No Contamination

A. The Shift Manager or other evaluators will determine the extent of medical response required. This could include:

1. On the spot treatment by the individual or first aid qualified responders.
2. On the spot treatment by EMT qualified personnel (if available).
3. Movement of the injured party to the first aid room by medical responders for access to additional equipment.
4. Other response determined necessary by responding personnel.

#### 1.6.2 Minor Injury, Contaminated

A. Personnel that are injured and are potentially contaminated will be treated as explained above, and will also be monitored for contamination by Radiation Protection personnel. Monitoring and decontamination will be performed in accordance with Radiation Protection procedures.

#### 1.6.3 Major Injury, No Contamination

A. Medical responders will be dispatched to the scene to perform first aid as required. The Shift Manager or designee will notify offsite authorities to provide victim transport to an available medical facility. Both air and ground transportation are available.

#### 1.6.4 Major Injury, Contaminated

A. Personnel that are severely injured and are potentially contaminated will be treated as explained above, and will also be monitored for contamination by Radiation Protection personnel. If feasible, monitoring and decontamination will be performed in accordance with Radiation Protection Procedures. If decontamination is successful, the victim may be transported to any available medical facility for treatment.

B. If decontamination is not successful or not feasible, the victim will be transported to the UNMC Regional Radiation Health Center, unless the responding Emergency Medical Services (EMS) personnel deem it medically necessary to proceed to a closer facility. If another facility other than UNMC is used, additional Radiation Protection personnel should be sent to the facility to assist in monitoring, decontamination and clean up.

## MEDICAL AND PUBLIC HEALTH SUPPORT

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### **2.0 MEDICAL TRANSPORTATION**

#### 2.1 Blair Fire Department and Rescue Squad

The Blair Fire Department and Rescue Squad Station is located less than four miles from the Fort Calhoun Station. The Rescue squad furnishes transportation for the injured and administers first aid enroute to the hospital.

#### 2.2 Fort Calhoun Fire and Rescue Squad

The Fort Calhoun Fire and Rescue Squad headquarters is located approximately 3-1/2 miles from the Fort Calhoun Station. This rescue squad serves as backup to the Blair Fire Department and Rescue Squad.

#### 2.3 Missouri Valley Fire and Rescue Squad

The Missouri Valley Fire and Rescue Squad is located approximately fifteen miles from the plant.

#### 2.4 Additional support is available to both the Blair Fire Department and Rescue Squad and the Fort Calhoun Fire and Rescue Squad by request through the Tri-Mutual Aid Association (Douglas, Sarpy, and Washington Counties).

#### 2.5 Other Modes of Transportation

If necessary, there are other modes of transportation for delivering injured personnel to appropriate medical facilities.

2.5.1 Medical Ambulance helicopter

2.5.2 Onsite company vehicles

2.5.3 Private autos of company personnel

### **3.0 OFFSITE MEDICAL SUPPORT**

#### 3.1 Non-Contaminated Personnel

The nearest medical facility is the Blair Memorial Community Hospital which is located five miles from the plant. A physician is readily available as a general medical consultant. Other facilities may be used as determined necessary by medical response personnel.

## MEDICAL AND PUBLIC HEALTH SUPPORT

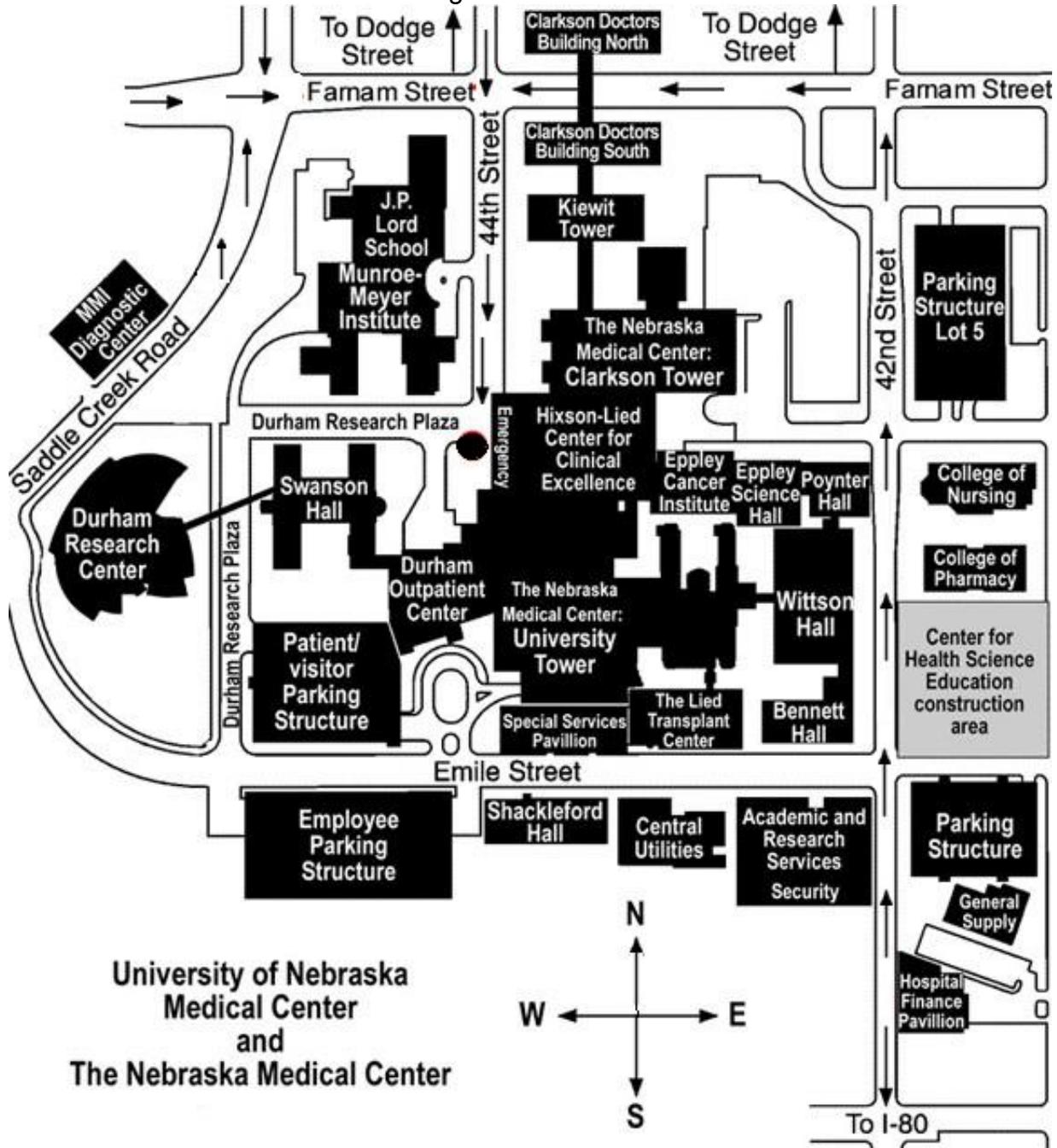
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### 3.2 Contaminated Personnel

- 3.2.1 Omaha Public Power District maintains an agreement with the UNMC Regional Radiation Health Center to supply 24-hour treatment for all injuries involving contamination and/or personnel radiation exposure. The Regional Radiation Health Center is located approximately 25 miles from the plant in Omaha, Nebraska. The facility is part of the UNMC complex, and was established specifically for the treatment of injuries occurring from nuclear and radiation related incidents. An entrance (Figure L1) is available for the ingress and egress of contaminated victims to a special assessment and decontamination facility. Patients can also be transported to the facility via medical ambulance helicopters.
- 3.2.2 The UNMC Regional Radiation Health Center staff administers medical, decontamination, internal bioassay, and other nuclear medicine capabilities. The staff maintains an appropriate "Standard Operating Procedures Manual" which describes their responsibilities and roles. If additional hospital beds should be required during a major incident, the hospital maintains a mutual agreement with several other Omaha area hospitals to assist with decontaminated patients.
- 3.2.3 Due to the large, highly qualified staff, the distance from the plant, the specialized capabilities, and the overall size of the UNMC complex, the Fort Calhoun Station was granted an exemption from requiring a backup medical facility by the Federal Emergency Management Agency.

## MEDICAL AND PUBLIC HEALTH SUPPORT

Figure L-1 - Entrance to Treatment Area  
UNMC Regional Radiation Health Center



## **1.0 RECOVERY ORGANIZATION (RO)**

### 1.1 Responsibilities

The Recovery Organization (RO) responsibilities include the overall coordination and management of the recovery effort and has provisions for technical and administrative services, design work, scheduling, planning, quality control/assurance, construction and vendor support.

### 1.2 Staffing

The Recovery Organization would be composed of all the necessary technical, administrative, managerial, and support personnel required for the recovery phase of emergency response. This organization would be capable of 24 hour a day sustained operation.

The lead position in the Recovery Organization would be the Recovery Operations Manager. This individual would be appointed by the Command and Control Position of the Emergency Response Organization. The staffing positions of the rest of the Recovery Organization would be dependent upon the needs based on accident type and magnitude.

The responsibilities of the Recovery Operations Manager and the functions of possible staff members are detailed in the Emergency Plan Implementing Procedures.

### 1.3 Activation

The activation of the Recovery Organization is through the directions given in the Emergency Plan Implementing Procedures governing the downgrading and termination of the emergency response phase. Downgrading and termination is achieved through a checklist format of considering not only the current and past conditions but also those conditions which have the potential to occur.

The ultimate decision for activation of the Recovery Organization rests with the Emergency Command and Control Position.

## MEDICAL AND PUBLIC HEALTH SUPPORT

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### 1.4 Transition

The transition from Emergency Response Organization to Recovery Organization would consist of turning over functions that would continue while terminating other functions that would not be necessary. The extent of the turnover would be based upon the size of the Recovery Operations which would be dependent upon the type and magnitude of the emergency.

As a minimum, the facility directors at each of the Emergency Response Facilities will make an announcement concerning the shift to the Recovery Organization and direct all Emergency Response Organization Members to turn in all pertinent logs and forms to the administrative manager in each facility. A critique would follow at each facility while recovery operations were commencing.

## 2.0 **REENTRY**

### 2.1 Purpose

The purpose for a reentry plan is to provide a means to regain access to an onsite or offsite area that was previously made inaccessible due to an emergency.

### 2.2 Responsibility

The Command and Control Position has the responsibility for authorizing reentry into a previously evacuated area. This could be the Shift Manager, ~~Control Room Coordinator~~, Site Director, or Emergency Director depending on the stage that emergency response has reached.

### 2.3 Implementation

The implementation of the reentry plan is carried out by the Emergency Response Organization. Reentry is normally expected to be accomplished by teams dispatched from the Operations Support Center.

### 2.4 Emergency Radiation Exposure

OPPD is committed to keeping exposure "as low as reasonably achievable" (ALARA). It is understood that there are emergency situations which transcend the normal requirements for limiting exposure. When such situations exist, the Command and Control Position will make the determination as to the amount of radiation exposure that will be permitted based on the guidelines set forth in Section K of this Plan.

## EXERCISES AND DRILLS

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### 1.0 EXERCISES

An emergency preparedness exercise is an event that tests the integrated capability and a major portion of the basic elements existing within the Radiological Emergency Response Plan (RERP), associated Emergency Plan Implementing Procedures (EPIPs) and the various organizations associated with the implementation of the RERP. Typically, an emergency preparedness exercise shall simulate an emergency that results in offsite radiological releases which would require response by offsite authorities. However, whenever the State of Nebraska and the State of Iowa are not participating in a particular exercise, the scenario should concentrate on realistic in-plant emergencies with less emphasis on offsite response.

Periodic emergency preparedness exercises can be conducted to evaluate major portions of emergency response capabilities. Also, exercises provide the opportunity to identify further improvements to the emergency preparedness program. Areas of improvement, weaknesses and deficiencies noted as a result of an exercise will be evaluated and corrected, as appropriate.

Normally, an exercise is not considered a "training function", as the participants are not guided, nor "coached", during an exercise. Interaction between controller/observers and participants is not allowed during an exercise, except for delivery and explanation of scenario information and data.

Exercises are conducted biennially, as a minimum. The states of Iowa and Nebraska, along with associated local governmental agencies, are invited to participate in all training drills and exercises, and are required to participate in the biennial exercise under evaluation by the Federal Emergency Management Agency. The Nuclear Regulatory Commission also performs routine inspections to evaluate licensee emergency response performance. The Resident Inspector(s) or other NRC personnel may observe licensee performance during training drills or non-evaluated exercises.

Drill and Exercise procedures are used to verify the following criteria:

- 1.1 State and local personnel and resources capability to respond to a radiological emergency response scenario.
- 1.2 Scenario variance from year to year in order to provide optimum training for radiological emergency response personnel.
- 1.3 Variance of hours in which the radiological emergency exercise is performed.
- 1.4 Joint radiological emergency exercise involving plant and Federal, State and local support groups, including any that involve a time variance.

## EXERCISES AND DRILLS

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### 2.0 DRILLS

A drill is a supervised instruction period aimed at testing, developing and maintaining skills in a particular ERO position, function, center, or operation. A drill can be used as a specific training component of an exercise, if the exercise objectives identify and authorize such component. Drills will be supervised and evaluated by appropriate emergency planning personnel or other personnel with specific expertise pertaining to the drill or function being observed.

Periodic emergency preparedness drills are conducted to develop and maintain key skills within the ERO. Also, drills provide the opportunity to identify further improvements to the emergency preparedness program. Areas for improvement, weaknesses and deficiencies noted as a result of a drill will be evaluated and corrected, as appropriate.

At least one drill between biennial exercises will involve a combination of some of the principal functional areas of the onsite Emergency Response Organization, such as; command and control, accident assessment and classification, protective action recommendation decision making, and plant system and component repair and corrective actions. Simultaneous activation of all of the licensee's emergency response facilities during training drills is not necessary. Special functional drills can be developed and used to; focus on accident management strategies; supervised instruction periods for special or newly developed activities and/or procedures; allow resolution of problems (success paths) by ERO members, and; focus on identified onsite training objectives.

Normally, a drill is considered a "training function", as the participants are guided or "coached" during the actual drill. Interaction between controller/observers and participants is encouraged during a drill, except for instances where specific knowledge and memory are being tested.

## EXERCISES AND DRILLS

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### 2.1 Communication Drills

Emergency Planning procedures provide for communication checks with appropriate agencies to ensure availability and operability of all channels of communication necessary for adequate response to a radiological emergency requiring off-site support. These tests outline those agencies to be contacted, the person (by name or title) who is responsible for verifying that adequate communication exists, the required frequency for which communication is to be checked, and a procedure for accomplishing the test. Below is the communication schedule for these checks or drills to be performed:

- 2.1.1 Communications are checked monthly from the EOF at the North Omaha Power Station with the States of Nebraska and Iowa and the local governments of the Counties of Harrison, Pottawattamie, and Washington and the NRC using dedicated communications equipment and backup systems. A functional check of the ERFCS is also performed on a monthly basis.
- 2.1.2 Communications are checked monthly from the Fort Calhoun Station Technical Support Center with the State of Nebraska and Iowa EOCs.
- 2.1.3 Communications are checked quarterly with Federal response agencies and the States of Nebraska and Iowa within the ingestion exposure pathway EPZ. Also verified are communications with the JIC and functional checks of the FAX Network, radio system, and the ERF paging systems. Quarterly communications checks are performed from the Control Room with the NRC using both the FTS-ENS phone line and the Emergency Response Data System.
- 2.1.4 Communications are checked annually between the Fort Calhoun Station, the States of Nebraska and Iowa and local Emergency Operations Centers and field teams.

### 2.2 Fire Drills

Fire drills are conducted by plant personnel on a quarterly basis. The drills are held to test the plant's firefighting capability. The drills are varied in order to test all phases of firefighting techniques.

The Blair Fire Department is annually invited to conduct a drill onsite. Onsite drills assist in familiarizing the fire department members with the types and locations of equipment available to mitigate plant fires.

## EXERCISES AND DRILLS

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### 2.3 Medical Emergency Drills

The Nebraska Health Center, University Hospital Radiation Health Center is invited to participate in an annual exercise and/or scheduled drill(s) to demonstrate and practice the receipt and treatment of contaminated patients. The extent of the Center's participation depends on their work load and schedule for hospital patients at the time the exercise or drill is declared.

### 2.4 Health Physics and Radiological Monitoring Drills

Emergency Planning procedures develop guides for the preparation, execution, and documentation of health physics and radiological monitoring drills. Execution of these procedures is shared by Emergency Planning and Radiation Protection.

There are two (2) types of drills performed by Chemistry and Radiation Protection Departments:

2.4.1 Semi-annually, a health physics drill is conducted to monitor the response to and analysis of simulated elevated airborne releases, and direct radiation measurements in the environment. Normally, this drill is conducted in conjunction with a quarterly training drill.

2.4.2 Annually a drill is held which involves the collection of a type of environmental sampling media by the Chemistry Departments Environmental Group.

The NRC waived the requirement for a Reactor Coolant liquid sample drill in the SER related to Technical Specification (T.S.) Amendment 200. Amendment 200 deleted the Post Accident Sampling System (PASS).

### 2.5 Augmentation Call Out Drill

Notification and/or Augmentation Drills will be conducted at least every 12 months. The drills shall evaluate the licensee's capability to notify the minimum staffing positions in the Technical Support Center, Operations Support Center and the Emergency Operations Facility, in addition to meeting the staffing requirements of Table B-1 in RERP, Section B.

## EXERCISES AND DRILLS

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### 3.0 SCENARIOS

Scenarios for a drill are developed by either Emergency Planning or the group responsible for conducting the specific drill. Each drill should include a basic objective and appropriate evaluation criteria.

A special group is assigned the scenario development for the biennial exercise. An Emergency Planning procedure develops the plan for the preparation, execution, and documentation of the biennial exercise. This procedure requires input from major Federal, State, and local agencies, as well as OPPD staff, in order to define the objectives to be accomplished in the exercise. The scenario is then prepared to describe the following features:

- Objectives of the exercise.
- Date, time period, location, and participants.
- Simulated events.
- Time schedule of real and simulated events.
- Summary describing conduct of exercise.

Preparation of the scenario may include such items as identifying Control Room alarms, sequence of alarms, and instrument readings required to initiate the planned emergency exercises essential components.

A strong attempt is made to allow only key officials of Federal, State, and local support agencies to share scenario information in advance of exercises, in order that their participation in the exercise can be developed properly to demonstrate their maximum capabilities without losing confidentiality of exercise information.

### 4.0 CRITIQUES

In addition to the OPPD observers, offsite support agencies may provide observers for the biennial exercise. Observers are given information of the accident scenario prior to the exercise so that they may evaluate participants effectively.

Observers, evaluators, controllers and participants submit their comments and recommendations during a critique that is held after all drills and exercises. An Emergency Planning procedure is used to document and classify all significant comments and issues. Significant observations are incorporated into the plants Corrective Action Program for resolution.

## EXERCISES AND DRILLS

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### 5.0 ACTUAL EMERGENCIES

In the event of an actual emergency, credit for the response may be substituted for a drill or exercise if the event is properly documented according to the guidelines set forth in 10 CFR 50.47 and NUREG-0654, Rev.1/FEMA-REP-1.

## RADIOLOGICAL EMERGENCY RESPONSE TRAINING

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### 1.0 FIRST AID TRAINING

Personnel assigned the responsibility for responding to a medical emergency at the Fort Calhoun Station receive the American Red Cross Standard First Aid Training Program, or equivalent. Normally, these are members of the Fort Calhoun Station Fire Brigade which consists of Operations personnel assigned to shift crews. To maintain qualifications in accordance with the American Red Cross, CPR is conducted annually and First Aid Training is given biannually. The training is conducted by the American Red Cross and the associated training records are maintained in accordance with Training Department procedures.

### 2.0 FIRE BRIGADE TRAINING

Fire Brigade training is outlined in the TQ-AA-173, Emergency Services Training Programs.

### 3.0 GENERAL EMPLOYEE TRAINING

An overview of the Emergency Plan is given to all personnel allowed unescorted access into the protected area at Fort Calhoun Station. Personnel receive this information during initial training and are requalified on an annual basis. This training includes identification of the emergency alarm, the fire alarm and the steps to follow for a plant and site evacuation.

### 4.0 EMERGENCY PREPAREDNESS TRAINING PROGRAM

TQ-FC-113, ERO Training and Qualification identifies the initial and continuing training requirements for emergency response personnel.

As appropriate, members of the onsite emergency response organization are qualified to wear respiratory equipment, including self-contained breathing apparatus (SCBA) through the General Employee Training, Level III, Respiratory Protection Training Program.

### 5.0 EMERGENCY RESPONSE ORGANIZATION TRAINING

Requirements for initial training and continuing training of personnel assigned to the Emergency Response Organization is accomplished in accordance with TQ-FC-113, ERO Training and Qualification.

Requirements for initial training and continuing training of security personnel are outlined in the Security Training and Qualification Plan.

FCS Management is responsible to ensure all members of the Emergency Response Organization receive the required initial training and continuing training.

## RADIOLOGICAL EMERGENCY RESPONSE TRAINING

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### **6.0 LOCAL SUPPORT SERVICES PERSONNEL TRAINING**

#### 6.1 Fire and Rescue Squads

The Blair Fire Department and Rescue Squad and the Fort Calhoun Fire/Rescue are offered annual training by the Nebraska Emergency Management Agency. The Missouri Valley Fire and Rescue Squad and the Council Bluffs Fire and Ambulance Squad are offered annual training from the Iowa Homeland Security and Emergency Management Division. OPPD will provide assistance with training as requested.

This training normally includes an overview of the plant facility in order to familiarize them with the general area where their assistance may be requested, a review of the basic emergency classification levels, and a review of proper contamination control procedures.

#### 6.2 Offsite Organizations

Lead representatives and selected responders falling under the jurisdiction of the following offsite response organizations shall be offered annual training/retraining.

- Washington County Emergency Management
- Harrison County Emergency Management
- Pottawattamie County Emergency Management
- Douglas County Emergency Management
- Nebraska Region 5/6 Emergency Management

Members of the Fort Calhoun Station may assist with the state of Nebraska Emergency Management Agency and the state of Iowa Homeland Security and Emergency Management Division in preparing and presenting, on an annual basis, training to their Emergency Management agencies in radiological emergency response. Both states have outlined in their respective emergency plans the type of training to be given. Their training is not limited to Emergency Management agencies, but may also include key public officials and emergency services management as well as the state and police agencies and hospitals.

State and local Emergency Management groups are invited to participate in the biennial exercise conducted by the plant. Their participation in the biennial exercise supplements the annual training.

#### 6.3 Law Enforcement Agencies

Training for law enforcement agencies is typically conducted by the states of Iowa and Nebraska.

## 7.0 DOCUMENTATION OF TRAINING

FCS training procedures outline the process to document training of the Fort Calhoun Station Emergency Response Organization. An Emergency Planning procedure is used to verify training received by offsite organizations.

## RESPONSIBILITY FOR THE PLANNING EFFORT: DEVELOPMENT, PERIODIC REVIEW AND DISTRIBUTION

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### **1.0 RESPONSIBILITY FOR RADIOLOGICAL EMERGENCY RESPONSE PLANNING**

- 1.1 The Plant Manager and Nuclear Division Managers are responsible for the implementation of actions required to periodically exercise the Radiological Emergency Response Plan (RERP), and the Implementing Procedures and for maintaining an effective Emergency Response Organization (ERO) staff.
- 1.2 The Plant Operations Review Committee is responsible for the review and approval of revisions to the RERP and the Implementing Procedure used for emergency classification in accordance with EP-FC-120 Attachment 2, EP Document Structure and Revision Process.
- 1.3 The Plant Manager is responsible for the final approval of RERP and the Implementing Procedure used for emergency classification, and for maintaining an effective emergency response capability at Fort Calhoun Station.
- 1.4 Nuclear Organization Responsible Management Contacts are responsible for selecting and proposing personnel to fill ERO positions and for ensuring support of the Radiological Emergency Response Plan.
- 1.5 The Manager- Site Emergency Planning is responsible for the development, administration and maintenance of the RERP, Implementing Procedures, and EP-FC procedures, review and approval of all Implementing Procedure changes (with the exception of the Implementing Procedure used for emergency classification), planner training, the overall development and implementation of the FCS ERO Training and Qualification Program and coordination of off-site emergency preparedness activities in the states of Iowa and Nebraska.
- 1.6 The Manager-Nuclear Training is responsible for the independent review and approval of the FCS ERO Training and Qualification Program.
- 1.7 The Emergency Planning Department is responsible for the preparation of all revisions to the RERP, Implementing Procedures and for coordinating the review processes necessary prior to the implementation of the revisions.

### **2.0 MAINTENANCE OF THE RERP AND IMPLEMENTING PROCEDURES**

- 2.1 Emergency Planning personnel shall review the RERP and Implementing Procedures annually. Any changes found to be necessary as a result of the review shall be submitted using the established procedure change process.
- 2.2 Comments and recommendations made as a result of drills/exercises may require procedure changes to be initiated. These processes are detailed in the drill and exercise program.

## RESPONSIBILITY FOR THE PLANNING EFFORT: DEVELOPMENT, PERIODIC REVIEW AND DISTRIBUTION

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- 2.3 Recurring tasks ensure that copies of the annual review and annual audit reports are reviewed by the Manager-EP and any changes incorporated as necessary.
- 2.4 Changes to the plan will be submitted to the NRC within 30 days in accordance with 10CFR50.54(q). The Radiological Emergency Response Plan and approved changes to the plan will also be forwarded to appropriate organizations and individuals with responsibility for implementation of the plan. A new edition of the Radiological Emergency Response Plan will be issued when major technical and significant philosophical changes are required.
- 2.5 All emergency telephone numbers are updated quarterly.

### **AUDITS**

- 3.1 The Nuclear Oversight Department will coordinate an independent audit of the Emergency Preparedness Program at intervals not to exceed 24 months or more frequently as required by 10CFR50.54(t)(1). The audit shall include the Radiological Emergency Response Plan, implementing procedures, practices, drills, exercises, training, readiness testing, equipment and interfaces with state and local governments. The results of this audit along with the recommendations for improvement must be documented and reported to the licensee's corporate and plant management. Copies of pertinent sections of the audit will be forwarded to appropriate state and local governments. This audit shall fulfill the requirements of 10CFR50.54(t). The results of this audit shall be retained for a minimum of five years.

## RESPONSIBILITY FOR THE PLANNING EFFORT: DEVELOPMENT, PERIODIC REVIEW AND DISTRIBUTION

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### 1.0 LETTERS OF AGREEMENT REVIEW

- 1.1 Written agreements establishing the concept of operations developed between Fort Calhoun Station and other support organizations having an emergency response role within the EPZs have been developed. These agreements identify the emergency measures to be provided, the mutually accepted criteria for implementation, and the arrangements for exchange of information. Agreement letters are not necessary with Federal Agencies who are legally required to respond based on Federal law; however, agreements are necessary if the agency was expected to provide assistance not required by law. Letters of Agreement with private contractors and others who provide services in support of Fort Calhoun Station shall be maintained on file. Letters of Agreement, as a minimum, state that the cooperating organization will provide their normal services in support of an emergency at the affected station. A contract/purchase order with a private contractor is considered acceptable in lieu of a Letter of Agreement for the specified duration of the contract.

Organizations deemed to be First Responders, who are identified as Local Law Enforcement Agency (LLEA), Volunteer Fire Fighting Organizations, Emergency Medical Services (EMS), and the University of Nebraska Medical Center (UNMC), will contain wording to ensure they will respond to a ~~Radiological~~Radiological event to include a Hostile Action Based event.

**LLEA** will support Fort Calhoun Nuclear Station during a Radiological or Hostile Action Based event, in conjunction with the National Incident Management System upon notification by the station in accordance with established communications protocol.

**Fire Fighting** Organizations will respond to a Radiological Event, including a Hostile Action Based Event, in conjunction with the National Incident Management System in accordance with established response and communication protocol. Fire Fighting Organizations may be requested to obtain and provide fire response, fire apparatus, and fire personnel.

**EMS** Support will provide Emergency Medical Services in response to a Radiological Event including a Hostile Action Based Event. This includes transportation of patients from the Fort Calhoun Nuclear Station, including those who may have been exposed to radiation or may have injuries complicated by radioactive contamination, to the University of Nebraska Medical Center by use of established communication protocol.

**UNMC** agrees in the event of a Radiological event, including a Hostile Action Based Event, to ensure the capability for the evaluation of radiation exposure and uptake, including assurance that persons providing these services are

## RESPONSIBILITY FOR THE PLANNING EFFORT: DEVELOPMENT, PERIODIC REVIEW AND DISTRIBUTION

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adequately prepared to handle contaminated individuals and capable of providing medical support for any contaminated individual.

A contract/purchase order with a private contractor is considered acceptable in lieu of a Letter of Agreement for the specified duration of the contract.

<b>i</b>	<b>NOTE</b>	<b>i</b>
	Copies of Current Letters of Agreement are on file in the Emergency Planning Department.	

### 1.2 Law Enforcement Support Organizations

- Nebraska State Patrol
- Iowa State Patrol
- Harrison County Sheriff's Department
- Washington County Sheriff's Department
- Pottawattamie County Sheriff's Department
- Douglas County Sheriff's Department

### 1.3 Fire and Rescue Support Organizations

- Blair Fire Department
- Fort Calhoun Fire and Rescue
- Missouri Valley Fire Department

### 1.4 Medical Support Organizations

- UNMC Regional Radiation Health Center

### 1.5 Nebraska's Governmental Support Organizations

- State of Nebraska Emergency Management
- State of Nebraska-Department of Health and Human Services, Regulation and Licensure
- Washington County Board of Supervisors
- Nebraska Game and Parks Commission
- Douglas County Emergency Management Agency

### 1.6 Iowa's Governmental Support Organizations

- Iowa Homeland Security and Emergency Management Division

## RESPONSIBILITY FOR THE PLANNING EFFORT: DEVELOPMENT, PERIODIC REVIEW AND DISTRIBUTION

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- Harrison County Board of Supervisors
- Pottawattamie County Board of Supervisors
- Pottawattamie County Division of Telecommunications

### 1.7 Industrial Support Organizations

- Union Pacific Railroad
- Westinghouse Electric
- Electric Power Research Institute/Nuclear Energy Institute
- Institute of Nuclear Power Operations (INPO)

### 1.8 Other Support Organizations

- Nebraska Public Power District
- Metropolitan Utilities District
- National Weather Service
- Tierney-Blair LLC

### 1.9 Monitoring and Decontamination Support Organizations

- Omaha Fire Department Emergency Worker Decon

## RESPONSIBILITY FOR THE PLANNING EFFORT: DEVELOPMENT, PERIODIC REVIEW AND DISTRIBUTION

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The following is a list of plans for organizations that support or supplement emergency response to the Fort Calhoun Station. These are maintained in the EOF.

### State

Iowa Radiological Emergency Response Plan, Part 2, Nuclear Power Plant Accident/Incident, Annex P of the Iowa Emergency Response Plan.

State of Nebraska - "Radiological Emergency Response Plan for Nuclear Power Plant Incidents"

### Local

Crawford County (Iowa) - "Radiological Emergency Response Plan"

Dodge County (Nebraska) - "Radiological Emergency Reception Plan for Nuclear Power Plant Incidents"

Douglas County (Nebraska) - "Douglas County Supplement to Washington County Radiological Emergency Response Plan for Nuclear Power Plant Incidents"

Harrison County (Iowa) - "Radiological Emergency Response Plan for Nuclear Power Plant Incidents"

Pottawattamie County (Iowa) - "Radiological Emergency Response Plan"

Sarpy County (Nebraska) - "Radiological Emergency Response Plan for Nuclear Power Plant Incidents"

Washington County (Nebraska) - "Radiological Emergency Response Plan for Nuclear Power Plant Incidents"

## NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

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PSRERP Appendix C provides a cross reference to track OPPD's implementation of the guidance provided by NUREG 0654, FEMA REP 1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Rev. 1.

OPPD generally conforms to the guidance of NUREG-0654 in its Post Shutdown Radiological Emergency Response Plan (PSRERP), Emergency Plan Implementing Procedures (EPIP) and other supporting documents. However, OPPD has and may make exceptions to NUREG-0654 guidance providing it does not reduce the effectiveness or intent of the PSRERP or EIPs.

For Section D, Emergency Classification System, OPPD uses the guidance of NEI-99-01, Methodology for Development of Emergency Action Levels for Non-Passive Reactors. This variance from NUREG-0654 has been approved by the NRC.

All changes to the PSRERP are subject to a 10 CFR 50.54(q) screening, 10 CFR 50.47(b) and 10 CFR 50 Appendix E reviews. If the reviews determine that the change does not reduce the effectiveness or intent of the plan, the Plant Operating Review Committee (PORC) must then approve the change before it is implemented and sent to the NRC for review. If the screening process finds that the change does reduce the effectiveness or intent of the plan the change must be submitted to NRC for pre-approval prior to implementation.

All changes to EIPs and other documents governed by the PSRERP are also subject to 10 CFR 50.54(q) screening. If it is determined that the proposed EPIP or other plant document change requires an PSRERP change a full 10 CFR 50.47(b), 10 CFR 50 Appendix E review and PORC approval is required prior to implementation and submittal to the NRC for review. NRC pre-approval must be obtained if a change is determined to reduce the effectiveness or the intent of the plan.

Refer to Attachment 1 – ~~PSRERP Titles~~ PSRERP Titles ~~PSRERP Titles~~, for names of PSRERP Sections

Refer to Attachment 2 – EPIP Titles, for names of EPIP's

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>A. Assignment of Responsibility</b>			
A.1.a	Identify the State, Local, Federal and private sector organizations (including utilities) intended to be a part of the ERO.	A 1.1-1.8	N/A
A.1.b	Each organization shall specify its concept of operations and its relationship to the total effort.	A 2.0, C 1.0, 2.0, 3.0, 4.0 Appendix A	EP-FC-112, Crisis Communication Plan
A.1.c	Block diagram of organizational interrelationships.	FIG. A-1	N/A
A.1.d	Identify a specific individual (by title) who shall be in charge of the emergency response.	A 2.0	EP-FC-112
A.1.e	Provide for 24-hr per day response, including communications links.	A 1.0	EP-FC-112
A.2.a	State/Local applicability	N/A	N/A
A.2.b	State/Local applicability	N/A	N/A
A.3	Letters of Agreement	Appen. A	EP-FC-120 (Verification of RERP-Appendix A)
A.4	Capability of continuous 24-hour operations. Identify, by title, the individual in the principal organization responsible for continuity of resources.	A 1.0, 2.0	EP-FC-112

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

Refer to Attachment 2 – EPIP Titles, for names of EPIP's

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>B. Onsite Emergency Organization</b>			
B.1	Specify the onsite emergency organization of plant staff personnel for all shifts and its relation to the responsibilities and duties of the normal staff complement.	B 2.1, Table B-1	EP-FC-112-100, EP-FC-112-200, EP-FC-112-300, EP-FC-112-400, EP-FC-112-500
B.2	Designate an individual as emergency coordinator who is on shift at all times.	B 7.1, 7.2	EP-FC-112-100
B.3	Identify a line of succession for the emergency coordinator position and identify the specific conditions for higher level utility officials assuming this function.	B 7.0	EP-FC-112
B.4	Specification of responsibilities, and designation of which may not be delegated.	B 6.2	EP-FC-112
B.5	Positions or titles and major tasks to be performed by the persons assigned to the functional areas of emergency activity.	B 8/9/10/11/12, Table B-1	EP-FC-112-100, EP-FC-112-200, EP-FC-112-300, EP-FC-112-400, EP-FC-112-500, Crisis Communication Plan
B.6	Interfaces between and among the onsite, offsite, corporate, state and local government response organizations.	B-13, Table B-3	N/A
B.7	Each licensee shall specify the corporate, management, admin., and technical personnel who will augment plant staff in Table B-1 and in the following areas:	Table B-1 B 4.0	EP-FC-112-100, EP-FC-112-200, EP-FC-112-300, EP-FC-112-400, EP-FC-112-500
B.7.a	Logistics support, e.g., trans, comm, quarters, food, water, special equipment and supplies purchase;	B 9.0, 11.0 Table B-2	EP-FC-112-200-F-03, EP-FC-112-400-F-07
B.7.b	Technical support for planning reentry and recovery operations;	B 6.0	EP-FC-115
B.7.c	Management level interface with government authorities; and	B 13	EP-FC-112
B.7.d	Release of information to news media during an emergency (coordinated with governmental authorities).	B 12,13	EP-FC-112 Crisis Comm. Plan
B.8	Specification of contractor and private organizations to provide assistance.	A 1.0, B-13, B-15, Fig. B-3, Appen A	EP-FC-112-200-F-03, EP-FC-112-400-F-07, EP-FC-120 (Verification of RERP-Appendix A)
B.9	Expected services from local agencies e.g., police, fire, ambulance, medical, hospital.	A 1.0 Appen A B 15, Table B-1, Fig B-3 RERP Sec L	EP-FC-120 (Verification of RERP-Appendix A)

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

Refer to Attachment 2 – EPIP Titles, for names of EPIP's

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>C. Emergency Response Support and Resources</b>			
C.1	Incorporation of Federal response into the operational plan:	C1	
C.1.a	Specific persons to request Federal assistance (See A.1.d and A.2.a)	C1.1, B 6.3.1	EP-FC-112
C.1.b	Specific Federal resources expected and expected times of arrival, and	C 1.2-1.3	N/A
C.1.c	Specific licensee, state, local resources to support Federal response, air fields, command posts, tel lines, radio frequencies, and telecommunications centers.	C 2.0	N/A
C.2.a	State/Local Applicability	N/A	N/A
C.2.b	Licensee representative to offsite EOC's	C 3.0	EP-FC-112-400
C.3	Radiological laboratories, general capabilities and expected availability to provide radiological monitoring and analyses services which can be used in an emergency.	C 2.2 4.0	N/A
C.4	Identify Nuclear and other facilities, organizations or individuals which can be relied upon in an emergency to provide assistance. Such assistance shall be identified and supported by appropriate letters of agreement.	C 4.0, Appen A	EP-FC-112-200-F-03, EP-FC-112-400-F-07, EP-FC-120 (Verification of RERP Appendix A)

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

Refer to Attachment 2 – EPIP Titles, for names of EPIP's

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>D. Emergency Classification System</b>			
D.1 *	Establish an Emergency Action Level Scheme and Emergency Classification scheme.	D 2.0	EP-FC-1001 Addendum 3
D.2 *	Initiating conditions shall include NUREG-0654, Appendix 1 conditions and all FSAR postulated accidents.	D 1.0	EP-FC-1001 Addendum 3
D.3	State/Local applicability	N/A	N/A
D.4	State/Local applicability	N/A	N/A
* NEI-99-01 Guidance has replaced NUREG-0654 Appendix 1 guidance.			

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

Refer to Attachment 2 – EPIP Titles, for names of EPIP's

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>E. Notification Methods and Procedures</b>			
E.1	Notification procedures consistent with EALs including a means for verification of messages.	E 2.0	EP-FC-114
E.2	Procedures for alerting, notifying and mobilizing emergency response personnel.	E 2.0	EP-FC-112-100-F-06
E.3	Licensee and state/local establish content of the initial messages, and shall contain: class, release, potentially affected population, and if PARs are needed.	E 3.1	EP-FC-114
E.4	Provisions for follow-up messages, and shall contain the following:	E 3.2	EP-FC-114
E.4.a	Location of incident, and name and telephone number (or communications channel identification) of caller;	E 3.2	EP-FC-114
E.4.b	Date/time of incident;	E 3.2	EP-FC-114
E.4.c	Class of emergency;	E 3.2	EP-FC-114
E.4.d	Type of actual/projected release, and estimated duration/impact times;	E 3.2	EP-FC-114
E.4.e	Estimate of radioactive material released or being released and the points and height of releases.	E 3.0	EP-FC-110-200
E.4.f	Chemical and physical form of material, estimates of quantities/concentration of noble gases, iodines, and particulates;	E 3.0	EP-FC-110-200
E.4.g	Met conditions at appropriate levels: wind speed, direction (to and from) stability, precip, if any;	E 3.0	EP-FC-114
E.4.h	Type of actual projected does rates at site boundary, projected integrated dose at site boundary:	E 3.0	EP-FC-110-200
E.4.i	Projected dose rates and integrated dose at 2, 5, and 10 miles, include the sector(s) affected;	E 3.0	EP-FC-110-200
E.4.j	Estimate of any surface contamination inplant, onsite, offsite;	E 3.0	EP-FC-110-200
E.4.k	Licensee emergency response actions underway;	E 3.0	EP-FC-114
E.4.l	Recommended emergency actions, including protective measures;	E 3.2	EP-FC-114
E.4.m	Request for any needed onsite support by offsite organizations, and;	E 3.0	EP-FC-114
E.4.n	Prognosis for worsening/termination based on plant information.	E 3.2	EP-FC-114
E.5	State/Local applicability	N/A	N/A
E.6	Notification/prompt instructions to the public. (ANS)	E 4.0	EP-FC-112, EP-FC-121

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

Refer to Attachment 2 – EPIP Titles, for names of EPIP's

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**NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST**

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NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
E.7	Written messages for the public, consistent with the EALs, to include ad hoc PARs.	E 5.0	EP-FC-112

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

Refer to Attachment 2 – EPIP Titles, for names of EPIP's

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>F. Emergency Communications</b>			
F.1.a	Provision for 24 hour notification to and activation of the State/local ER network, with telephone link and backup, and 24-hour manning of communication links that initiate emergency response actions;	E 2.0 F 1.0 F 2.0 F 2.3 F 2.4	EP-FC-114
F.1.b	Communications with contiguous states/locals;	F 2.0, 2.3, 2.4, Fig F-1, F-2	EP-FC-114
F.1.c	Communications with Federal EROs;	F 2.3, 2.9, 2.10, F 2.12, F 2.13, Fig. F-1	EP-FC-114
F.1.d	Communication between the plant, EOF, state and local EOCs, and rad monitor teams;	F 2.4, 2.5, 2.8, 2.11, 2.17, Fig. F-1, Fig. F-2	EP-FC-112
F.1.e	Provision for alerting or activating emergency personnel in each response organization, and	E 2.0	EP-FC-112-100-F-06
F.1.f	Communication (by licensee) with NRC HQ and Regional Office EOC and the EOF and Rad Mon Team Assembly area.	F 2.3, 2.8, 2.9, 2.10, F-2.12, 2.22	EP-FC-112-400
F.2	Each organization shall ensure that a coordinated comm link for fixed and mobile medical support facilities exists.	F 3.0	EP-FC-112-300-AD-F-04,FCSG-15
F.3	Each organization shall conduct periodic testing of the entire emergency communications system. (See also H.10, N.2.a and Appendix 3).	N 2.1	EP-FC-124

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

Refer to Attachment 2 – EPIP Titles, for names of EPIP's

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>G. Public Education and Information</b>			
G.1	Each organization shall provide a coordinated periodic (at least annually) dissemination of information to the public re: how they will be notified, and what their actions should be.	G 1.0	Corporate Crisis Communication Plan; EP-FC-120
G.2	The public information program shall provide permanent and transient adult population within the EPZ an adequate opportunity to become aware of the information annually. This section also makes reference to: Signs, decals, posted notices, for hotel, motels, gas stations, and phone booths).	G 1.0	Corporate Crisis Communication Plan; EP-FC-120
G.3.a	Media contact point during an emergency (i.e., JIC, etc).	G 2.0	Corporate Crisis Communication Plan
G.3.b	Space for limited number of news media at the EOF.	G 2.0	Corporate Crisis Communication Plan
G.4.a	Each organization shall have a spokesperson.	G 3.0	Corporate Crisis Communication Plan
G.4.b	Each organization shall establish arrangements for timely exchange of information among designated spokes persons.	G 3.0	Corporate Crisis Communication Plan
G.4.c	Each organization shall establish coordinated arrangements for dealing with rumors.	G 2.1	Corporate Crisis Communication Plan
G.5	Each organization shall conduct coordinated programs at least annually to acquaint news media with the emergency plans, information concerning radiation, and points of contact for release of public information in an emergency.	G 4.0	EP-FC-120

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

Refer to Attachment 2 – EPIP Titles, for names of EPIP's

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>H. Emergency Facilities and Equipment</b>			
H.1	Each licensee shall establish a TSC and an OSC.	H 1.0, 3.0	EP-FC-112
H.2	Establish an EOF.	H 2.0	EP-FC-112
H.3	State/Local applicability	N/A	N/A
H.4	Timely activation of the facilities and centers described in the Plan.	H 1.3, 2.3, 3.3, 4.3	EP-FC-112
H.5	Each licensee shall identify and establish onsite monitoring systems that are to be used to initiate emergency measures, in accordance with Appendix 1, as well as those used to conduct assessment. The equipment shall include:		
H.5.a	Geophysical phenomena monitors, (e.g., met, hydrological, <del>seismic</del> seismic);	I 2.0, I 2.1.2, I 2.1.3, I 2.2.3, I 2.3.2(c)	EP-FC-1001 Addendum 3
H.5.b	Rad monitors, (e.g., process, area, emergency, effluent, wound and portable monitors and sampling equipment);	H.1.2, 2.2, 3.2, 4.2, 5.0 I 2.2.1 I 2.2.2	EP-FC-1001 Addendum 3 EP-FC-110 EP-FC-112-500 EP-FC-113 RP-AA-350
H.5.c	Process monitors (e.g., reactor coolant system pressure and temp, containment pressure and temp, liquid levels, flow rates, status or lineup of equipment components); and	I 2.2	EP-FC-1001 Addendum 3 EP-FC-121
H.5.d	Fire and combustion products detectors.	I 2.1.1	EP-FC-1001 Addendum 3 SO-G-28, Station Fire Plan
H.6	Each licensee shall make provision to acquire data from or for emergency access to offsite monitoring and analysis equipment, including:		
H.6.a	Geophysical phenomena monitors (e.g., met, hydrologic, seismic):	I 2.1.2 2.1.3 2.2.3	EP-FC-1001 Addendum 3
H.6.b	Radiological monitors including ratemeters and sampling devices. Dosimetry shall be provided and shall meet, as a minimum, the NRC Rad Assessment Branch Tech Position for the Environmental Rad Monitoring program; and	H 2.2 5.2 5.3 5.6	EP-FC-112-500 EP-FC-113 RP-AA-700
H.6.c	Laboratory facilities, fixed or mobile.	C 2.0, C 4.0	EP-FC-112-500
H.7	Each organization, where appropriate, shall provide for offsite rad monitoring equipment in the vicinity of the plant.	I 2.3.3 J 2.5	EP-FC-112-500

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

Refer to Attachment 2 – EPIP Titles, for names of EPIP's

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
H.8	Each licensee shall provide met instrumentation and procedures which satisfy the criteria in Appendix 2, and provisions to obtain representative current met data from other sources.	I 2.2.3	EP-FC-110-200 EP-FC-110-201
H.9	Each licensee shall provide for an onsite OSC which shall have adequate capacity and supplies, including, for example, respiratory protection, protective clothing, portable lighting, portable radiation monitoring equipment, cameras and communications equipment for personnel present in the OSC.	H 3.0	EP-FC-112-300
H.10	Inspect/inventory/operationally check equipment at least quarterly and after each use. There shall be sufficient reserves of instruments/equipment to replace those which are removed from emergency kits for calibration or repair.	H 5.0	EP-FC-124 RP-AA-700
H.11	Identify emergency kits, by general category (i.e., protective equipment, comm equipment, rad monitoring equipment.	H 5.0	EP-FC-124
H.12	Each organization will establish a central point for receipt and analysis of all field monitoring data and coordination of sample media.	H 2.1	EP-FC-112-500

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

Refer to Attachment 2 – EPIP Titles, for names of EPIP's

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>I. Accident Assessment</b>			
I.1	Identify plant system and effluent parameter values characteristic of a spectrum of off-normal conditions and accidents, and shall identify the plant parameter values or other information which correspond to the example initiating conditions of Appendix 1.	Sec D I 1.0 2.0	EP-FC-1001 Addendum 3
I.2	Onsite capability and resources to provide initial values and continuing assessment throughout the course of an accident shall include post accident sampling capability, radiation and effluent monitors, in-plant iodine instrumentation and containment radiation monitoring.	I 1.0 2.0	EP-FC-1001 Addendum 3 EP-FC-110-200 EP-FC-110-201
I.3	Each licensee shall establish methods and techniques to be used for determining:		
I.3.a	The source term of releases of radioactive material within plant systems.	D 1.0 Table D-1	EP-FC-110-200 EP-FC-110-201
I.3.b	The magnitude of the release of radioactive materials based on plant system parameters and effluent monitors.	D 2.0	EP-FC-111-AD-F-02 EP-FC-110-200 EP-FC-110-201
I.4	Each licensee shall establish the relationship between effluent monitor readings and onsite and offsite exposures and contamination for various met conditions.	D 2.0	EP-FC-111-AD-F-02 EP-FC-110-200 EP-FC-110-201
I.5	Each licensee shall have the capability of acquiring and evaluating met information sufficient to meet the criteria of Appendix 2.	I 2.2.3	EP-FC-111-AD-F-02 EP-FC-110-200 EP-FC-110-201
I.6	Each licensee shall establish the methodology for determining the release rate/projected doses of the instrumentation used are offscale or inoperable.	I 3.1	EP-FC-111-AD-F-02 EP-FC-110-200 EP-FC-110-201
I.7	Field monitoring plans.	I 2.3	EP-FC-112-500
I.8	Provide methods, equipment and expertise to make rapid assessment of the actual or potential magnitude of any rad hazard through liquid or gaseous release pathways.	I 3.0	EP-FC-111-AD-F-02 EP-FC-110-200 EP-FC-110-201
I.9	Each organization shall have a capability to detect and measure radioiodine concentrations in air in the plume exposure EPZ as low as $10^{-7}$ $\Phi$ Ci/cc under field conditions.	I 3.0	EP-FC-112-500

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
I.10	Each organization shall establish means for relating the various measured parameters (e.g. contamination levels, water and air activity levels) to dose rates for key isotopes and gross radioactivity measurements.	I 3.0	EP-FC-110-200 EP-FC-110-201
I.11	Arrangements to locate and track the plume.	I 2.3	EP-FC-112-500 EP-FC-110-200 EP-FC-110-201

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>J. Protective Response</b>			
J.1	Each licensee shall establish the means and time required to warn or advise individuals within the owner-controlled area, including:	J 1.3.2 J 1.1	
J.1.a	Employees not having emergency assignments;	J 1.1 J 1.3.2	EP-FC-113
J.1.b	Visitors;	J 1.1 J 1.3.2	EP-FC-113
J 1.c	Contractor and construction personnel, and	J 1.1 J 1.3.2	EP-FC-113
J 1.d	Other persons who may be in the public access areas or passing through the site or within the owner-controlled area.	J 1.1 J 1.3.2	EP-FC-113
J.2	Make provisions for evacuation routes and transportation for onsite individuals to some suitable offsite location, including alternatives for inclement weather, high traffic density and specific rad conditions.	J 1.2 Table J-9	EP-FC-113
J.3	Each licensee shall provide for radiological monitoring of people evacuated from the site.	J 1.2	EP-FC-113
J.4	Each licensee shall provide for the evacuation of onsite non-essential personnel in the event of a Site Area or General Emergency and shall provide a decon capability at or near the monitoring point specified in J.3, above.	J 1.2	EP-FC-113
J.5	Each licensee shall provide for a capability to account for all individuals onsite at the time of the emergency and ascertain the names or missing individuals within 30 minutes of the start of the emergency and account for all onsite individuals continuously thereafter.	J 1.3.2	EP-FC-113 SY-AA-101-121
J.6	Each licensee shall, for people remaining onsite, make provisions for:		
J.6.a	Individual respiratory protection;	J 1.4.4	EP-FC-113 RP Manual
J.6.b	Use of protective clothing;	J 1.4.3	EP-FC-113 RP Manual
J.6.c	Use of KI.	J 1.4.5	EP-FC-113
J.7	Each licensee shall establish a mechanism for recommending PAs to State and locals.	J 2.1.1	EP-FC-114

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
J.8	Each licensees plan shall contain an ETE. These shall be in accordance with Appendix 4.	J 2.3	EP-FC-1001 Addendum 2
J.9	State/local applicability	N/A Table J-9 J-10	N/A
J.10	The organizations plans to implement protective measures for the EPZ shall include:		
J.10.a	Maps showing evacuation routes, evacuation areas, preselected radiological sampling and monitoring points, relocation centers in host areas, and shelter areas;	J 2.3.2 Fig J-1 J-2	EP-FC-113 ANS Map 10-Mile EPZ Map
J.10.b	Maps showing pop distribution around the Nuclear facility. This shall also be by evacuation areas;	J 2.3.3 Fig J-4 J-7 J-8	EP-FC-1001 Addendum 2
J.10.c	Means for notifying all segments of the transient and resident population;	J 2.2	EP-FC-121
J.10.d	State/local applicability	N/A	N/A
J.10.e	State/local applicability	N/A	N/A
J.10.f	State/local applicability	N/A	N/A
J.10.g	State/local applicability	N/A	N/A
J.10.h	State/local applicability	N/A	N/A
J.10.i	State/local applicability	N/A	N/A
J.10.j	State/local applicability	N/A	N/A
J.10.k	State/local applicability	N/A	N/A
J.10.l	State/local applicability	N/A	N/A
J.10.m	The basis for the choice of recommended protective actions from the EPZ during emergency conditions.	J 2.1 Table J-2 J-3 J-4	EP-FC-111
J.11	State applicability	N/A	N/A
J.12	State/local applicability	N/A	N/A

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

Refer to Attachment 2 – EPIP Titles, for names of EPIP's

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>K. Radiological Exposure Control</b>			
K.1	Each licensee shall establish onsite exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity PAGs for:		
K.1.a	Removal of injured persons;	K 1.0	EP-FC-113, RP Manual
K.1.b	Undertaking corrective actions;	K 1.0	EP-FC-113, RP Manual
K.1.c	Performing assessment actions;	K 1.0	EP-FC-113, RP Manual
K.1.d	Providing first aid;	K 1.0	EPIP-EOF-11, FCSG-15-7 RP Manual
K.1.e	Performing personnel decon;	K 1.0	EP-FC-113, RP Manual
K.1.f	Providing ambulance service; and	K 1.0	EP-FC-113, FCSG-15-7 RP Manual
K 1.g	Providing medical treatment services.	K 1.0	EP-FC-113, FCSG-15-7 RP Manual
K.2	Each licensee shall provide an onsite rad protection program to be implemented during emergencies, including methods to implement exposure guidelines.	K 1.0	EP-FC-113 RP Manual
K.3.a	24 hour capability to determine the doses received by emergency personnel involved in any nuclear accident, including volunteers.	K 1.2	RP Manual EP-FC-113
K.3.b	Each organization shall ensure that dosimeters are read at appropriate frequencies.	J 1.4.2 K 1.2	RP Manual
K.4	State/local applicability	N/A	N/A
K.5.a	Action levels for determining the need for decon.	K 2.1	RP-AA-350
K.5.b	Decon of personnel wounds, supplies, instruments and equipment and for waste disposal.	K 2.0, 3.0	RP-AA-350
K.6	Each licensee shall provide onsite contamination control measure including:		
K.6.a	Area access control;	K 2.0	RP-AA-350
K.6.b	Drinking water and food supplies;	K 2.4	EP-FC-112-200-F-14
K.6.c	Criteria for permitting return of areas and items to normal use (see ANSI 12.13).	K 2.5	RP-AA-350

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

Refer to Attachment 2 – EPIP Titles, for names of EPIP's

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**NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST**

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<b>NUREG Section</b>	<b>NUREG Criteria</b>	<b>RERP Section</b>	<b>Implementing Procedure(s)</b>
K.7	Each licensee shall provide the capability for decon of relocated onsite personnel, including provisions for extra clothing and decontaminants suitable for the type of contamination given to radioiodine contamination of the skin.	K 2.1, 2.2, 2.3 L 3.2	EP-FC-113

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>L. Medical and Public Health Support</b>			
L.1	Each organization shall arrange for local and backup hospital and medical services having the capability for evaluation of radiation exposure and uptake, including assurances that persons providing these services are adequately prepared to handle contaminated persons.	L 3.0	RP-AA-220 FCSG-15-7
L.2	Each licensee shall provide for onsite first aid capability.	L 1.0	FCSG-15-7
L.3	State applicability	N/A	N/A
L.4	Each organization shall arrange for transportation of rad victims to medical support facilities.	L 2.0	FCSG-15-7

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>M. Recovery and Reentry Planning and post Accident Operations</b>			
M.1	Each organization shall develop plans and procedures for reentry and recovery and describe the means by which decisions to relax protective measures are reached.	M 1.3 2.0	EP-FC-115
M.2	Each licensee plan shall contain the position/title, authority and responsibilities of individuals who will fill key positions in the recovery organization.	M 1.2	EP-FC-115
M.3	Each licensee and state plan shall specify the means for informing members of the response organizations that a recovery operation is to be initiated, and of any changes in the organizational structure that may occur.	M 1.2	EP-FC-115
M.4	Each plan shall establish a method for periodically estimating total population exposure.	I 3.0	EP-FC-200

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>N. Exercises and Drills</b>			
N.1.a	Exercises shall be conducted as set forth in NRC and FEMA rules.	N	EP-FC-122
N.1.b	An exercise shall include mobilization of State and local personnel and resources...shall provide for a critique by federal and state observers/evaluators...scenario varied from year to year...6:00 PM and Midnite/Midnite and 6:00 AM exercises....under various weather conditions....some unannounced.	N 1.0	EP-FC-122
N.2.a	Communications drills:		
	Comm with State and Locals (monthly)	N 2.1	EP-FC-122
	Comm with Federal EROs and states within the IPZ (quarterly)	N 2.1	EP-FC-122
	Comm between the plant, state and local EOCs, and field assessment teams (annually)	N 2.1	EP-FC-122
N.2.b	Fire Drills	N 2.2	OP-AA-201-005
N.2.c	Medical Emergency Drills	N 2.3	EP-FC-122
N.2.d	Rad Monitoring Drills	N 2.4	EP-FC-122
N.2.e	HP Drills		
	Shall be conducted semi-annually which involve response to and analysis of simulated elevated airborne and liquid samples and direct rad measurements. The state drills need not be at each site.	N 2.4	EP-FC-122
	Analysis of inplant liquid samples with actual elevated rad levels including use of the PASS shall be included in HP drills by licensees annually.	N 2.4	EP-FC-122
N.3	Each organization shall describe how exercises and drills are to be carried out to allow free play for decision making and to meet the following objectives. ....The scenarios shall include, but not be limited to, the following:		
N.3.a	Basic objectives and appropriate evaluation criteria;	N 1.0, 2.0, 3.0	EP-FC-122
N.3.b	Dates, time periods, places, and participating organizations;	N 1.0, 2.0, 3.0	EP-FC-122
N.3.c	The simulated events;	N 1.0, 2.0, 3.0	EP-FC-122
N.3.d	Time schedule of real and simulated initiating events;	N 1.0, 2.0, 3.0	EP-FC-122

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

Refer to Attachment 2 – EPIP Titles, for names of EPIP's

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**NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST**

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<b>NUREG Section</b>	<b>NUREG Criteria</b>	<b>RERP Section</b>	<b>Implementing Procedure(s)</b>
N.3.e	A narrative summary;	N 1.0, 2.0, 3.0	EP-FC-122
N.3.f	A description of arrangements and advance materials for official observers.	N 1.0, 4.0	EP-FC-122
N.4	An exercise critique.	N 4.0	EP-FC-122
N.5	Evaluating the comments from observers and participants.	N 4.0	EP-FC-122

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>O. Radiological Emergency Response Training</b>			
O.1	Each organization shall assure training of appropriate individuals.	O 4.0 5.0	TQ-FC-113
O.1.a	Each facility shall train members of the ERO.	O 5.0	TQ-FC-113
O.1.b	State/local applicability	O 6.0	N/A
O.2	Training shall include drills.	N 2.0	TQ-FC-113
O.3	Licensee training for First Aid teams to include ARC Multi-Media or equivalent.	O 1.0	TQ-AA-174
O.4	Each organization shall establish a training program for ERO. Training shall be in the following categories:		
O.4.a	Directors or coordinators of EROs;	O 5.0	TQ-FC-113
O.4.b	Accident assessment personnel;	O 5.0	TQ-FC-113
O.4.c	Rad Mon Teams and rad analysis personnel;	O 5.0	TQ-FC-113
O.4.d	Police, security and fire fighting personnel;	O 6.0	EP-FC-10 SY-AA-150
O.4.e	Repair and damage control/correctional action teams (onsite);	O 5.0	TQ-FC-113
O.4.f	First aid and rescue personnel;	O 1.0 6.0	TQ-AA-173
O.4.g	Local support services personnel, including CD/Emergency Services personnel;	O 6.0	EP-FC-10
O.4.h	Medical Support Personnel;	L 3.2 O 6.0	TQ-AA-173
O.4.i	Licensee Headquarters support personnel;	O 4.0	TQ-FC-113 Crisis Communication Plan
O.4.j	Personnel responsible for transmission of emergency information and instructions.	O 4.0	TQ-FC-113
O.5	Initial and annual retraining.	O 5.0	TQ-FC-113

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>P. Responsibility for the Planning Effort; Development, Periodic Review and Distribution of Emergency Plans</b>			
P.1	Each organization shall provide for the training of individuals responsible for the planning effort.	P 1.0	EP-FC-11
P.2	Each organization shall identify by title the individual with overall planning authority;	P 1.0	EP-FC-11
P.3	Each organization will designate an Emergency Planning Coordinator.	P 1.0	EP-FC-11
P.4	Each organization shall update its plan and agreements as needed, review and certify it to be current on an annual basis. Changes will take into consideration items from drills and exercises.	P 2.0	EP-FC-120
P.5	Plans and plan changes shall be forwarded to all organizations and appropriate persons with EP responsibility. Revised pages dated and marked to show changes.	P 2.0	EP-FC-120
P.6	List supporting plans and source.	APPEN B	N/A
P.7	Each plan shall contain an appendix listing procedures required to implement the plan. The listing shall include the sections of the plan to be implemented by each procedure.	APPEN C	N/A
P.8	Each plan shall contain a table of contents. Plans submitted for review should be cross-referenced to these criteria.	APPEN C	N/A
P.9	Independent review of the plans.	P 3.0	EP-FC-120
P.10	Quarterly update of plan telephone numbers.	P 4.0	EP-FC-124

Refer to Attachment 1 – ~~PSRERP Titles~~ – ~~PSRERP Titles~~ – ~~PSRERP Titles~~, for names of PSRERP Sections

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

Attachment 1 – PSRERP Titles

Document	Document Title
<a href="#">PSRERP</a>	Radiological Response Plan For Fort Calhoun Station
<a href="#">PSRERP-SECTION A</a>	Assignment of Organizational Responsibility (Organizational Control)
<a href="#">PSRERP-SECTION B</a>	Organizational Control of Emergencies
<a href="#">PSRERP-SECTION C</a>	Emergency Response Support and Resources
<a href="#">PSRERP-SECTION D</a>	Emergency Classification System
<a href="#">PSRERP-SECTION E</a>	Notification Methods and Procedures
<a href="#">PSRERP-SECTION F</a>	Emergency Communications
<a href="#">PSRERP-SECTION G</a>	Public Education and Information
<a href="#">PSRERP-SECTION H</a>	Emergency Facilities and Equipment
<a href="#">PSRERP-SECTION I</a>	Accident Assessment
<a href="#">PSRERP-SECTION J</a>	Protective Response
<a href="#">PSRERP-SECTION K</a>	Radiological Exposure Control
<a href="#">PSRERP-SECTION L</a>	Medical and Public Health Support
<a href="#">PSRERP-SECTION M</a>	Recovery and Reentry Planning and Post Accident Operations
<a href="#">PSRERP-SECTION N</a>	Exercises and Drills
<a href="#">PSRERP-SECTION O</a>	Radiological Emergency Response Training
<a href="#">PSRERP-SECTION P</a>	Responsibility for the Planning Effort: Development, Periodic Review and Distribution
<a href="#">PSRERP-APPENDIX A</a>	Letters of Agreement
<a href="#">PSRERP-APPENDIX B</a>	Supporting Emergency Plans
<a href="#">PSRERP-APPENDIX C</a>	NUREG/RERP/Implementing Procedure Cross Reference List
<a href="#">PSRERP-APPENDIX D</a>	OPPD Resolution #4731, Radiological Emergency Response Plan Authority

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

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<a href="#">PS</a> RERP-APPENDIX E	Definitions and Abbreviations
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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

Attachment 2 – EPIP Titles

Document	Document Title
EP-FC-1001 Addendum 3	EMERGENCY ACTION LEVELS FORT CALHOUN STATION
EP-FC-110	ASSESSMENT OF EMERGENCIES
EP-FC-111	EMERGENCY CLASSIFICATION AND PROTECTIVE ACTION RECOMMENDATIONS
EP-FC-112	EMERGENCY RESPONSE ORGANIZATION (ERO) EMERGENCY RESPONSE FACILITY (ERF) ACTIVATION AND OPERATION
EP-FC-112-100	CONTROL ROOM OPERATIONS
EP-FC-112-200	TSC ACTIVATION AND OPERATION
EP-FC-112-300	OPERATIONS SUPPORT CENTER ACTIVATION AND OPERATION
EP-FC-112-400	EMERGENCY OPERATIONS FACILITY ACTIVATION AND OPERATION
EP-FC-112-500	EMERGENCY ENVIRONMENTAL MONITORING
EP-FC-112-700	ALTERNATE FACILITY OPERATION
EP-FC-113	PERSONNEL PROTECTIVE ACTIONS
EP-FC-114	NOTIFICATIONS
EP-FC-115	TERMINATION AND RECOVERY

OPPD RESOLUTION # 4731, RADIOLOGICAL EMERGENCY RESPONSE PLAN  
AUTHORITY

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BOARD OF DIRECTORS

## Board Action

January 13, 1997

### ITEM

Renewal and Update of Board Resolution No. 3083 for the Fort Calhoun Station (FCS) Radiological Emergency Response Plan (RERP).

### PURPOSE

Update the current Board Resolution which is Appendix D to the FCS RERP to reflect the development of several guidance documents for radiological emergency preparedness that has been implemented since the initial issuance of NUREG-0654/FEMA-REP-1, Revision 1, dated November 1980. Nuclear power facilities are no longer required to maintain strict adherence to the specific criteria in NUREG-0654/FEMA-REP-1.

### FACTS

- a. Requirements for strict adherence to NUREG-0654/FEMA-REP-1 were removed from Section 10 of the Code of Federal Regulations, Part 50, in the late 1980's.
- b. The Fort Calhoun Station has adopted several response concepts from other emergency preparedness documents, including; the Nuclear Regulatory Commission's (NRC) Response Technical Manual, the Nuclear Energy Institute's Alternative Emergency Action Levels as approved by the NRC, various radiological emergency preparedness guidance documents issued by the Federal Emergency Management Agency, and other alternative guidance which has been approved by the NRC.
- c. 10CFR50, Appendix E, Section IV.A.2.a. requires a "detail discussion" of; "Authorities, responsibilities, and duties of the individual(s) who will take charge during an emergency." The positions identified within the FCS RERP that must have full authority to take all necessary initial emergency response actions are classified as "Command and Control" positions.

### ACTION

Board approval of the Resolution.

RECOMMENDED:

W. G. Gates

APPROVED FOR BOARD CONSIDERATION:

F. M. Petersen

WGG:llz

Attachment: Resolution

OPPD RESOLUTION # 4731, RADIOLOGICAL EMERGENCY RESPONSE PLAN  
AUTHORITY

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OMAHA PUBLIC POWER DISTRICT

**CERTIFIED COPY OF  
RESOLUTION NO. 4731**

*WHEREAS*, the United States nuclear industry has refined activities, personnel training, equipment and facilities required for immediate response to a nuclear incident since the March 28, 1979 accident at the Three Mile Island nuclear electric generating facility, and

*WHEREAS*, Title 10, Code of Federal Regulations, Part 50, entitled "Energy," contains the minimum requirements for a Radiological Emergency Preparedness (REP) program at any U.S. nuclear power reactor site, and

*WHEREAS*, additional guidance documents, such as, NUREG-0654, FEMA-REP-1, Revision 1, Nuclear Regulatory Commission's (NRC) Response Technical Manual, Federal Emergency Management Agency's various REP documents, and others, also contain activities which may be incorporated into a nuclear power reactor's radiological emergency preparedness (REP) program, and

*WHEREAS*, minimum REP acceptance criteria requires that each licensee shall designate personnel who shall have the authority and responsibility to immediately and unilaterally initiate any emergency actions, without prior Board approval, including awards of emergency related contracts and expenditures of District funds, as deemed absolutely necessary.

*NOW, THEREFORE, BE IT RESOLVED* that the Board of Directors of Omaha Public Power District authorizes and directs the President and Chief Executive Officer of Omaha Public Power District, or designee, to appoint and train emergency "Command and Control" positions to take immediate and decisive actions following any occurrence at the Fort Calhoun Station, which results in an emergency classification per the station's NRC approved Radiological Emergency Response Plan, to mitigate the consequences of the occurrence as to protect the health and safety of the public and plant personnel and minimize any impact to the environment.

I HEREBY CERTIFY THAT THE FOREGOING IS A TRUE AND CORRECT COPY OF RESOLUTION NO. 4731 ADOPTED BY THE BOARD OF DIRECTORS OF THE OMAHA PUBLIC POWER DISTRICT AT A MEETING HELD ON JANUARY 15, 1998.



  
Assistant Secretary

## DEFINITIONS AND ABBREVIATIONS

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### 1.0 DEFINITIONS AND ABBREVIATIONS

- 1.1 ALARA - As Low As is Reasonably Achievable - Means making every reasonable effort to maintain exposures to radiation as far below the dose limits as is practical consistent with the purpose for which the licensed activity is undertaken, taking into account the state of technology, the economics of improvements in relation to state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy and licensed materials in the public interest
- 1.2 ANS - Alert Notification System - Described in Section E
- 1.3 AR - Action Request
- 1.4 Assessment Actions - The appropriate actions taken during or following an accident evaluation before implementing the specific corrective and/or protective actions
- 1.5 CDE - Committed Dose Equivalent - ( $H_{T50}$ ) The dose equivalent to organs or tissues of reference (T) that will be received from an intake of radioactive material by an individual during the 50 year period following the intake
- 1.6 CFR - Code of Federal Regulations
- 1.7 CHP - Conference Health Physics Network - Described in Section E
- 1.8 Committed Effective Dose Equivalent - ( $H_{E50}$ ) Sum of the products of the weighing factors applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to these organs or tissues
- 1.9 Control Room - Functions described in Section H
- 1.10 COP - Conference Operations (Phone) Network- Described in Section E
- 1.11 Corrective Actions - Measures taken to correct or mitigate an emergency condition at its origin in order to prevent an uncontrolled release of radioactive material or reduce the magnitude of the release.
- 1.12 CR - Control Room - Functions described in Section H
- 1.13 Deep Dose Equivalent - (DDE or  $H_d$ ) applies to external whole-body exposure, is the dose equivalent at a tissue depth of 1 cm (1000 mg/cm<sup>2</sup>)
- 1.14  $\Delta T$  - Delta Temperature - The difference in temperature between points 10 meters and 60 meters above the ground in units of centigrade. The value displayed on the ERFCs equates to;  $100m \Delta T = [(T @ 60m - T @ 10m) \times 2]$

## DEFINITIONS AND ABBREVIATIONS

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- 1.15 DOE - Department Of Energy - Role is discussed in Section C
- 1.16 Drill - Described in Section N
- 1.17 DSC – Dry Shielded Canister
- 1.18 DSO - Director of Site Operation (NRC)
- 1.19 EAD Electronic Alarming Dosimeter
- 1.20 URI/RASCAL - Emergency Assessment of Gaseous and Liquid Effluent-Section E
- 1.21 EAL - Emergency Action Level - Described in Section D
- 1.22 EAS - (Emergency Alerting System) - Described in Section E
- 1.23 ECCS - Emergency Core Cooling System
- 1.24 ENS - (FTS-ENS) Federal Telephone System Emergency Notification System - Described in Section F
- 1.25 EOC - Emergency Operations Center - Discussed in Sections C and F
- 1.26 EOF - Emergency Operations Facility - Functions described in Section H
- 1.27 EPA - Environmental Protection Agency - Role Discussed in Section C
- 1.28 EPIP - Emergency Plan Implementing Procedures
- 1.29 EPT - Emergency Plan Test - Described in Section P
- 1.30 EPZ - Emergency Planning Zone - Described in Section J
- 1.31 ERDS - Emergency Response Data System - Described in Section F
- 1.32 ERFCS - Emergency Response Facilities Computer System - Described in Section H
- 1.33 ERO - Emergency Response Organization - Duties Described in Section B
- 1.34 Exercise - Described in Section N
- 1.35 FAA - Federal Aviation Administration - Role discussed in Section C
- 1.36 FEMA - Federal Emergency Management Agency - Role described in Section C
- 1.37 FTS - Federal Telecommunications Systems (NRC Phone Circuits) - Discussed in Section F

## DEFINITIONS AND ABBREVIATIONS

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- 1.38 GAR - Governor's Authorized Representative - Authorized by letters in Appendix A
- 1.39 HPN - Health Physics Network - Described in Section F
- 1.40 HSM – Horizontal Storage Module
- 1.41 ISFSI – Independent Spent Fuel Storage Installation
- 1.42 IPZ - Ingestion Pathway Zone - Discussed in Section J
- 1.43 JIC – Joint Information Center - Functions discussed in Section B
- 1.44 NAWAS - National Warning System - Functions described in Section F
- 1.45 NRC - Nuclear Regulatory Commission - Role discussed in Section C
- 1.46 NWS - National Weather Service - Role discussed in Section C
- 1.47 Operation Liaison Network- Described in Section F
- 1.48 OSC - Operation Support Center - Functions described in Section H
- 1.49 PABX - Private Automatic Branch Exchanges - Function described in Section H
- 1.50 PAG - Protective Action Guideline - Discussed in Section J
- 1.51 PAR - Protective Action Recommendation - Discussed in Section J
- 1.52 Protective Actions - Discussed in Section J
- 1.53 REM - The special unit of any of the quantities expressed as dose equivalent. The dose equivalent in rems is equal to the absorbed dose in rads multiplied by the quality factor (1 rem = .01 sievert).
- 1.54 SDE - Shallow Dose Equivalent - Is the dose equivalent at a tissue depth of 0.007 cm or 7 mg/cm<sup>2</sup> averaged over an area of 10 cm<sup>2</sup>. It applies to the external exposure of the skin or an extremity.
- 1.55 TEDE - Total Effective Dose Equivalent - The sum of the deep-dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures). This represents the combined dose (DDE+CEDE) to a worker.
- 1.56 TLD - Thermoluminescent Dosimeter - A device worn by plant personnel to measure the amount of radiation received.
- 1.57 TSC - Technical Support Center - Functions described in Section H

## DEFINITIONS AND ABBREVIATIONS

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- 1.58 UNMC Regional Radiation Health Center - Role discussed in Section L
- 1.59 USAR - Updated Safety Analysis Report

**OPPD NUCLEAR**

**POST-SHUTDOWN  
RADIOLOGICAL EMERGENCY  
RESPONSE PLAN  
FOR FORT CALHOUN STATION**

## POST SHUTDOWN RADIOLOGICAL EMERGENCY RESPONSE PLAN

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### AREA DESCRIPTION

#### 1.0 PLANT LOCATION

Fort Calhoun Station is located midway between Fort Calhoun and Blair, Nebraska, on the west bank of the Missouri River. The site consists of approximately 660.46 acres with an additional exclusion area of 582.18 acres on the northeast bank of the river directly opposite the plant buildings. The Fort Calhoun Station includes the Independent Spent Fuel Storage Installation (ISFSI), located within the protected area, centered approximately 200 meters north-northwest of the Containment Building. The distance from the reactor containment to the nearest site boundary is approximately 910 meters; and the distance to the nearest residence is beyond the site boundary. Except for the city of Blair and the villages of Fort Calhoun and Kennard, the area within a ten mile radius is predominantly rural. The land use within the ten mile radius is primarily devoted to general farming. There are no private businesses or public recreational facilities on the plant property. The DeSoto National Wildlife Refuge occupies approximately 7821 acres east of the plant site. This area is open to the public for day use year-round. Visitors to the refuge generally use areas from two to five miles from the plant. Estimates by the U.S. Fish and Wildlife Service place annual usage of the facility at approximately 120,000 for the Visitors Center and 400,000 for the refuge. The expected maximum daily usage of the facility has been placed at 2500 visitors for a winter weekday and 5000 on a summer weekend. The Boyer Chute Federal Recreation Area is a day use facility occupying approximately 2000 acres southeast of the plant site. Visitors to the recreation area generally use areas seven to ten miles from the plant. The estimates for annual usage of this facility is approximately 50,000 visitors.

The State of Nebraska operates the Fort Atkinson State Historic Park five and half miles southeast of the plant site. This day use facility is mostly seasonal and estimates place annual usage at 60,000. The State of Iowa maintains Wilson Island State Park with 275 camping spaces south of the DeSoto National Wildlife Refuge and four miles southeast of the plant site. The estimates for usage of this facility range from 500 on a winter weekday to 1000 on a summer weekend.

Two private facilities lie to the north of the plant along the Missouri River. The Cottonwood Marina is located approximately four and a half miles from the plant. Estimates place summer weekend usage at 200 people. Riverland Resort Park is a private campground lying directly south of Cottonwood Marina and ranging from four to four and a half miles from the plant. The campground has approximately 235 campsites and is open from April to October.

## POST SHUTDOWN RADIOLOGICAL EMERGENCY RESPONSE PLAN

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### 2.0 AREA INDUSTRIES

A listing of various industries located within a ten mile radius of the Fort Calhoun Station, including firm name, product, number of employees, and location from the plant site is contained in the Updated Safety Analysis Report.

### 3.0 AREA WATER SUPPLIES

Local public drinking water supplies are not taken from the Missouri River in this area. The first downstream intake is the city of Omaha approximately 19.5 miles downstream. Industrial water use is limited to cooling purposes in the Omaha area. Drinking water near the Fort Calhoun Station is obtained from either well or reservoirs. Since the known public and private water supplies originate at elevations higher than the river, radioactive liquids that might be discharged from the plant into the river should not contaminate these supplies.

There are also many private wells in the region which draw primarily upon ground water rather than on springs or other surface sources. Several marinas are located along the Missouri River, between 3 miles upstream from Blair and Omaha, 18 miles downstream. In the event of a significant waterborne release incident from the Fort Calhoun Station, the Nebraska Department of Environmental Control acting in conjunction with the Nebraska Department of Health, Division of Radiological Health and the U. S. Coast Guard are prepared to notify all downstream users of Missouri River water. Notification is made through OPPD management directly to the Metropolitan Utilities District (MUD) in the event of an inadvertent liquid release to the river. Swimming, boating and other recreational activities involving river water can be controlled by the Coast Guard until adequate surveys have been taken to determine when normal activities may be resumed.

**POST SHUTDOWN RADIOLOGICAL EMERGENCY RESPONSE PLAN**

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**PURPOSE OF THE EMERGENCY PLAN**

The purpose of the Fort Calhoun Station "Post-Shutdown Radiological Emergency Response Plan" (PSRERP) is to delineate an organization for coping with emergencies, to classify emergencies according to severity, define and assign responsibilities and authorities, and to clearly outline the most effective course of action and protective measures required to mitigate the consequences of an accident and to safeguard the public and station personnel in the event of an incident. The Emergency Plan Implementing Procedures (EPIPs), Radiation Protection procedures, and other station references are available at the plant to further assist personnel during abnormal occurrences. The various emergency procedures are put into effect whenever a system, component or circuit failure could lead to a personnel hazard or major equipment failure. Procedures are sufficiently detailed so that the plant is maintained in a safe condition. The various procedures include such items as radiation hazards, weather conditions and availability of technical and plant personnel.

## POST SHUTDOWN RADIOLOGICAL EMERGENCY RESPONSE PLAN

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### ACCIDENT CONSIDERATIONS

#### 1.0 **FUEL HANDLING ACCIDENT**

The possibility of an incident during fuel handling is unlikely due to the many physical limitations imposed on fuel handling operations and systems. In addition, administrative restrictions placed on fuel handling procedures provide greater control. Nevertheless, the offsite consequences of dropping a spent fuel assembly and damaging the entire assembly have been evaluated and are documented in the Fort Calhoun Station, Unit No. 1 USAR, Section 14.18. Emergency onsite and offsite monitoring practices would begin immediately following the accident to determine actual consequences, and appropriate emergency actions would be taken. Emergency procedures addressing a Fuel Handling Incident provide emergency actions for this mishap.

The transfer cask that is used to transfer spent fuel (32 assembly capacity) contained within a dry shielded canister (DSC) from the Auxiliary Building to the ISFSI, has been analyzed for an 80 inch drop accident in the NUHOMS FSAR. The analysis determined that the DSC would retain its leak tight integrity for this 80 inch drop. This bounds the height of the transfer cask while it is being moved by the heavy-haul trailer between the Auxiliary Building and the ISFSI so that a release of radioactivity due to a drop event during transfer operations would not occur.

#### 2.0 **FIRES**

##### 2.1 Internal Plant Fires (within the Protected Area)

Internal Plant fires are normally handled by the station's Fire Brigade, comprised of trained individuals from the Operations Department and Radiation Protection Department. All efforts are made to prevent the spread of airborne contamination should the fires occur within the Radiological Controlled Area.

##### 2.2 External Fires (outside the Protected Area)

External fires are controlled by local fire department response. In the event high airborne contamination constitutes a possible hazard to areas outside of the protected area, offsite survey teams/personnel can be dispatched immediately.

## POST SHUTDOWN RADIOLOGICAL EMERGENCY RESPONSE PLAN

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### 3.0 EXPLOSION

Because of the accumulation of waste gases in the waste gas decay tanks, the possibility and consequences of an explosion have been considered. An explosion could result in an unexpected, uncontrolled release to the atmosphere of radioactive fission gases that were stored in the waste gas system. A failure of any of the waste gas decay tanks or associated piping could also result in a release of gaseous activity. The noble gases stored in the tanks would diffuse and become diluted during their transport to the site boundary. The projected Deep Dose Equivalent (DDE) at the exclusion area boundary would be less than 1.0 Rem. This conservative analysis is based upon 1% fuel cladding defects, and accumulation of all noble gases without release over a full core cycle. Emergency procedures addressing a Waste Gas Incident, would be placed into effect immediately and offsite monitoring teams would be dispatched downwind.

The ISFSI horizontal storage modules (HSM) are designed to protect the DSC's from the effects of explosions to ensure the DSC's retain their leak-tight integrity and prevent a release of radioactivity to the atmosphere. An analysis of the haul route used to transfer the DSC's from the Auxiliary Building to the ISFSI was performed, and it identified administrative controls needed to prevent explosions in the vicinity of the transfer cask (designed to withstand 3 psi overpressure) during spent fuel transfer operations.

### 4.0 TOXIC CHEMICAL RELEASE ACCIDENTS

The primary toxic chemical release accidents which may result in toxic gas concentrations at Fort Calhoun Station are shown below:

<u>TOXIC CHEMICAL</u>	<u>ACCIDENT</u>
Ammonia (NH <sub>3</sub> )	Rupture of two 25,000 ton offsite refrigerated tanks.
Ammonia	Rupture of two 30,000 gal. offsite non-refrigerated tanks.
Ammonia	Rupture of a 78 ton railroad tank car.
Ammonia	Rupture of a 2 ton tank truck.

The above accidents will not pose a hazard to control room personnel, due to toxic gas monitors located at the fresh air intake of the control room, which isolates the control room before the gases reach the toxic limit. The stringent odor of ammonia makes station personnel immediately aware of any leakage or toxic gas cloud. Spent Fuel storage at the ISFSI relies on passive means of decay heat removal (natural convection), so a toxic gas release does not challenge nuclear safety.

The toxic gas monitors sample for NH<sub>3</sub> and continuously monitor the fresh air to the control room during normal plant operations.

## POST SHUTDOWN RADIOLOGICAL EMERGENCY RESPONSE PLAN

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At different phases of plant operation, Hydrogen and/or Nitrogen gases blanket the volume control tank and the waste gas system. Considering that the deleterious effect of these gases is the exclusion of oxygen, a release to the atmosphere diminishes the harmful effect and a serious hazard is eliminated.

In the event of an offsite accidental release of chemicals, within a five (5) mile radius of the Fort Calhoun Station, the Blair Fire Department emergency procedures require notification to the Fort Calhoun Station. The counties of Washington (Nebraska) and Harrison (Iowa) have agreed to notify the Fort Calhoun Station when hazardous chemical accidents occur within five miles of the station. Appropriate action is taken, especially in the control room, to ensure that air remains breathable. For long duration toxic accidents, six (6) hours of compressed air is available for five (5) control room operators coupled with provisions to obtain additional air within this time period.

### **5.0 PERSONNEL INJURY**

A fully stocked First Aid Room is available in the Plant. Immediate and temporary care may be given to the injured person using standard First Aid practices. If the injury involves contamination, efforts to decontaminate the injured person to reasonable levels are made prior to transfer to the First Aid Room or to offsite medical facilities. If decontamination is not practical, the injured person is covered in such a manner as to minimize the spread of contamination until either medical aid can be obtained or until the injured person can be transported to the UNMC Regional Radiation Health Center.

### **6.0 NATURAL DISASTERS**

A natural disaster may occur which could initiate any of the accidents previously discussed. The Spent Fuel Pool and ISFSI are designed to withstand natural phenomena, including the maximum hypothetical earthquake, design basis tornado and tornado-driven missiles, with no release of radioactivity.

## ASSIGNMENT OF ORGANIZATIONAL RESPONSIBILITY (ORGANIZATIONAL CONTROL)

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### 1.0 NON-OPPD SUPPORT ORGANIZATIONS

The following organizations may respond to a declared emergency at the Fort Calhoun Station. Each of these groups are capable of 24 hour response and operation. The details of their responsibilities are contained in their respective emergency response plans/procedures or if applicable, a Letter of Agreement between that organization and OPPD. Figure A-1 outlines the organizational interrelationships of various response organizations.

#### 1.1 Law Enforcement Support Organizations

- 1.1.1 Nebraska State Patrol
- 1.1.2 Iowa State Patrol
- 1.1.3 Washington County Sheriff's Department
- 1.1.4 Pottawattamie County Sheriff's Department
- 1.1.5 Harrison County Sheriff's Department
- 1.1.6 Douglas County Sheriff's Department

#### 1.2 Fire and Rescue Support Organizations

- 1.2.1 Blair Fire Department and Rescue Squad
- 1.2.2 Fort Calhoun Fire/Rescue
- 1.2.3 Missouri Valley Fire & Rescue Squad
- 1.2.4 Council Bluffs Fire and Ambulance Department

#### 1.3 Medical Support Organization

- 1.3.1 UNMC Regional Radiation Health Center

#### 1.4 Nebraska's Governmental Support Organizations

- 1.4.1 Nebraska Emergency Management Agency
- 1.4.2 Washington County Emergency Management Agency
- 1.4.3 Douglas County Emergency Management Agency

## ASSIGNMENT OF ORGANIZATIONAL RESPONSIBILITY (ORGANIZATIONAL CONTROL)

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- 1.4.4 Nebraska Health and Human Services, Regulation and Licensure
- 1.4.5 Region 5/6 Emergency Management Agency
- 1.4.6 Dodge County Emergency Management Agency
- 1.4.7 Sarpy County Emergency Management Agency
- 1.5 Iowa's Governmental Support Organizations
  - 1.5.1 Iowa Homeland Security and Emergency Management Division
  - 1.5.2 Iowa Department of Public Health
  - 1.5.3 Harrison County Emergency Management Agency (via Board of Supervisors)
  - 1.5.4 Pottawattamie County Emergency Management Agency (via Board of Supervisors)
  - 1.5.5 Pottawattamie County Division of Communications
  - 1.5.6 Crawford County Emergency Management Agency
- 1.6 Federal Government Support Organizations
  - 1.6.1 U.S. Coast Guard
  - 1.6.2 Environmental Protection Agency (EPA)
  - 1.6.3 Department of Energy (DOE)
  - 1.6.4 National Weather Service (NWS)
  - 1.6.5 U.S. Nuclear Regulatory Commission (NRC)
  - 1.6.6 Federal Emergency Management Agency (FEMA) Region VII
  - 1.6.7 Federal Aviation Administration (FAA)
  - 1.6.8 Department of the Interior, Branch of Global Seismology

## ASSIGNMENT OF ORGANIZATIONAL RESPONSIBILITY (ORGANIZATIONAL CONTROL)

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### 1.7 Industrial Support Organizations

1.7.1 Westinghouse Electric

1.7.2 Union Pacific Railroad

1.7.3 Institute of Nuclear Power Operations (INPO)

1.7.4 Institute of Nuclear Power Operations/Electric Power Research Institute/Nuclear Energy Institute

### 1.8 Other Support Organizations

1.8.1 Metropolitan Utilities District

1.8.2 Nebraska Public Power District (Cooper Nuclear Station)

1.8.3 National Weather Service

### 1.9 Monitoring and Decontamination Support Organizations

1.9.1 Omaha Fire Department Emergency Worker Decon

## **2.0 OPPD CONCEPT OF EMERGENCY OPERATIONS**

2.1 OPPD's overall goals are to mitigate any emergency conditions which may occur at the Fort Calhoun Station and to provide information and support to State and Local agencies needed to protect the health and safety of the general public.

2.2 A predesignated group is assigned to various roles to ensure capable emergency response and mitigation at the Fort Calhoun Station. These assignments are made to ensure that the administrative, managerial and technical support needed for accident mitigation are met. A sufficient number of individuals are assigned to these positions to ensure around-the-clock and continued long term support.

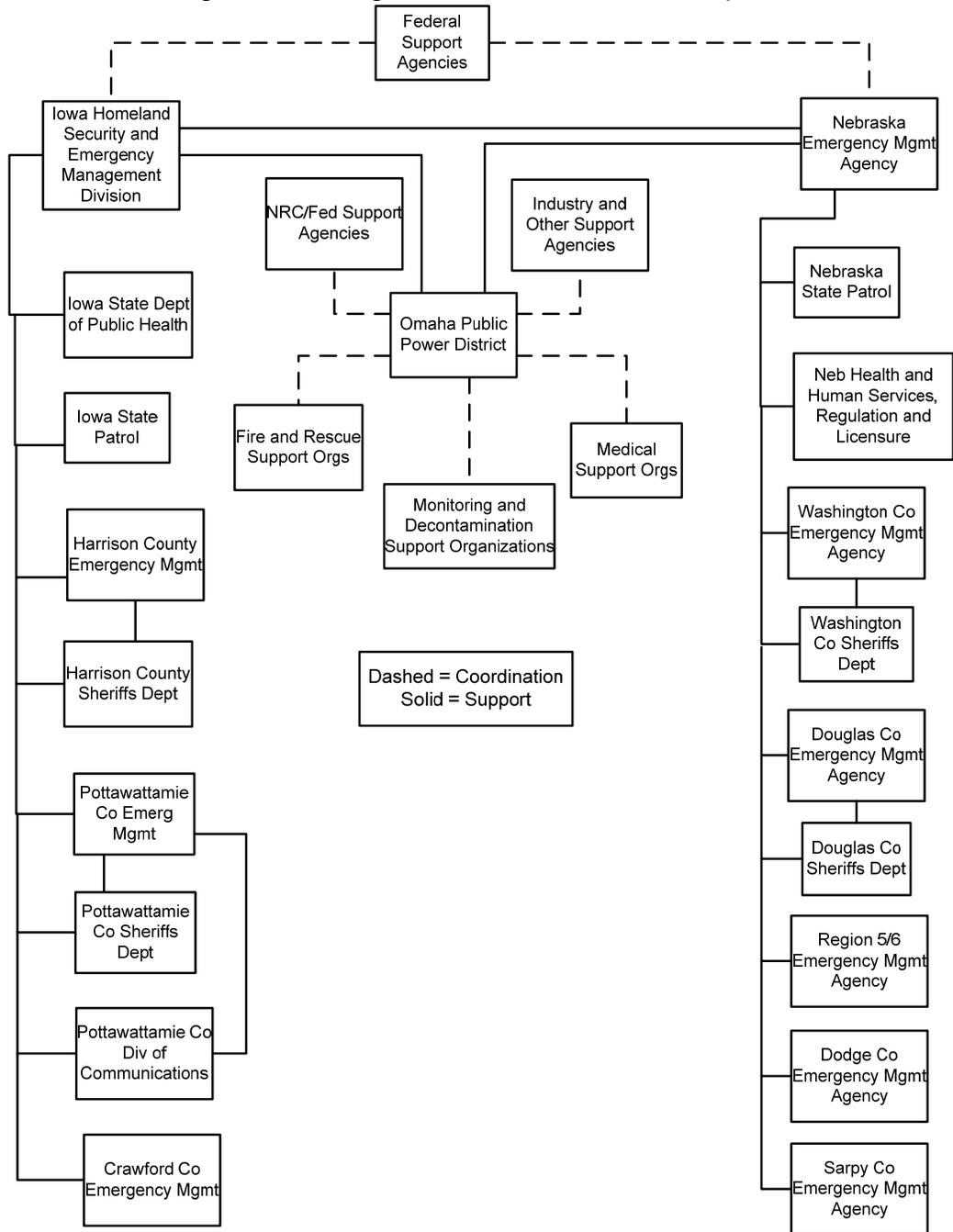
2.3 Responsibility for emergency response initially lies with the Shift Manager. If the Technical Support Center (TSC) is activated, command and control may be transferred to the Site Director. The Emergency Director in the Emergency Operations Facility (EOF) may assume command and control if that facility is activated. The command and control position is responsible for ensuring the continuity of resources throughout an event.

### **3.0 LETTERS OF AGREEMENT**

- 3.1 Letters of agreement between OPPD and the organizations outlining their roles in the event of an emergency are on file with the Fort Calhoun Station Emergency Planning Department. These letters are reviewed annually in accordance with Emergency Preparedness recurring tasks.

ASSIGNMENT OF ORGANIZATIONAL RESPONSIBILITY (ORGANIZATIONAL CONTROL)

Figure A-1 - Organizational Interrelationships



## ORGANIZATIONAL CONTROL OF EMERGENCIES

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### **1.0 PURPOSE AND SCOPE**

#### 1.1 Purpose

- 1.1.1 This PSRERP Section establishes the organizational requirements, reporting locations and duties for the Fort Calhoun Station (FCS) Emergency Response Organization (ERO).

#### 1.2 Scope

- 1.2.1 The positions established in this PSRERP Section upon declaration of an emergency will comprise the ERO. The ERO's responsibility is to mitigate the consequences of an event using the facilities and resources described elsewhere in the PSRERP and the supporting Emergency Plan Implementing Procedures (EPIP).

### **2.0 DEFINITIONS**

None

### **3.0 RESPONSIBILITIES**

#### 3.1 Emergency Response Organization (ERO):

- 3.1.1 OPPD has issued a resolution which authorizes the ERO to provide an immediate and decisive response to mitigate the consequences of any nuclear emergency and for the protection of the health and safety of the public. Resolution No. 4731, as approved by the Board of Directors on January 15, 1998, is Appendix D of the PSRERP.
- 3.1.2 The ERO is intended to provide a pre-qualified organization capable of fulfilling the actions described above. The ERO is not confined to utilize only those personnel that are currently listed as qualified. Other OPPD personnel may be assigned and utilized to perform necessary functions at the discretion of the Command and Control positions. Assignment of any non-ERO qualified individual(s) should include adequate instruction to ensure the individual(s) is capable of performing the necessary functions and is knowledgeable of any potential hazards associated with responding to the designated facility.

#### 3.2 Command and Control:

- 3.2.1 The position performing the duties of the Emergency Director is referred to as the Command and Control Position.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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- 3.2.2 The Command and Control position has the following responsibilities that cannot be delegated to other personnel. The position may assign other personnel to assist in conducting the actions necessary, but the responsibility of their completion rests with the position, until relieved by another Command and Control position or qualified individual, or the emergency is terminated:
- A. Overall command and control of the ERO.
  - B. Ensuring that the proper classification of the emergency has been made in accordance with the established EAL/Classification scheme and is periodically reviewed to determine if the classification should be upgraded, downgraded or terminated.
  - C. Ensuring that all required notifications are made to appropriate state, local and federal officials.
  - D. Ensuring that appropriate Protective Action Recommendations (PARs) are provided to offsite officials.
  - E. Authorizing OPPD emergency worker exposure extensions beyond the Federal Radiation Protection Guidance.
  - F. Authorizing issuance of Potassium Iodide for OPPD emergency workers.
- 3.2.3 The Command and Control position also has the following responsibilities that can be delegated to other personnel, as necessary:
- A. Requests for assistance from federal agencies.
  - B. Authorizing any emergency information to be released to the media or the general public.
  - C. Coordinating the transfer of the emergency information from the ERO to other OPPD and non-OPPD organizations called upon to assist.
  - D. Ensuring a timely and complete turnover of information to any qualified relief.
  - E. Declaring the termination of an emergency and transfer into a Recovery Operations Organization, when appropriate.
  - F. Providing information to the authorized representatives of the states of Nebraska and Iowa, and associated local governments.
  - G. Ensuring that the plant is in compliance with Technical Specifications and other licensee conditions, and if deviations are necessary to protect the public health and safety, they are approved, as a minimum, by a Senior Reactor Operator, prior to taking the action.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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### 4.0 PROCEDURE

#### 4.1 ERO Staff On-Shift

4.1.1 The staffing of the normal operating organization for each shift is shown in Table B-1. This staffing consists of, as a minimum:

- One Shift Manager (Senior Reactor Operator (SRO)/Certified Fuel Handler (CFH))
- One Control Room Operator (SRO or Reactor Operator (RO)/CFH)
- One Equipment Operator/Non-Certified Operator (NCO)
- One Radiation Protection Technician
- Additionally, there are several shift Security personnel assigned

4.1.2 All or part of these shift personnel may comprise the initial ERO, and are responsible for taking immediate protective measures in any emergency and implementing this Post-Shutdown Radiological Emergency Response Plan when necessary.

#### 4.2 Activation of the ERO

4.2.1 At a Notification of Unusual Event (NOUE), the Shift Manager may elect to not activate the ERO. In this instance, a notification to certain management personnel is performed and other personnel may be notified to assist as necessary.

A. If the Shift Manager elects to activate the ERO, the notification process will call out the entire ERO (with the exception of the JIC).

4.2.2 It is OPPD's goal that the ERO personnel can staff their emergency positions within one hour following declaration of an Alert or higher classification. In the event of adverse weather and/or other conditions that may limit or slow response, either manmade or natural, it is understood that staffing time may exceed this goal.

#### 4.3 Facility Activation and Operation

4.3.1 There are some functional group activities that may be performed within an Emergency Response Facility prior to actually activating the facility. To be beneficial to the Command and Control facility, these activities, such as dose assessment and field team functions, are dependent upon the establishment of proper communications between the facilities.

4.3.2 OPPD Emergency Response Facilities are considered activated when minimum staffing and basic setup requirements have been attained to allow the facility to provide minimum support to the operating staff and other facilities.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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- A. It is OPPD's goal that the OSC, EOF and TSC be activated within one hour following an Alert classification. The JIC will be activated following a Site Area or General Emergency classification, and can be activated at an earlier classification based on the decisions of the Corporate Communications Division.

4.3.3 Minimum staffing for activation of the OSC is as follows:

- One OSC Director
- One Radiation Protection Technician
- One other person to form a team

4.3.4 Minimum staffing for activation of the TSC is as follows:

- One Site Director
- One TSC Protective Measures Coordinator
- One Engineering Coordinator

4.3.5 Minimum staffing for activation of the EOF is as follows:

- One Emergency Director
- One EOF COP Communicator
- One EOF Protective Measures Manager
- One EOF Dose Assessment Specialist

4.3.6 OPPD Emergency Response Facilities are considered augmented when all minimum and augmenting staffing positions are filled.

4.3.7 Selected support staff, which assists the minimum and augmenting staff, is shown on Attachment 1 - Table B-1 - OPPD Emergency Response Organization (ERO) Functions and Shift Staff Augmentation Plan. The support staff is intended to supplement and enhance operation of their respective facilities. Additional personnel may respond.

4.3.8 If a toxic chemical/hazardous material or other significant event occurs that threatens the habitability of the station, an option exists to have all or part of the TSC and OSC staffs report to the EOF to provide assistance as necessary.

4.3.9 Some ERO personnel may elect to maintain an assistant position. This is acceptable when additional coordination of activities is required or to aid in the turnover process. The primary assignee must maintain overall responsibility of the position, and ensure that 24 hour staffing of the position can be implemented.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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### 4.4 Command and Control Positions

4.4.1 The positions that have Emergency Director Authority are:

- The Shift Manager
- The Site Director
- The EOF Emergency Director

4.4.2 The Shift Manager ERO duties are to:

- A. Perform as Emergency Director until properly relieved by a qualified position.
- B. Direct medical and fire response efforts.
- C. Coordinate in-plant operations response with the TSC and OSC. After being relieved by another Command and Control position, the Shift Manager will provide assistance and direction to the Control Room staff as necessary.
- D. Ensure Control Room communications are established with the TSC, OSC, and EOF.

4.4.3 The Site Director position is intended to assume Command and Control functions from the Control Room if the EOF is not available or cannot assume Command and Control. This position may assume Command and Control at any emergency classification. The Site Director may assume Command and Control in the Control Room proper at any time. If the Site Director elects to assume Command and Control within the TSC, the TSC must meet activation requirements.

A. The Site Director duties are to promptly relieve the Control Room Command and Control position and perform as Emergency Director until properly relieved by a qualified position, if the EOF is not available or cannot assume Command and Control. Additional duties of the Site Director are to:

1. Manage the onsite activities of the ERO.
2. Keep the Emergency Director informed of those onsite activities as necessary.

4.4.4 The EOF Emergency Director position is intended to assume all Command and Control functions from the plant site. This position may assume Command and Control at any emergency classification, but the EOF must meet activation requirements prior to the transfer of Command and Control duties.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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- A. The Emergency Director duties are to promptly relieve the onsite Command and Control position and perform as Emergency Director until properly relieved by a qualified position or termination of the emergency response phase.

### 4.5 Control Room Positions

4.5.1 The following positions are on-shift staff, and augmenting positions for the Control Room. Additional Control Room support staffing is identified on Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization. Control Room on-shift staff positions are:

A. Shift Managers duties are described in Sections 4.2, 3.2 and 4.4.2.

B. Control Room Operator duties include:

- Assessment of plant conditions,
- Ensuring requirements of the AOPs are met, and
- Notifications as directed by the Shift Manager. These notifications include the following:
  - Required notifications to the states and counties
  - Notifications to the Emergency Response Organization

C. Equipment Operator/NCO duties include making repairs and corrective actions on plant equipment until augmented plant maintenance staff arrives. NCOs also assist in performing notifications/communications and dose assessment as needed.

D. Shift Radiation Protection Technician duties include conducting radiological accident assessment and support, offsite dose assessment and onsite in-plant surveys.

4.5.2 The Control Room (CR) Operations Liaison is an augmenting position. Duties include transmitting plant status/Control Room information, etc. to the TSC, OSC, and EOF.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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### 4.6 Technical Support Center Positions

4.6.1 The following are minimum staffing and augmenting positions for the Technical Support Center (TSC). Additional TSC support staffing is identified on Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization. Minimum staffing positions for the TSC are:

A. Site Director duties are described in Steps 3.2 and 4.4.3.

B. Engineering Coordinator duties include:

1. Directing activities of engineering resources requested by the TSC.
2. Analyzing plant problems and providing recommendations for plant modifications to mitigate the effects of the accident.
3. Evaluating possible radiological release paths to the environment.

C. Protective Measures Coordinator duties include:

1. Coordinating the dispatch of the TSC field team from the site and performing field team direction until the EOF assumes this duty.
2. Monitoring and coordinating on site dose assessment operations performed, and keep the Site Director informed of dose projections and field sample results.
3. Evaluating site radiological conditions, and necessary personnel protective measures.
4. Evaluating and making recommendations for plant evacuation and evacuation routes.
5. Preparing and submitting state update information, including Protective Action Recommendations, to the Site Director for approval and transmittal to state and federal officials if TSC has Command and Control.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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### 4.6.2 Augmenting positions for the TSC are:

- A. TSC Field Team duties include providing off-site monitoring in the areas potentially affected by a radiological release.
- B. Operations Liaison duties include:
  - 1. Obtaining plant status/Control Room information from the Control Room Operations Liaison and transmitting this information to the TSC staff as needed. **[AR 11390]**
  - 2. Assisting the Site Director in formulating appropriate protective action recommendations when necessary.

### 4.7 Operations Support Center Positions

4.7.1 The following are minimum staffing and augmenting positions for the Operations Support Center (OSC). Additional OSC support staffing is identified on Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization. Minimum staffing positions for the OSC are:

- B. OSC Director duties include:
  - 1. Coordinating the development of plans for required maintenance activities.
  - 2. Keeping the Site Director informed of OSC activities.
  - 3. Coordinating emergency team response as requested by the TSC/Control Room to perform search and rescue, damage assessment, damage control, repair and modification, and in-plant radiological monitoring.
- C. Radiation Protection Technician duties include coordination of on-site radiation protection activities.
- D. One other person to form a team.

### 4.7.2 Augmenting positions for the OSC are:

- A. Chemistry Technician duties include evaluating and performing all chemistry activities on-site.
- B. Electrical Maintenance Technician duties include providing repairs and corrective actions for plant electrical equipment as directed.
- C. I&C Technician duties include providing repairs and corrective actions to

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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plant instruments as directed.

- D. Machinist or Steam Fitter Mechanic duties include providing repairs and corrective actions to plant mechanical equipment as directed.
- E. Radiation Protection Technicians (three positions) duties include providing radiological surveys and job coverage to repair and corrective action teams as directed.
- F. The Protective Measures Coordinator duties include coordinating all radiation protection activities onsite.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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### 4.8 Emergency Operations Facility Positions

4.8.2 The following positions are minimum staffing and augmented positions for the Emergency Operations Facility (EOF). Additional EOF support staffing is identified on Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization. Minimum staffing positions for the EOF are:

A. Emergency Director duties are described in Section 3.2 and 4.4.4.

B. COP Communicator duties include performing notifications as directed by the Command and Control position. These notifications include the following:

- Required notifications to states and counties
- Required notifications to the NRC
- Notifications to the Emergency Response Organization. This position also assists in maintaining status boards within the EOF

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C. Protective Measures Manager duties include:

1. Directing dose assessment operations performed, coordinating OPPD field teams, and keeping the Emergency Director informed of projections and field survey results.
2. Evaluating site radiological conditions and necessary personnel protective measures.
3. Preparing and submitting state update information, including Protective Action Recommendations, to the Emergency Director, state and federal officials.
4. Coordinating technical briefings for the offsite agencies as requested.
5. Comparing dose projections against field team results.
6. Comparing dose projections and field team results with state and federal agency results.

D. Dose Assessment Specialist duties include performing offsite dose assessments and submitting the results to the Emergency Director for approval and transmittal to state and federal officials.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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### 4.8.3 Augmenting positions for the EOF are:

#### A. Administrative Logistics Manager duties include:

1. Coordinating administrative personnel support to the EOF.
2. Coordinating scheduling and callout of ERO personnel for 24 hour coverage.
3. Activating the Alert Notification System as requested.
4. Coordinating OPPD resources for the establishment of emergency logistics for the ERO, such as food, beverages, medical and administrative supplies, transportation, special equipment, etc.

#### B. The EOF Field Team duties include providing off-site monitoring in the areas potentially affected by a radiological release.

1. Field Team Specialist duties include coordinating the activities of the OPPD and state Field Teams to achieve the most efficient use of teams for plume tracking.

#### C. Information Specialist duties include:

1. Preparing information for use in periodic press releases.
2. At an Alert or higher emergency classification, submitting all press releases to the Emergency Director (or designee) for approval prior to forwarding the release to the JIC.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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- D. Operations Liaison duties include: 1) obtaining plant status/Control Room information from the Control Room Operations Liaison and transmitting this information to the EOF and NRC staff as needed; and, 2) assisting the Emergency Director in the review of classifications and formulating appropriate protective action recommendations when necessary. **[AR 11390]**

### 4.9 Joint Information Center Positions

#### 4.9.2 The Joint Information Center Manager duties include:

- A. Coordinating with government authorities and to provide periodic briefings and news releases to news media personnel.
- B. Providing public inquiry services.
- C. Keeping OPPD personnel, including senior management, informed of the status of the emergency and emergency response effort. OPPD's Corporate Crisis Communication Plan lists other JIC positions.

### 4.10 Emergency Response Organization Interface with Onsite and Offsite Organizations

4.10.2 Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization illustrates the interface between the EOF and other onsite support centers. Attachment 2 - Figure B-3 - Organization Interrelationships illustrates the interface of the EOF with federal, state, and local support agencies.

4.10.3 The EOF interfaces with each of the onsite support centers on a continuous basis. Even though the EOF serves as the primary interface with the various offsite support agencies, the TSC interfaces with various contractors and vendors to gather needed design data, consultation, and evaluation concerning the plant's status.

### 4.11 Emergency Response Organization Notification

4.11.2 Emergency Response Organization notification occurs as shown in Sections E and M of the PSRERP. The Shift Manager is responsible for initiation of the notification process after an emergency condition has been classified.

### 4.12 Service Provided by Local Agencies

4.12.2 The Nebraska State Patrol and the Washington County Sheriff's Department have agreed to provide the primary law enforcement support to the Fort Calhoun Station Security Department.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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- 4.12.3 The Blair Volunteer Fire Department has agreed to provide the primary fire support services for the Fort Calhoun Station. The Fort Calhoun Volunteer Fire Department has agreed to provide backup fire response.
- 4.12.4 OPPD vehicles may transport non-injured potentially contaminated personnel. The Blair Volunteer Fire Department has agreed to provide primary rescue and transportation support, for injured and/or contaminated personnel. The Fort Calhoun Volunteer Fire and Rescue, Missouri Valley Fire and Rescue and the Council Bluffs Ambulance and Fire Departments have agreed to provide backup services.
- 4.12.5 The Blair Hospital has agreed to provide medical support for work related injuries. Nebraska Health Services University Hospital in Omaha, maintains a regional Radiation Health Center which provides services for the treatment of radiologically contaminated injuries and radiation exposure evaluation.
- 4.12.6 The majority of the organizations listed in this section maintain a Letter of Agreement with OPPD. These letters are on file in the Emergency Planning Department at the Fort Calhoun Station.

### **5.0 RETENTION/RECORDS**

None

### **6.0 REFERENCES AND COMMITMENTS**

- 6.9 AR 11390, LIC-065R
- 6.10 Fort Calhoun Station Analysis of Proposed Post-Shutdown On-Shift Staff, August 2016

### **7.0 ATTACHMENTS**

- 7.9 Attachment 1 - Table B-1 - OPPD Emergency Response Organization (ERO) Functions and Shift Staff Augmentation Plan
- 7.10 Attachment 2 - Figure B-1 - Normal Fort Calhoun Station Management Organization
- 7.11 Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization
- 7.12 Attachment 2 - Figure B-3 - Organization Interrelationships

ORGANIZATIONAL CONTROL OF EMERGENCIES

Attachment 1 - Table B-1 - OPPD Emergency Response Organization (ERO) Functions and Shift Staff Augmentation Plan

NUREG 0654			Omaha Public Power District	
Major Functional Area	Major Tasks	Emergency Positions	On Shift Minimum Number/Title	Goals for 1 hour Augmentation Minimum Number/Title
Plant Operations and Assessment of Operational Aspects		Shift Manager (SRO) Shift Foreman (SRO) Control Room Operators Auxiliary Operators	1 Shift Manager (SRO/CFH) 1 Control Room Operator (SRO or RO/CFH)*** 1 Equipment Operator/NCO	
Emergency Command and Control (Emergency Coordinator)*		Shift Technical Advisor, Shift Manager or designated Facility Manager	1** Shift Manager	1 Site Director OR 1 Emergency Director
Notification/ Communication	Notify License, State local and Federal personnel and maintain communication		1 Control Room Operator (SRO or RO/CFH)***	1 Communicator in EOF
Radiological Accident Assessment and Support of Operational Accident Assessment	Emergency Operations Facility (EOF) Director	Senior Manager		1 Emergency Director
	Offsite Dose Assessment	Senior Health Physics (HP) Expertise	1 R.P Technician	1 Prot. Meas. Coord
	Offsite Surveys			4 Field Team Technicians
	Onsite (Out of plant) In Plant surveys Chemistry/Radiochemistry			1 R.P. Technician 1 Chemistry Technician
Plant System Engineering, Repair and Corrective Actions	Technical Support	Shift Technical Advisor		1 Engineering Coord
		Core/Thermal hydraulics Electrical		1 Machinist OR Steam Fitter Mechanic
	Repair and Corrective Actions	Mechanical	1** Equipment Operator/NCO	1 Equipment Operator/NCO 1 Electrical Maintenance Technicians
		Mechanical Maintenance Electrical Maintenance	1** Equipment Operator/NCO	1 I&C Technician
Instrument and Control (I&C) Technician				
Protective Actions (Plant)	Radiation Protection: a. Access Control b. HP Coverage for repair, corrective actions, search and rescue, first aid and firefighting c. Personnel monitoring d. Dosimetry	HP Technicians	1 R.P. Technician	1 R.P. Technician
Firefighting			Fire Brigade per SO-G-28, Station Fire Plan	Blair Fire Department
Rescue Operations and First Aid			2** Equipment Operators/NCOs	Blair Rescue Squad
Site Access Control and Personnel Accountability	Security, Firefighting, communications, personnel accountability	Security Personnel	All per Security Plan	

\* Emergency Command and Control responsibility is transferred in accordance with Section B of this plan.

\*\* May be provided by Shift personnel assigned other functions.

\*\*\* Performs initial notification to NRC.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

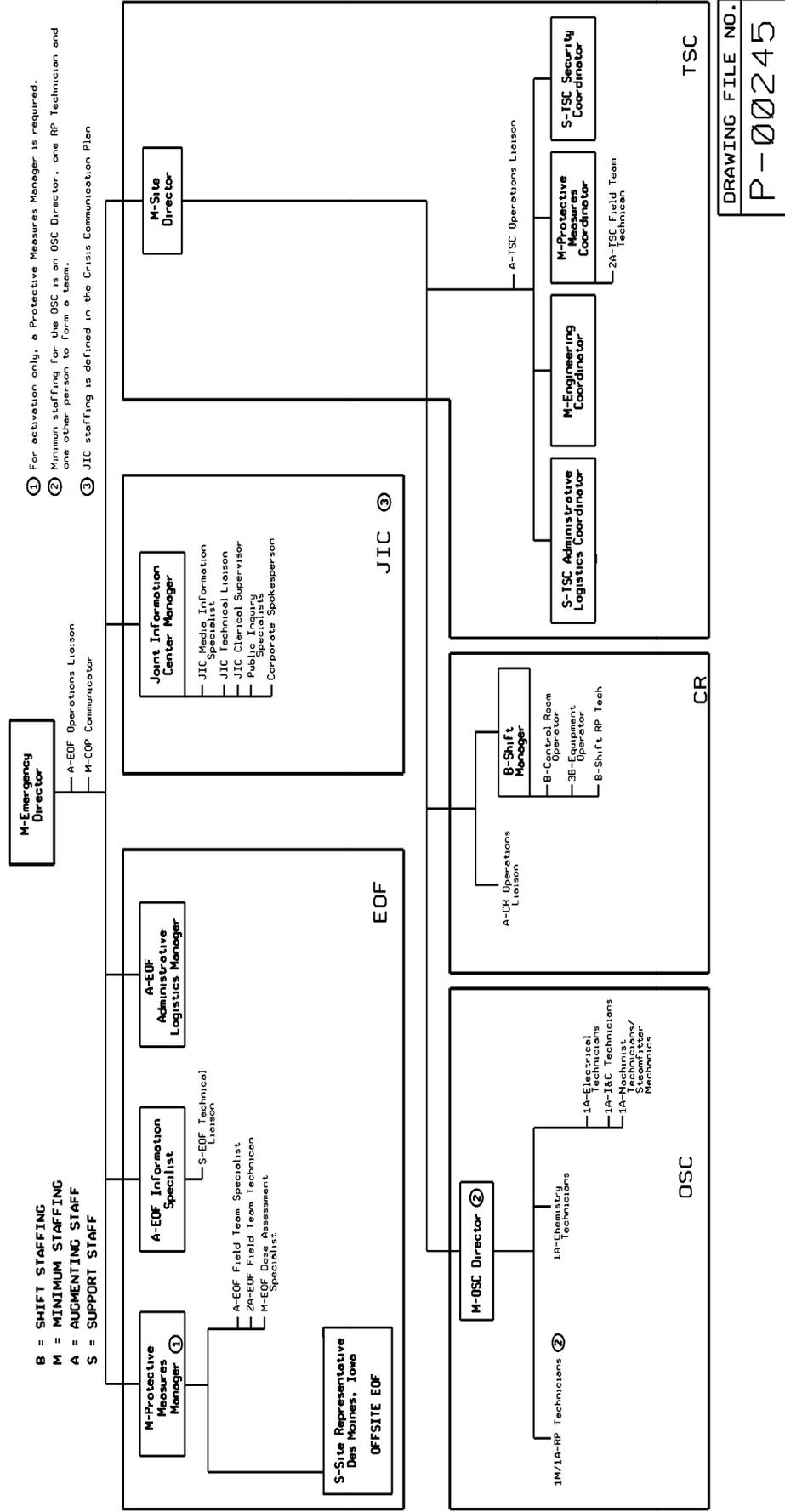
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### Attachment 2 - Figure B-1 - Normal Fort Calhoun Station Management Organization

The Fort Calhoun Organization is described in Chapter 12 of the USAR.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

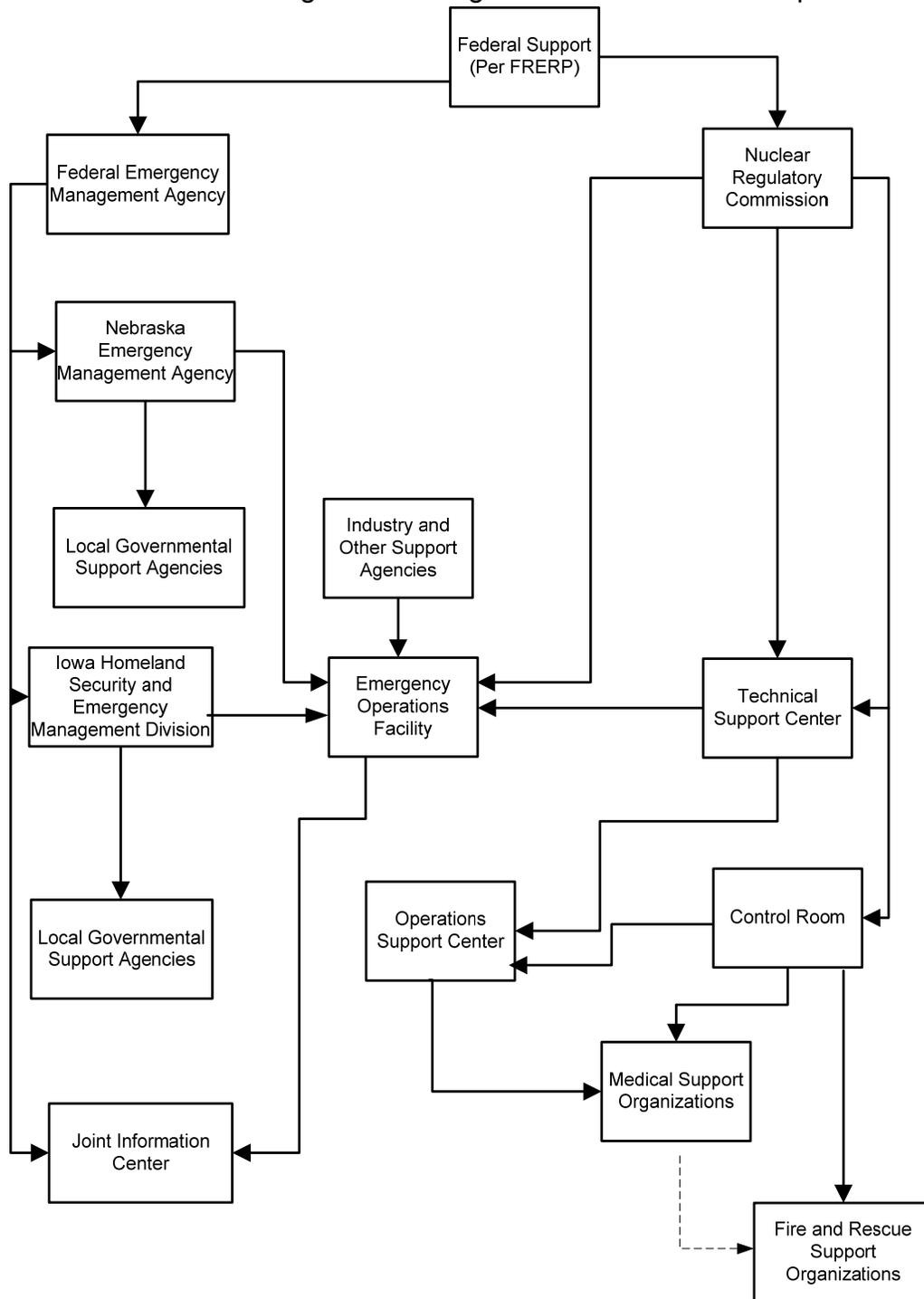
Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization



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ORGANIZATIONAL CONTROL OF EMERGENCIES

Attachment 2 - Figure B-3 - Organization Interrelationships



## EMERGENCY RESPONSE SUPPORT AND RESOURCES

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### 1.0 **FEDERAL RESPONSE**

#### 1.1 Personnel Authorized to Request Federal Assistance

The Emergency Director typically coordinates with the states to secure federal assistance. However, the Emergency Director may also request federal assistance directly, if timely assistance has not been provided as requested by the states. The states will be kept informed of such requests.

#### 1.2 Federal Response Organizations

The Federal Radiological Emergency Response Plan (FRERP) and the Federal Response Plan (FRP) outline the federal response to any type of emergency, including an emergency at a fixed nuclear facility. Some of the typical federal organizations which could respond to an emergency at the Fort Calhoun Station are as follows:

##### 1.2.1 U.S. Coast Guard

Upon notification, the U.S. Coast Guard will control traffic on the Missouri River in the area of Fort Calhoun Station. They will provide waterborne patrols for extended periods if contamination levels persist.

A U.S. Coast Guard cutter is based at the Florence Boat Yard, approximately 18 river miles downstream of the Fort Calhoun Station.

##### 1.2.2 U.S. Environmental Protection Agency (EPA)

Upon request, the EPA will provide trained manpower to assist in reviewing survey data, offsite evaluations and advise on protective actions for the public. They also provide assistance in the collection and analysis of environmental samples.

## EMERGENCY RESPONSE SUPPORT AND RESOURCES

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### 1.2.3 U.S. Department of Energy (DOE)

DOE is the technical support branch of the Federal Radiological Emergency Response Plan (FRERP). DOE would typically be the agency in charge of initial establishment and control of the Federal Radiological Monitoring and Assessment Center (FRMAC).

Some of the capabilities of DOE and the FRMAC operations are as follows:

- A. Support to the state(s) in the coordination of offsite radiological monitoring assessment, evaluation, and reporting activities of all federal agencies during the initial phases of an accident and maintain a technical liaison with the states and local agencies with similar responsibilities.
- B. Ensure the orderly transfer of responsibility for coordinating the intermediate and long term radiological monitoring function at the FRMAC to EPA after the initial phases of the emergency.
- C. Provide the personnel and equipment required to coordinate and perform the offsite radiological monitoring and evaluation activities.
- D. Assist the NRC in assessing the accident potential and in developing technical recommendations on protective measures.
- E. Maintain a common set of offsite radiological monitoring data and provide this data and interpretation to the NRC and to appropriate state and local agencies requiring direct knowledge of radiological conditions and monitoring results.
- F. Provide consultation and support services to all other entities (e.g. private contractors) having radiological monitoring functions and capabilities.
- G. Assist other federal, state and local agencies by providing technical and medical advice concerning treatment of radiological contamination.
- H. Provide telecommunications support and capabilities.
- I. Assist other federal agencies in developing and establishing guidelines on effective systems of emergency radiation detection and measurement, including instrumentation.

## EMERGENCY RESPONSE SUPPORT AND RESOURCES

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### 1.2.4 U.S. National Weather Service (NWS)

The National Weather Service operates on a twenty-four (24) hour per day basis. Upon request, this organization can provide the Fort Calhoun Station with meteorological conditions including predicted temperature inversions, precipitation, wind patterns and velocity.

### 1.2.5 U.S. Nuclear Regulatory Commission (NRC)

The NRC becomes the Lead Federal Agency (LFA) in a response to a fixed nuclear facility, such as the Fort Calhoun Station. In their role as LFA, the NRC will directly coordinate response activities with OPPD and determine the need for appropriate federal response organizations. The NRC will perform the function of LFA from several response locations including the NRC Operations Center, Region IV's Incident Response Center, all OPPD Emergency Response Facilities (once a site team has arrived), and other federal response facilities established.

### 1.2.6 Federal Emergency Management Agency (FEMA)

FEMA is responsible for coordinating the non-technical federal support to state and local governments which could include such tasks as logistics and telecommunications. The senior FEMA official on the scene will notify the federal agency(ies) most capable of meeting the state and local governmental needs. FEMA would take the lead at the federal Disaster Field Office, if such location is established. Fort Calhoun Station is located within FEMA, Region VII.

### 1.2.7 Federal Aviation Administration (FAA)

The FAA controls and directs air traffic in and around the affected area. The FAA has the authority to close the area surrounding the Fort Calhoun Station to all non-response air traffic.

### 1.2.8 U.S. Department of the Interior

The U.S. Department of the Interior, Branch of Global Seismology has the capability to monitor and provide specific seismic activity data should such an event occur in the vicinity of the Fort Calhoun Station.

## EMERGENCY RESPONSE SUPPORT AND RESOURCES

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### 1.3 Response Times

It is anticipated that response time will be based on the level of assistance provided. For example, information on upcoming weather conditions would be expected to be available in a matter of minutes over the telephone from the National Weather Service. Conversely, radiological assistance from the Department of Energy would be expected to take considerably longer. It is expected that the federal assistance requested would be available within 8 to 72 hours.

## 2.0 **RESOURCES TO SUPPORT RESPONDING AGENCIES**

Resources are provided by OPPD in order to support the various federal organizations which respond to an emergency as follows:

### 2.1 Air fields are available for the use of the radiological monitoring teams as follows:

2.1.1 Eppley Air Field, 18 miles South of Fort Calhoun Station, on Abbott Drive in Sector G.

2.1.2 Eagle Field (City of Blair's Air Field), seven (7) miles Southwest of Fort Calhoun Station on State Hwy. 133 in Sector K.

2.1.3 North Omaha Airfield, eleven (11) miles South Southeast of Fort Calhoun Station, on North 72nd street in Sector H.

2.2 A laboratory for radioisotopic analysis is available at the Fort Calhoun Station and Cooper Nuclear Station near Brownsville, Nebraska.

2.3 A laboratory for non-radiological chemical analysis is available at the Fort Calhoun Station and OPPD's North Omaha Power Station.

2.4 Onsite and offsite survey teams with necessary radiation monitoring instruments are available.

2.5 A boat is available for obtaining river samples.

2.6 Space and communication lines have been set aside to accommodate some federal agencies at the Control Room, Technical Support Center, Emergency Operations Facility, and Joint Information Center.

2.7 Electrical and communication access is available at the Emergency Operations Facility for the federal mobile analytical laboratory.

## EMERGENCY RESPONSE SUPPORT AND RESOURCES

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### 3.0 SITE REPRESENTATIVES

The Nebraska State Governor's Authorized Representative (GAR) reports to the state Field Command Post, located at OPPD's Emergency Operations Facility. The GAR is in direct contact with OPPD personnel and has the authority to approve and issue all protective actions for the public in the State of Nebraska.

The State of Iowa's Governor's Authorized Representative (GAR) typically remains in the State Emergency Operations Center. The Iowa GAR has the authority to approve and issue all protective actions for the public in the State of Iowa. A command and control telephone link exists between this position and OPPD's EOF. If personnel are available, an Iowa liaison is sent to work directly with the staff at the EOF.

An OPPD Site Representative is available for dispatch from the utility to the Iowa State EOC. This position can be staffed on a 24 hour a day basis.

### 4.0 RADIOLOGICAL ASSISTANCE

#### 4.1 Nebraska Public Power District (Cooper Nuclear Station)

The Cooper Nuclear Station is capable of providing a backup facility in the event Fort Calhoun's radiochemistry laboratory is not functional. The Cooper Station's radiochemistry laboratory is equipped to do gross and isotopic determinations on radionuclides in concentrations and counting geometries necessary for nuclear power plant operation and emergency monitoring. They will provide analysis of liquid, air particulate and cartridges on a priority basis after receiving the sample.

Additionally, Cooper Station could provide monitoring teams equipped with air sampling, radiation and contamination monitoring equipment.

#### 4.2 Contractor Assistance

In the event of an emergency, it is anticipated that further assistance could be contracted directly from firms currently being utilized by OPPD for non-emergency work at the Fort Calhoun Station or through the assistance of such organizations as the Institute of Nuclear Power Operations (INPO).

#### 4.3 The analysis of field monitoring data by the states is specified in each respective state plan. OPPD field monitoring data can be analyzed by an independent facility providing such services.

## EMERGENCY CLASSIFICATION SYSTEM

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### **1.0 INTRODUCTION**

- 1.1 This section describes the emergency classification scheme adopted by the Omaha Public Power District for Fort Calhoun Station. The Emergency Classification scheme is based on NEI-99-01, Revision 6, Development of Emergency Action Levels for Non-Passive Reactors.
- 1.2 The State of Nebraska and the State of Iowa review the Fort Calhoun Station EALs once per year to ensure that they are consistent with their respective emergency classification schemes in their respective emergency plans. The purpose of this standardized classification is to provide a framework within which all emergency actions can be taken and notifications can be made in response to abnormal plant situations.
- 1.3 Table D-1 shows the projected worst case emergency classification for certain postulated accidents identified in the Fort Calhoun Station Updated Safety Analysis Report.

### **2.0 CLASSIFICATION OF EMERGENCIES**

- 2.1 Emergency conditions are classified into one of four severity levels which cover the spectrum of postulated accidents. The postulated accidents range from precursors to potential degradation of plant safety to those involving actual failure of plant safety systems. Emergency preparedness, including a standardized classification system, is based primarily on preventing or minimizing radiation exposure to individuals onsite and offsite.
- 2.2 The specific Initiating Conditions (ICs) are contained within EP-FC-1001 Addendum 3, Emergency Action Levels For Fort Calhoun Station. The ICs are based on one or more of the key types of initiating conditions, including; symptom based, event based, barrier breach, and essential equipment/system(s) out of service. The ICs at Fort Calhoun Station are presented using six recognition categories as listed below:
  - R - Abnormal Rad Levels/Radiological Effluent
  - C - Cold Shutdown/Refueling System Malfunction
  - E - Events Related to ISFSI
  - F - Fission Product Barrier Degradation
  - H - Hazards and Other Conditions Affecting Plant Safety
  - M - System Malfunction

## EMERGENCY CLASSIFICATION SYSTEM

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- 2.3 Each one of the recognition categories contains ICs as outlined in EP-FC-1001 Addendum 3, Emergency Action Levels For Fort Calhoun Station. Each specific IC is detailed in individual sections which contain predetermined, site-specific, observable thresholds, such as; instrument readings, equipment status indicators, measurable parameter(s), discrete and observable event(s), results of analysis, entry into specific emergency/abnormal procedures, applicable operating mode(s), and/or any other cautions and/or notes pertaining to that particular IC.
- 2.4 To the extent feasible, the ICs are based on readily available information such as Control Room instrumentation readings, Emergency Response Facility Computer System (ERFCS) output, specific station procedure steps, and/or dose projection results. The intent is to eliminate "ambiguity" for command and control positions in determining appropriate emergency classifications. Immediate actions to be taken in response to conditions involving abnormal plant operating parameters are detailed in the Fort Calhoun Station Abnormal Operating Procedures and Operating Instructions. Other immediate actions and follow-up actions are identified in Section J of this plan and are described in detail in applicable Emergency Plan Implementing Procedures, listed in Appendix C of this plan.
- 2.5 The ICs do not signify the need for immediate implementation of protective or corrective measures. They do, however, signify the need for implementation of dose assessment measures both onsite and offsite and assessment of plant status, as applicable.
- 2.6 In using the ICs as the basis for initiating emergency response activity, there may be instances when the plant staff cannot determine which of two emergency classifications is appropriate for a particular occurrence. In those cases where the appropriate classification cannot be defined in a short period of time, the occurrence should be treated as the higher of the two classifications and the appropriate response for that level should be initiated.
- 2.7 Notification of Unusual Event
- 2.7.1 Notification of Unusual Event (NOUE) – Events are in process or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs. Some of these events could indicate a potential degradation in the level of plant safety and/or could escalate to a more severe condition if appropriate action is not taken.
- 2.7.2 The primary purpose for this classification is to ensure that the plant staff recognizes the initiating condition, takes appropriate action, such as assessment and verification, and comes to an appropriate state of readiness to respond in the event that the condition worsens.

## EMERGENCY CLASSIFICATION SYSTEM

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2.7.3 With the exception of possible assistance by local support groups such as fire departments or medical facilities, activation of offsite facilities by offsite organizations is not anticipated for events within this classification. The command and control position at Fort Calhoun Station has the option to call all or part of the Emergency Response Organization (ERO) for support at this emergency classification.

2.7.4 Notification of Unusual Event will be made to offsite authorities in accordance with Section E of this plan.

### 2.8 Alert

2.8.1 Alert – Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of intentional malicious dedicated efforts of **HOSTILE ACTION**. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels. It requires response by the onsite Emergency Response Organization which augments on-shift emergency resources, and constitutes a “standby” initiation of the offsite emergency plan provisions. Generally, offsite emergency response agencies notify their key staff, and may begin to activate offsite response such as activation of facilities and offsite radiological monitoring. Offsite agencies will maintain this level of preparedness until termination or escalation of the Alert classification.

2.8.2 OPPD will augment the Control Room, staff the Technical Support Center and Operations Support Center at the Alert level. Typically, the Emergency Operations Facility staff will also be augmented to be placed in "standby" mode, ready to assume Command and Control if necessary.

2.8.3 Notification to offsite authorities of the Alert will be made in accordance with Section E of this plan.

### 2.9 Site Area Emergency

2.9.1 Site Area Emergency – Events are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or security events that result in intentional damage because of intentional malicious dedicated efforts of **HOSTILE ACTION**; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) prevents effective access to, equipment needed for the protection of the public. Any releases are not expected to result in exposure levels that exceed EPA Protective Action Guideline exposure levels beyond the site boundary. Offsite response agencies are fully mobilized along with notification to the general public by the sounding of the Alert Notification System (ANS) sirens surrounding the plant site.

## EMERGENCY CLASSIFICATION SYSTEM

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2.9.2 OPPD staffs all designated Emergency Response Facilities at a Site Area Emergency or General Emergency. The full Emergency Response Organization will be activated.

2.9.3 Notification to offsite authorities of the Site Area Emergency will be made in accordance with Section E of this plan.

### 2.10 General Emergency

2.10.1 General Emergency – Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or security events that result in an actual loss of physical control of the facility. Release can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area. Total activation of the onsite and offsite emergency response organizations is required. Protective actions involving offsite populations are highly probable.

2.10.2 OPPD staffs all designated Emergency Response Facilities at a Site Area Emergency or General Emergency. The full Emergency Response Organization will be activated.

2.10.3 Notification to offsite authorities of the General Emergency will be made in accordance with Section E of this plan.

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**EMERGENCY CLASSIFICATION SYSTEM**

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Table D-1 - Emergency Classification of Postulated Accidents

<b>Postulated Accident</b>	<b>Projected Worst Case Emergency Classification</b>	<b>Key Concern</b>
Fuel Handling Accident (in Spent Fuel Pool Area)	General Emergency	Radiological Effluents
Gas Decay Tank Rupture	Site Area Emergency	Radiological Effluents
Waste Liquid Incident	Alert	Radiological Effluents
Control Room Habitability During Toxic Chemical Release Accident	Alert	Plant Control

## NOTIFICATION METHODS AND PROCEDURES

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### 1.0 PURPOSE AND SCOPE

#### 1.1 Purpose

1.1.1 The purpose of this PSRERP is to provide guidance for notifying state and local response organizations, the Nuclear Regulatory Commission, and members of the OPPD Emergency Response Organization during radiological emergencies.

#### 1.2 Scope

1.2.1 This PSRERP applies to OPPD Emergency Response Organization personnel responsible for notifying state and local response organizations, the Nuclear Regulatory Commission and members of the OPPD Emergency Response Organization during a radiological emergency.

### 2.0 PROCEDURE

#### 2.1 Notifications

2.1.1 The decision to make notifications is based on the emergency action levels and corresponding emergency classifications described in Section D of this Plan. As discussed in that section, they are consistent with NEI-99-01, Development of Emergency Action Levels for Non-Passive Reactors, which has been approved by the NRC replacing NUREG-0654, Rev. 1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Appendix 1. The EALs are reviewed annually by the States of Nebraska and Iowa.

2.1.2 OPPD is capable of notifying and activating its Emergency Response Organization 24 hours per day. It is also able to make notifications to the states, Nuclear Regulatory Commission and, if required, local counties on a 24 hour per day basis. The applicable state plans detail the provisions for 24 hour per day notification and activation of their response organizations.

2.1.3 The Command and Control position is responsible for ensuring appropriate notifications are initiated when an emergency is classified. Fort Calhoun Station personnel in the protected area are notified via the Emergency or Fire Alarm and a public address system message. Personnel outside the protected area are notified by public address systems installed in the Administrative and Training buildings. Site Security personnel may assist in the notification of all other personnel on OPPD property. The OPPD Emergency Response Organization is activated as appropriate for the emergency classification level. This is accomplished by an automated call-out system which activates phone calls, text messages, e-mails, and other functions. Maintenance of telephone numbers is discussed in Section P of this Plan.

## NOTIFICATION METHODS AND PROCEDURES

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- 2.1.4 Initial notification of the states of Nebraska and Iowa is made within 15 minutes after declaration of an emergency classification. The states, in turn, notify other governmental response agencies as appropriate for the emergency classification. Notification is also made to Washington, Harrison, and Pottawattamie counties within 15 minutes.
- 2.1.5 The primary means of notification to the states and counties is via the Conference Operations Network (COP) which is a dedicated telephone system. The COP and backup communications systems are discussed in Section F of this plan. Provisions have been made for verification of notification messages when communications are via means other than the COP.
- 2.1.6 Notification to the NRC is the next contact made. This notification occurs immediately after state and local notifications, not to exceed one hour after the declaration of the emergency classification. The primary means for this notification is the Federal Telecommunications System, Emergency Notification System lines (FTS-ENS). The FTS-ENS system is maintained by the NRC, however, it is routinely tested by OPPD. If the FTS-ENS is not available, notifications are made using the normal commercial telephone system.

## 2.2 Emergency Messages

### 2.2.1 Initial Emergency Message

The Omaha Public Power District and the states of Nebraska and Iowa have established the contents of the initial emergency messages to be sent from Fort Calhoun Station in the event an emergency is declared. These messages contain such information as the class of emergency, whether a release is taking place, potentially affected population and areas, and whether protective measures may be necessary. This information is transmitted by a dedicated telephone system, normal telephone systems or by facsimile. Forms are used to record the information for verbal or hard copy transmission to ensure each organization receives identical information.

## NOTIFICATION METHODS AND PROCEDURES

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### 2.2.2 Follow-Up Emergency Messages

- A. The follow-up emergency messages to the states incorporate the majority of the elements of Criteria E.4 of NUREG 0654, Rev. 1, as determined necessary by the states. These messages are transmitted to the states by telephone, dose assessment computer or facsimile. Update messages are sent to the states and counties at least every 60 minutes. Updates may be decreased to shiftily during ongoing events if requested by the states and the status of the event has not changed.
- B. It is the goal of Fort Calhoun to attempt to provide dose assessment updates at 15 minute intervals during a Radiological Release. During a Site Area Emergency or General Emergency, the Conference Health Physics (CHP) Network, a dedicated telephone system, can be used to maintain communications as needed. This ensures rapid transmittal of dose assessment information and protective action recommendations to the states.
- C. Emergency information to the county Emergency Operations Centers (Washington, Harrison and Pottawattamie Counties) is given verbally using the Conference Operation (COP) Network. These messages discuss general conditions of the plant.
- D. The NRC will be kept informed as significant events occur which warrant the upgrading or downgrading of the emergency classification. These communications with the NRC will be via the NRC's FTS-ENS (Emergency Notification System). Dose Assessment personnel will keep the NRC informed of dose assessment information using the NRC's FTS-HPN (Health Physics Network).
- E. OPPD has the capability to transmit key plant parameter information directly to the NRC. This system is entitled the Emergency Response Data System (ERDS). This system is normally activated and will be verified to be functioning within one hour of declaring an Alert or higher. Initiation of this system can be accomplished in either the Control Room or the Technical Support Center.
- F. Requests for assistance from local support agencies, and others, are made using normal telephone systems.

## NOTIFICATION METHODS AND PROCEDURES

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### 2.3 Alert Notification System

2.3.1 A system called the Alert Notification System (ANS) has been designed to provide warning to the public within 15 minutes of the decision by offsite authorities to activate the system. The system includes a series of sirens which provide essentially 100 percent coverage of the population within 10 miles of Fort Calhoun Station.

2.3.2 The states Emergency Response Plans provide guidance as to when the system should be activated. The counties will then perform the actual activation.

2.3.3 Each county has control of only the sirens located within its borders. The exception is one siren which is located in Douglas County, but activated by Washington County. All sirens within a county are sounded simultaneously, and cannot be activated individually.

2.3.4 The sirens are activated by radio signal. The county agencies and the activation locations for the sirens are as follows:

- A. Washington County Emergency Communications Center located in the County Court House, Blair, Nebraska.
- B. Harrison County Emergency Communications Center located in the County Jail Complex, Logan, Iowa.
- C. Pottawattamie County Emergency Communications Center located in the County Court House, Council Bluffs, Iowa.

These locations are continuously staffed, providing the capability to activate the siren system 24 hours per day.

2.3.5 The Omaha Public Power District has made provisions to sound the sirens when requested to do so by government officials, should a county be unable to activate its sirens. This process can be accomplished from the Emergency Operations Facility or the E.O.-Communications division offices.

2.3.6 It is not intended that county or city governments use the ANS for weather alerts or fire signals as frequent use of the system for other purposes would tend to reduce the effectiveness of the sirens if they are needed for a nuclear power plant incident.

2.3.7 In the event that one or more sirens activates during non-emergency conditions, provisions have been made to inform the public that no emergency exists, and initiate repairs to the errant siren(s).

## NOTIFICATION METHODS AND PROCEDURES

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2.3.8 System operability is tested periodically in accordance with the updated design report to FEMA for the outdoor public warning system and backup alert and notification.

2.3.9 Backup ANS for the EPZ is achieved through route alerting by the affected county.

### 2.4 Emergency Alert System

2.4.1 Members of the public have been instructed (via the Emergency Planning Booklet discussed in Section G of this Plan) to tune to their Emergency Alert System (EAS) station for emergency instructions when the sirens are activated.

2.4.2 Radio station KGOR- 99.9 FM is the Local Primary I (LP1) control station for Omaha, NE. It has the capability to broadcast emergency instructions 24 hours per day. Most other television and radio broadcast stations have the capability of carrying EAS messages during their normal hours of broadcasting.

2.4.3 For messages the risk counties will contact the National Weather Service (NWS) and request that EAS be activated. The NWS will then send out the signal to activate the EAS. KGOR has agreed to pick up this signal and broadcast the message.

2.4.4 While follow-up messages are the responsibility of the states, Omaha Public Power District has the capability to make similar information releases to the media. This is described in Section G of this plan.

### 3.0 REFERENCES AND COMMITMENTS

3.1 NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plant

## EMERGENCY COMMUNICATIONS

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### 1.0 INTRODUCTION

This section describes the available communications for use among the principal response organizations and between the Omaha Public Power District emergency response facilities. Provisions for 24-hour per day notification to and activation of the state and local emergency response organizations are discussed in Section E of this plan. Also discussed in Section E are the provisions for activating Omaha Public Power District emergency response personnel. Provisions for periodic testing of the emergency communications system are described in Section N of this plan.

### 2.0 COMMUNICATIONS SYSTEMS

- 2.1 A number of varied communications systems are available for communications between emergency response facilities. These systems are described in this section and are summarized in Figure F-1.
- 2.2 In the conduct of drills and exercises, OPPD may make use of its training simulator to provide a broad range of Control Room like amenities, without impacting the operating FCS Control Room. The communications equipment in the FCS Control Room is, for the most part, duplicated in the simulator.

## EMERGENCY COMMUNICATIONS

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2.3 Each emergency response facility and the personnel responsible for 24 hour communications in each facility is listed below:

Emergency Facility	Primary/Alternate Communications Responsibility
Control Room Fort Calhoun Station	Shift Manager/Control Room Operator
TSC, Fort Calhoun Station	Site Director
EOF, North Omaha Station	Emergency Director/EOF COP Communicator
EOC, State of Nebraska	Operations Officer/Communications and Warning Officer
Forward Command Post, State of Nebraska	Nebraska Emergency Management Agency Director/Asst Nebraska Emergency Management Agency Director
EOC, Washington Cnty (Nebraska)	Washington County Communications Center/County Emergency Management Director
EOC, State of Iowa	Director, Iowa Emergency Management Division/National Guard Adjutant General
Forward Command Post State of Iowa	Harrison County Sheriff's Department/State Liaison Officer
EOC, Harrison County (Iowa)	Communications Director/Harrison County Sheriff's Department
EOC, Pottawattamie County (Iowa)	Communications Director/County Emergency Management Director

2.4 Fort Calhoun Station Alarm System

2.4.1 Emergency and Fire Alarms

These alarms are sounded from the Control Room when an emergency requiring ERO activation or fire is declared. Their function is to alert personnel within the Protected Area to an emergency condition.

2.5 Fort Calhoun Station Paging Systems

2.5.1 The Protected Area paging system (Gaitronics) provides a means of intra-plant communications. Stations on this system provide access to the plant paging system and to intercom lines. These stations and speakers are placed throughout the plant including the Control Room, the Technical Support Center and the Operations Support Center.

2.5.2 The Administrative and Training buildings at the Fort Calhoun Station also

## EMERGENCY COMMUNICATIONS

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have public address announcing capabilities. Access to the public address system in either or both locations can be accomplished via the site's telephone system. This system can be used to notify personnel of a plant emergency.

### 2.6 Local Private Automatic Branch Exchanges (PABX)

#### 2.6.1 Omaha Public Power District PABXs

- A. Company telephone systems link Omaha Public Power District facilities with those located in Omaha, Nebraska. These systems provide intracompany telephone communications and access to the public telephone network.
- B. The Emergency Operations Facility has installed lines designated for emergency use. These lines are dedicated to specific emergency response positions. Telephone sets for all lines are available in the Emergency Operations Facility.
- C. Trunk lines between the company PABX systems in Omaha and the Fort Calhoun Station PABX systems provide the primary means of communication with the plant. Additional lines can be provided by the local telephone company, as requested.
- D. This system also provides a redundant means of providing emergency notifications to the states and counties, and is the primary backup to the Conference Operations Network (COP).

#### 2.6.2 Fort Calhoun Station PABXs

- A. These dedicated telephone systems provide communications within Fort Calhoun Station locations.
- B. The Technical Support Center has designated extensions for use during an emergency. They include extensions designated for use by NRC personnel. Additional lines can be diverted from other office areas as required.
- C. Dedicated lines from this system are extended to the Emergency Operations Facility. This system is also connected to the company telephone system in Omaha to provide intracompany telephone communications which are not affected by the public telephone network.
- D. Redundant routing of access to the public telephone network is provided via links to the public system in Blair, Nebraska as well as Omaha.

### 2.7 Conference Operations (COP) Network

## EMERGENCY COMMUNICATIONS

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- 2.7.1 The COP system is primary emergency notification system between OPPD, state and county agencies. It is used to provide, initial, and update notifications and for general information flow between these agencies. See Figure F-1 for a list of COP locations.
  - 2.7.2 COP is a dedicated system; each location is capable of making group calls or calling station to station within the network. See Figure F-2 for a system diagram.
  - 2.7.3 A recorder located at the EOF records all conversations on the COP system. The Nebraska State Patrol and the Iowa Dispatcher also have voice recording capability.
- 2.8 Conference Health Physics (CHP) Network
- 2.8.1 This network provides a dedicated means for communicating radiological information between the Technical Support Center, Emergency Operations Facility, Nebraska and Iowa Emergency Operations Centers and the Nebraska and Iowa Radiological Emergency Response Team Coordinators. The system is shown on Figure F-3.
  - 2.8.2 This system provides the capability for conference conversations between the Technical Support Center or Emergency Operations Facility and any one or all of the agencies on the system. A voice recorder in the Emergency Operations Facility provides a record of conversations on this system.
- 2.9 Facsimile (FAX) Capability
- 2.9.1 Facsimile machines provide the capability to link the Control Room, Technical Support Center, Operations Support Center, Emergency Operations Facility, Joint Information Center, other OPPD Headquarters facilities, the Nebraska and Iowa Emergency Operations Centers and the Nebraska and Iowa Forward Command Posts. Capability also exists to access any FAX machine via commercial telephone networks.
  - 2.9.2 The facsimile machines can be used to transmit health physics, operational and dose assessment information from Omaha Public Power District emergency response facilities to state emergency response facilities. They can also be used to disseminate emergency status information to OPPD management. Some of these extensions have voice capabilities and serve as a backup means of voice communications for those locations.

## EMERGENCY COMMUNICATIONS

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### 2.10 800 MHz Radio System

2.10.1 A 800 MHz radio communications system links Fort Calhoun Station onsite emergency response facilities, Emergency Operations Facility, plant portable radios, and mobile radios used by radiological monitoring teams. The multi-talk group/channel system is illustrated by Figures F-6, F-7, F-8, F-9 and F-10.

2.10.2 Figure F-6 illustrates the talk groups available for the Fort Calhoun Station. Figure F-7 illustrates the dedicated subfleet for the Emergency Response Organization. Figure F-8 illustrates the shared subfleet which the ERO can utilize during emergencies. Figure F-9 provides the details for the "Talk-Around" capability which can be utilized when the 800 MHz trunking system is out of service. Figure F-10 summarizes the subfleets assigned to the Fort Calhoun Station.

### 2.11 NRC Emergency Notification System (FTS-ENS)

2.11.1 This NRC Operations Center is contacted via this telephone network. The FTS-ENS is a portion of the Federal Telecommunications System (FTS) and is located in the Control Room, Technical Support Center and Emergency Operations Facility. It provides plant operations information to the NRC Operations Center, in Rockville, Maryland.

### 2.12 NRC Health Physics Network (FTS-HPN)

2.12.1 The FTS-HPN is a portion of the Federal Telecommunications System (FTS) and is located in the Technical Support Center and Emergency Operations Facility. The network is used to exchange radiological and dose assessment information between NRC facilities and OPPD.

### 2.13 Priorities System

2.13.1 The Technical Support Center establishes priorities for accident mitigation and transmits the priorities to the Operations Support Center and the Emergency Operations Facility for display.

### 2.14 State of Nebraska Emergency Management Radio System

2.14.1 The Emergency Operations Facility is equipped with various radio equipment for use by Nebraska Emergency Management personnel. This equipment may be used either alone or in conjunction with the State of Nebraska Emergency Management Mobile Van.

## EMERGENCY COMMUNICATIONS

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### 2.15 State of Iowa Emergency Management Radio System

2.15.1 The Emergency Operations Facility can support radio equipment for use by Iowa State Emergency Management personnel. This equipment may be used either alone or in conjunction with the State of Iowa Emergency Management Mobile Van.

### 2.16 Management Operations (MOP) Network

2.16.1 This system (similar to the COP and Ops Liaison Network) provides dedicated conference capability between the Control Room, TSC Site Director, OSC Director, EOF Emergency Director and the JIC Manager. The purpose of the system is to provide information flow between the directors of all the emergency facilities.

2.16.2 The system allows conferencing without dialing, each set is capable of conferences and individual call capability. Records of conversations on this system are captured by a voice recorder in Emergency Operations Facility.

### 2.17 Joint Information Center Hot Line

2.17.1 A dedicated telephone circuit is provided between the Emergency Operations Facility and Joint Information Center. The telephone sets are equipped with a blank dial plate. Lifting either handset causes a connecting ring at the other set.

2.17.2 This system provides a means for uninterrupted private communications for coordination of information releases to the public.

### 2.18 NAWAS

2.18.1 NAWAS equipment in the Control Room provides a redundant means of providing emergency notifications to the States of Nebraska and Iowa. It also provides the Control Room personnel with weather information.

### 2.19 Emergency Response Message System (ERMS)

2.19.1 A network of computer terminals is used to link the Technical Support Center, Operations Support Center and Emergency Operations Facility. It provides rapid dissemination of plant status information between facilities and ensures consistency of information at all facilities. The JIC is also equipped with a monitor which provides read-only capability. The software used for this function can be any type that provides for electronic log keeping of emergency response actions (WebEOC, ERMS, etc.)

## EMERGENCY COMMUNICATIONS

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### 2.20 Telephone Service Pedestal for State Mobile Communication Vehicles

2.20.1 A telephone service pedestal is located outside of the Emergency Operations Facility near the designated parking area for the mobile communication vehicles. This pedestal is fed by a 12-pair cable from the Emergency Operations Facility and allows quick connection of various telephone facilities to the mobile vehicles. Several telephone lines and dedicated communication facilities are prewired and operational. Spare pairs are available to add additional telephone facilities quickly as the need arises.

### 2.21 Telephone Junction Box for NRC Mobile Vehicle

2.21.1 A telephone junction box is located on the outside wall of the Emergency Operations Facility near the designated parking area. This junction box is fed by a 12 pair cable and is equipped with four standard modular telephone jacks. These jacks are prewired to a distribution frame and allow quick connection of telephone lines to support the NRC as required. Additional jacks can be added up to the 12 pair capacity of the feeder cable.

### 2.22 Operations Liaison Network

2.22.1 This system provides dedicated conference capabilities between the Fort Calhoun Station Control Room/Simulator, TSC, OSC, EOF and JIC. The purpose of the system is to provide operational information from the Control Room to the other facilities for the purpose of developing response plans, determining emergency classifications and implementing assistance to the Control Room.

2.22.2 The system allows conferencing without dialing, and thus permits rapid access to the conference by the Operations Liaisons. Each station is equipped with group call and individual call capability. Records of conversations on this system are captured by a voice recorder in the Emergency Operations Facility.

### 2.23 Emergency Response Data System (ERDS)

2.23.1 This system provides selected ERFCS data to the NRCs Operations Center for the purpose of evaluating plant conditions. Certain data points from the ERFCS are included in the ERDS data library, and when activated, these data points are transmitted to the Operations Center. The system is normally activated and is required to be activated at an ALERT or higher classification.

## EMERGENCY COMMUNICATIONS

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### 2.24 Interactive Notification System (INS)

2.24.1 This system provides rapid notification to Emergency Response Organization personnel in the event of an emergency where the ERO is activated. The system is also used to perform the Management Notification function, and can be adapted to perform other notification functions as determined necessary by the Fort Calhoun Station. A backup ERO notification process is available in the event of failure of the INS.

2.24.2 The system is activated using the internet or contacting a live operator, normally from the Control Room. The system 1) initiates a call-out to ERO members at home, mobile, or work locations, 2) sends text messages to ERO positions that provide a contact number and 3) sends e-mails to ERO personnel.

### 2.25 Satellite Phones

2.25.1 Satellite Phones are located in the Control Room, Technical Support Center, and Emergency Operations Facility to serve as an alternate communications option in the event normal communications equipment is unavailable.

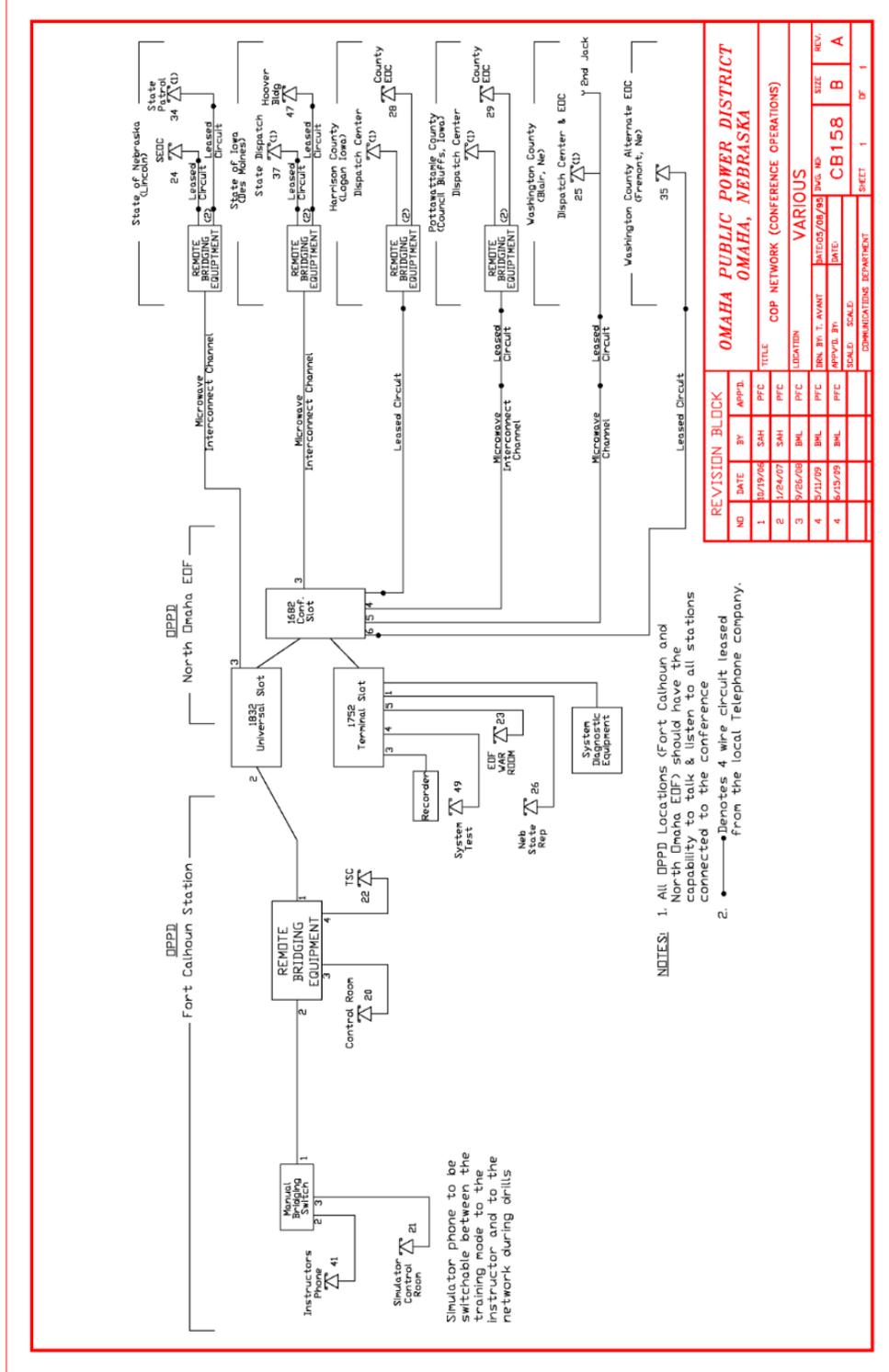
## **3.0 COMMUNICATIONS WITH MEDICAL SUPPORT FACILITIES**

3.1 Fort Calhoun Station emergency response organization personnel can communicate with medical support facilities, Washington County Emergency Communications Center or the University of Nebraska Medical Center, via the site telephone systems described earlier in this section.

3.2 Non-OPPD radio systems provide communications between medical support facilities and mobile rescue units as well as inter-unit communications. These radio systems have the capability to use the common medical emergency frequency which ensures coordinated communications.



Figure F-2 - Conference Operations Network



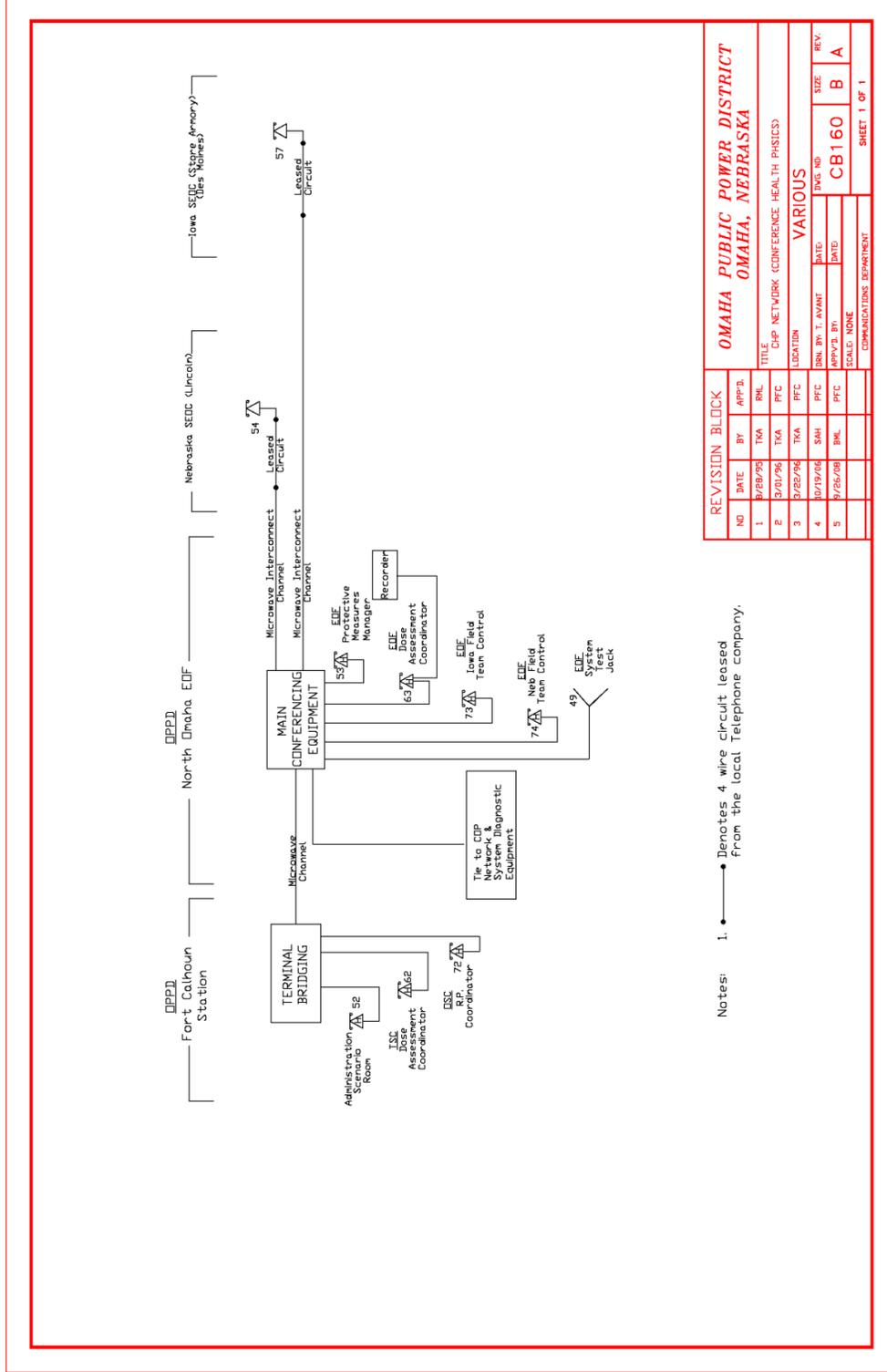
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2	1/26/07	SAH	PFC				VARIOUS
3	9/26/08	BML	PFC	LOCATION	DATE	SCALE	VARIOUS
4	2/11/09	BML	PFC	LINK B'n. T. AVANT	DATE	SCALE	VARIOUS
4	5/25/09	BML	PFC	APP'D. B'n.	DATE	SCALE	VARIOUS

FIG. NO.	CB158	REV.	A
SHEET	1	OF	1

## EMERGENCY COMMUNICATIONS

Figure F-3 - Conference Health Physics Network



Notes: 1. ●—● Denotes 4 wire circuit leased from the local Telephone company.

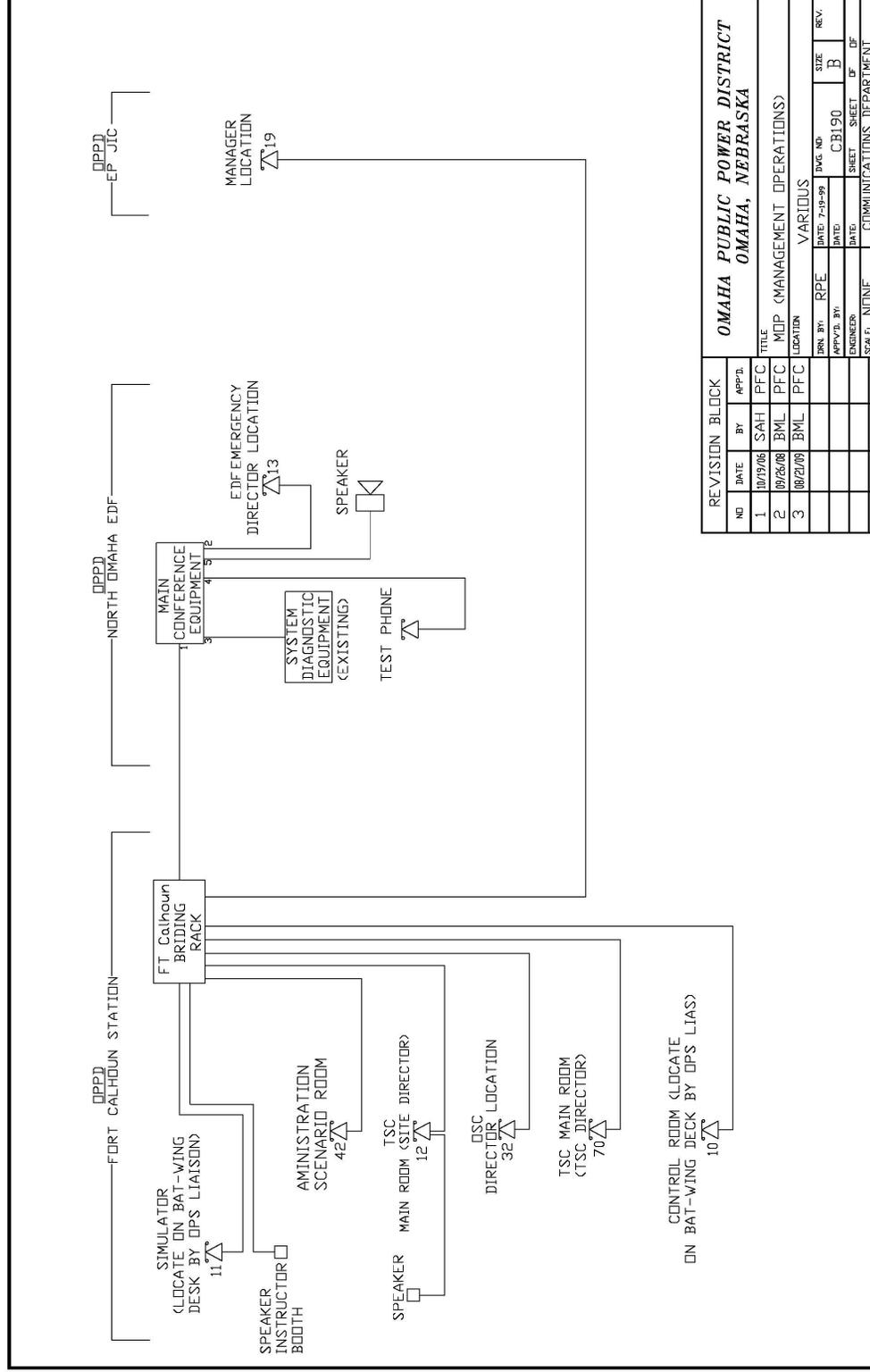
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2	9/20/96	TKA	PFC
3	3/22/98	TKA	PFC
4	10/19/06	SAM	PFC
5	7/26/08	RHL	PFC

TITLE		OMAHA PUBLIC POWER DISTRICT OMAHA, NEBRASKA	
LOCATION		VARIOUS	
DRWG. NO.	DATE	APPROV. BY	DATE
CB160	B	A	
SCALE: NONE		CORPORATIONS DEPARTMENT	
SHEET 1 OF 1			

## EMERGENCY COMMUNICATIONS

Figure F-4 - MOP (Management Operations)

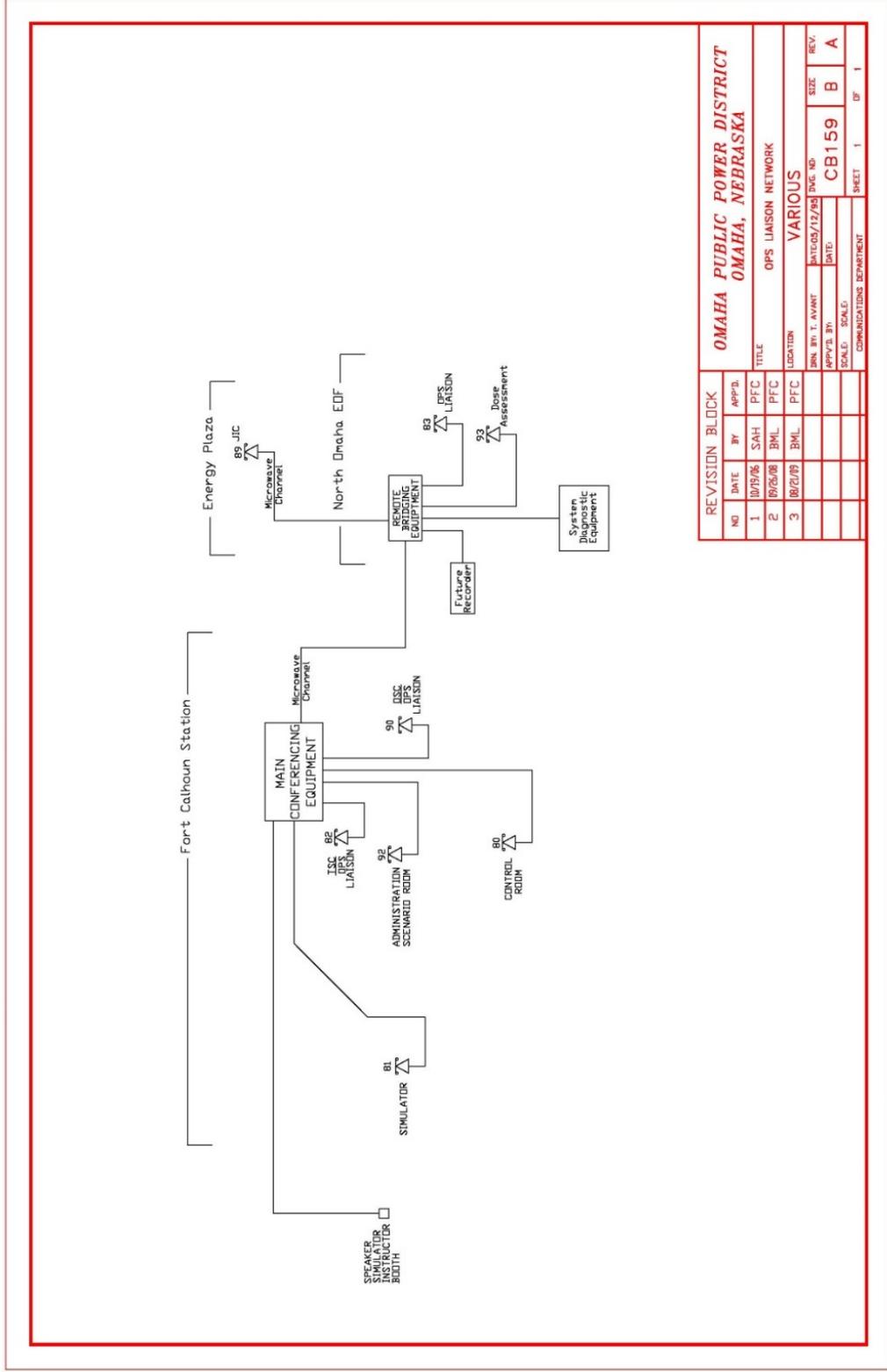


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3	08/21/09	BML	BML	PFC

TITLE	OMAHA PUBLIC POWER DISTRICT OMAHA, NEBRASKA		
LOCATION	VARIOUS		
DATE	DATE	DATE	DATE
BY	RPE	RPE	RPE
APPROV'D. BY	DATE	DATE	DATE
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SHEET	OF	SHEET	OF
DEPARTMENT	COMMUNICATIONS DEPARTMENT		

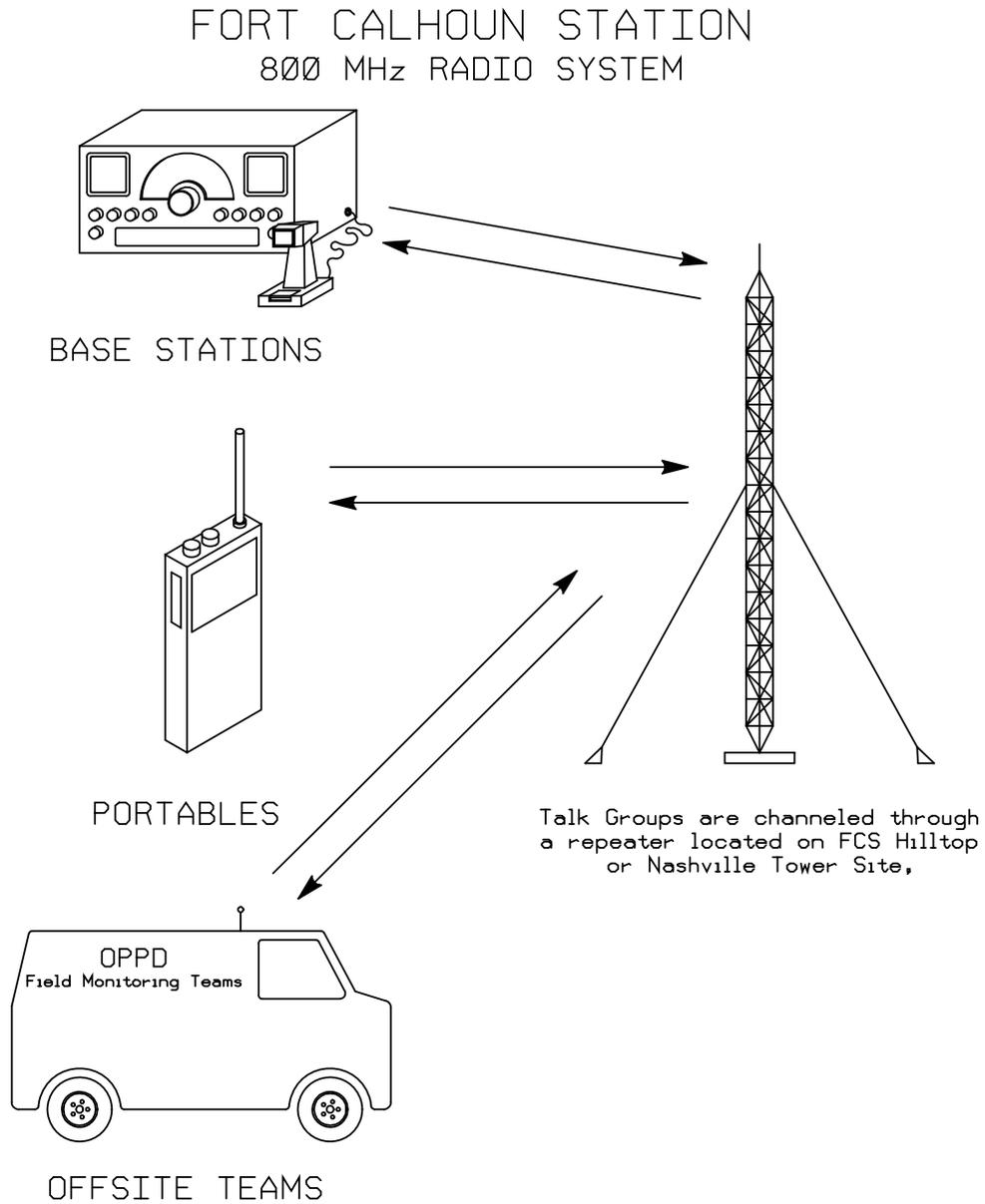
Figure F-5 - Operations Liaison Network



REVISION BLOCK		APP'D.		TITLE		LOCATION		DATE		SCALE		SHEET	
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2	09/06/08	BML	PFC			VARIOUS						1	
3	08/22/09	BML	PFC									1	
		APPLY'G. BY:		DATE:		ENG. NO.:		SCALE:		SIZE:			
										CB159	B	A	
COMMUNICATIONS DEPARTMENT													

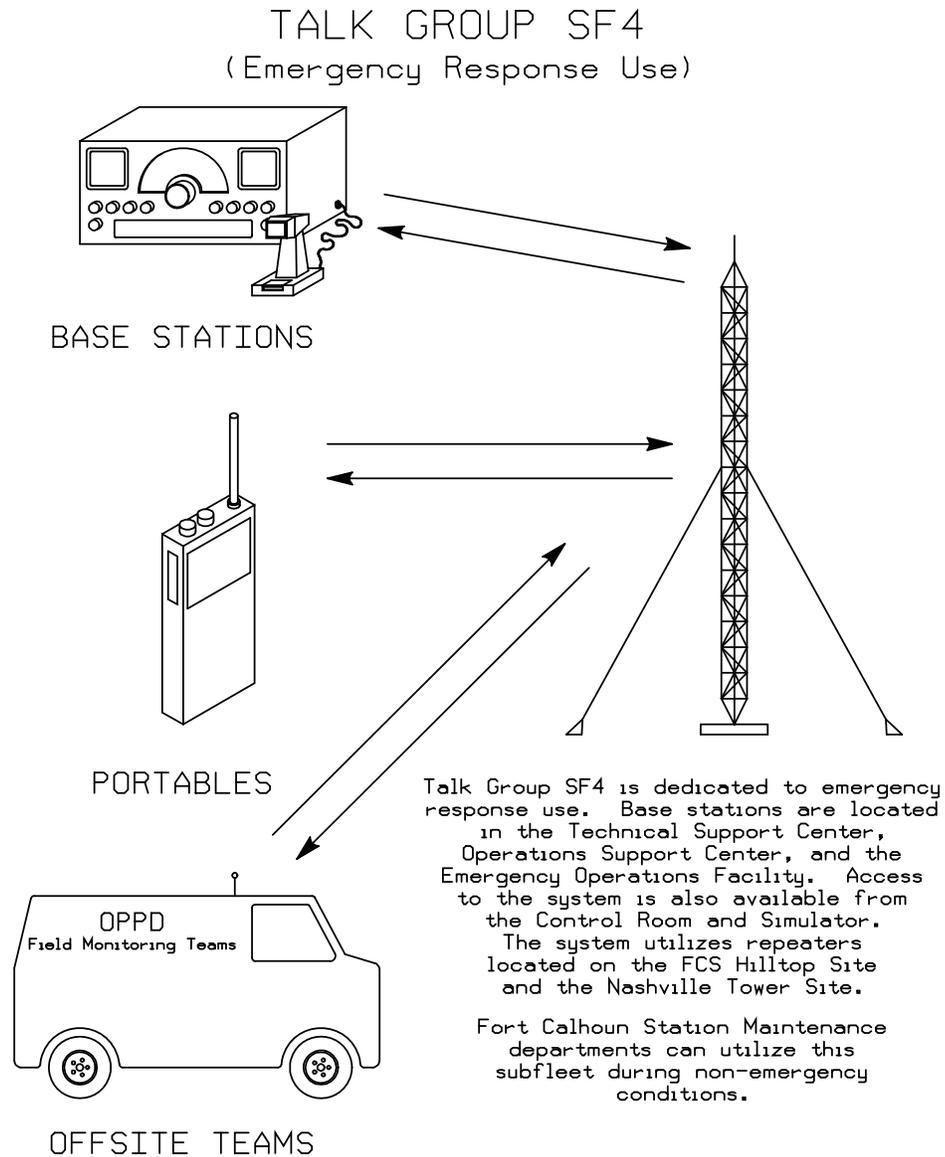
## EMERGENCY COMMUNICATIONS

Figure F-6 - OPPD/Fort Calhoun Station 800 MHz Radio System



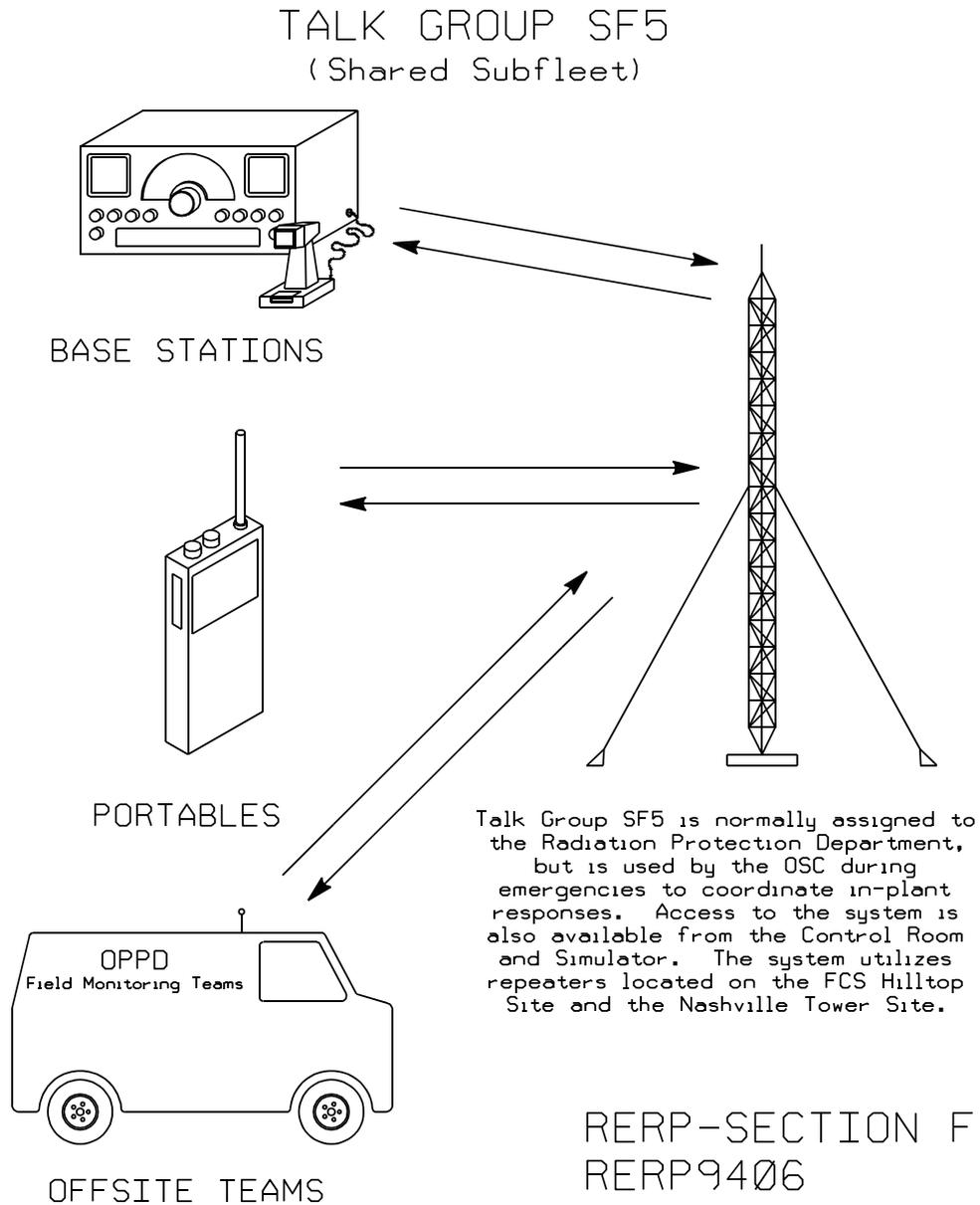
## EMERGENCY COMMUNICATIONS

Figure F-7 - Fort Calhoun Station Subfleet - SF4



## EMERGENCY COMMUNICATIONS

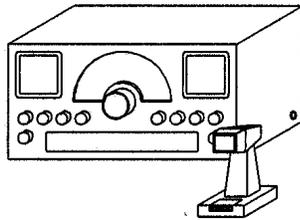
Figure F-8 - Fort Calhoun Station Subfleet - SF5



## EMERGENCY COMMUNICATIONS

Figure F-9 - Fort Calhoun Station Talk-Around Channel (TA)

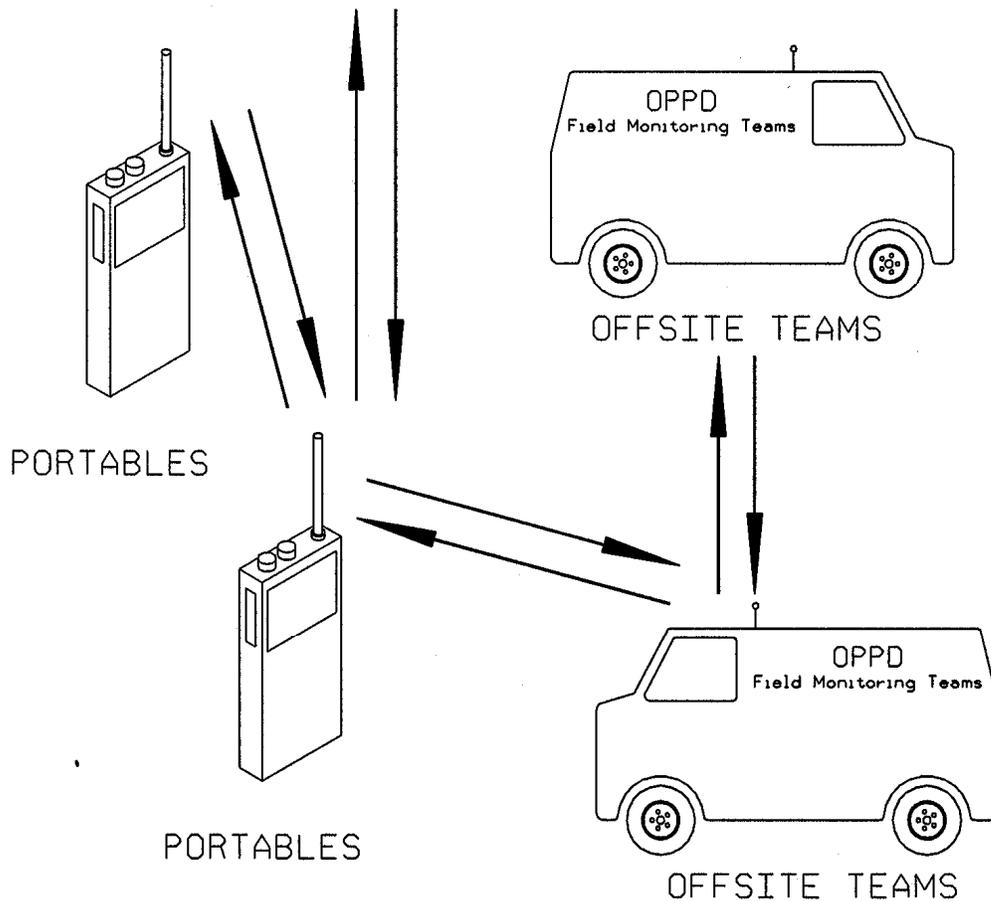
### TALK-AROUND CHANNEL (TA)



BASE STATIONS

The TA Channel provides an alternate (or back-up) means of radio communications.

The TA Channel provides radio transmissions without the benefit of a repeater, therefore, the effective range of coverage is greatly reduced. This option is only good for two closely located units to communicate together. It does not utilize the 800 MHz trunking system.



EMERGENCY COMMUNICATIONS

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Figure F-10 - Summary of 800 MHz Radio Uses

<b>Channel</b>	<b>Display</b>	<b>Normal Use</b>	<b>Emergency Use</b>
1	SF1 Sec 1	Security-Primary	Security-Primary
2	SF2 Sec 2	Security-Secondary	Security-Secondary
3	SF3 Ops	Operations	Operations
4	SF4 EP	Emergency Planning	Field Team Control
5	SF5 RP	Radiation Protection	In-Plant Team Control
6	SF6 Maint.	Maintenance	In-Plant Team Control
7	SF7 ERO	Emergency Planning	Emergency Planning
8	SF8 Work Ch	Work Channel	Available for Use
9	SF9 EP Cntrl	EP Controller	Available for Use
10	Spare 1	Future	
11	Spare 2	Future	
12	Spare 3	Future	
13	Talk Around	Talk Around	Emergency Use
14	Unprogrammed	Not Available	Not Available
15	Unprogrammed	Not Available	Not Available
16	Unprogrammed	Not Available	Not Available

## PUBLIC EDUCATION AND INFORMATION

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### **1.0 PUBLIC INFORMATION CONTENT AND DISSEMINATION**

#### 1.1 Public Information Content

The Omaha Public Power District (OPPD) Corporate Communications Division has coordinated with the States of Nebraska and Iowa in the preparation and dissemination of educational information. A brochure entitled Fort Calhoun Nuclear Station Emergency Planning Information incorporates the following information:

- 1.1.1 A description of natural background and manmade radiation, including estimated annual doses from various sources of radiation.
- 1.1.2 Public warning procedures and use of radio and television following an emergency at the Fort Calhoun Station.
- 1.1.3 Radiation protection, including such protective actions as in-house sheltering and evacuation.
- 1.1.4 Special evacuation notes, including special needs of the handicapped, medical and nursing home patients, registration centers, evacuation routes and a Sub Area map of the EPZ.
- 1.1.5 Information concerning the primary Emergency Alert System.
- 1.1.6 Additional protective actions including ad hoc respiratory protective devices.
- 1.1.7 A list of contact points to obtain additional information.

#### 1.2 Public Information Dissemination

The Public Information Brochure is distributed in written form annually by mail to the permanent adult population within an approximate 10-mile radius of Fort Calhoun Station. A general distribution to reach the transient population is achieved by posting information in public areas and by placing supplies of prepared written material in motels, service stations, and government buildings. Media advertisements, utility bill inserts, telephone tape messages, news releases, and public seminars may also be utilized for public education and information.

An Emergency Planning recurring task verifies the content and dissemination of this information.

## 2.0 **NEWS MEDIA COORDINATION AND FACILITIES**

There are two (2) locations available for use of the news media. The Joint Information Center (JIC) is the primary facility for the release of all information; the Emergency Operations Facility (EOF) has limited space for press briefings and may be used on a selective basis. The Corporate Crisis Communication Plan provides the guidance for the operation of the Joint Information Center during emergencies. This plan is reviewed annually in accordance with an Emergency Planning Test.

### 2.1 Joint Information Center (JIC)

The primary information point is the Joint Information Center located within OPPD's Energy Plaza at 444 South 16th Street Mall, Omaha, Nebraska. This center is activated for either a Site Area Emergency or General Emergency and will accommodate Joint Information Center personnel as well as local, State and Federal public information personnel.

For Classifications below Site Area Emergency, the Division Manager-Corporate Communications shall determine the corporate response for media coordination efforts.

The Joint Information Center also serves as the public inquiry center for OPPD, State and Federal authorities.

### 2.2 Emergency Operations Facility Briefing Room

A secondary facility is located in the Emergency Operations Facility located at the North Omaha Power Station. However, the Joint Information Center is the preferred point of news media information.

The EOF Briefing Room was constructed as working space for 25 news correspondents. It is anticipated that space in this facility will be for the local media which routinely cover OPPD activities. Remaining space will be allocated to the national and regional media on a pool basis.

### **3.0 EMERGENCY CLASSIFICATION INFORMATION RELEASES**

Following the classification of an emergency, Corporate Communications Division representatives will be informed of the emergency action level invoked at the plant and the reason or reasons thereof. Once such notification has been made, release of information to the news media will be coordinated by the Division Manager - Corporate Communications or the Joint Information Center Manager. That position will also coordinate the timely exchange and release of information with the official spokespersons for Federal and State agencies. The JIC Manager will report directly to the Emergency Director. A JIC Technical Liaison at the Joint Information Center will assist in nuclear related information matters. The JIC Technical Liaison will also be in direct contact with the EOF Information Specialist or the EOF Technical Liaison who will provide prompt and accurate information regarding plant status. The Corporate Crisis Communication Plan activates and augments the JIC staff. During all emergency classifications, the Corporate Spokesperson is the official designated spokesperson for OPPD.

### **4.0 NEWS MEDIA EXPOSURE TO EMERGENCY PLANNING INFORMATION**

The Corporate Communications Division mails an annual information packet or conducts an annual seminar to acquaint the local news media with the operation of Fort Calhoun Station and its emergency plan, including the public information procedures to be followed in an emergency. The mailing\seminar also provides educational information concerning radiation, and nuclear related subjects deemed appropriate. An Emergency Planning recurring task verifies the transmittal of the information packet or conduct of the seminar to the local news media outlets.



EMERGENCY FACILITIES AND EQUIPMENT

<b>i</b>	<b>NOTE</b>	<b>i</b>
	<p>This section lists the Emergency Response Facilities (ERF) available for activation in the event of an emergency at the Fort Calhoun Nuclear Station, including the ISFSI. General equipment and staffing of emergency facilities are also included in this section. Communications equipment is covered in Section F. Assessment equipment is covered in Section I.</p>	

**1.0 TECHNICAL SUPPORT CENTER (TSC)**

1.1 Facility Function and Description

- 1.1.1 The TSC's primary function is the collection, analysis, and distribution of technical data required to support plant personnel during an emergency. This support is provided from a separate and distinct center, thus reducing personnel congestion in the Control Room. The TSC has the capability to perform EOF functions and responsibilities until that facility can be fully activated.
- 1.1.2 The TSC building is located on the north side of the Auxiliary Building. (See Figure H-1). The north wall of the auxiliary building is shared as the south wall of the TSC. To the east of the building is the maintenance shop. To the north and west of the TSC is the Chemistry/Radiation Protection Building. The TSC building was designed to meet the criteria of NUREG 0696 and is less than a two minute walk from the Control Room.
- 1.1.3 The TSC is composed of a protected area and an equipment area. It is comprised of heavy concrete mat construction with 1-1/2 foot thick reinforced concrete walls and ceiling. This part of the structure is kept at positive pressure and the building air can be filtered through a pre-filter, HEPA filter and charcoal filter. Flood barriers in various locations of the plant protect the TSC from flooding and are designed for a 100 year recurrence frequency.
- 1.1.4 An "L" shaped equipment area is located to the east and south of the TSC protected area. The equipment area has concrete footings and common steel construction with concrete block walls. Items included in the equipment area are the batteries and UPS power distribution systems, HVAC and HEPA filters.

## EMERGENCY FACILITIES AND EQUIPMENT

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### 1.2 Equipment and Supplies

#### 1.2.1 The TSC is typically equipped with the following items:

- A. System Drawings for the nuclear power plant and the ISFSI
- B. Vendor Manuals
- C. An official copy of the Fort Calhoun Station Operating Manual. (This includes the Operating Procedures and Instructions, the Post Shutdown Radiological Emergency Response Plan and Emergency Plan Implementing Procedures.
- D. Updated Safety Analysis Report (USAR) for the nuclear power plant and the NUHOMS Storage System FSAR for the ISFSI (electronically)
- E. Technical Specifications for the nuclear power plant and the ISFSI (electronically)
- F. Direct and Airborne Radiation Monitoring Equipment which is permanently installed:
  - 1. Area Monitor (RM-093):

The area monitor in the TSC is a GM detector (or equivalent) that detects gamma radiation.
  - 2. Particulate, Iodine and Noble Gas (PING) Monitor:

The sampler and detector subsystem contains a combined particulate, iodine and noble gas sampler in one compact, lead-shielded assembly. Three read-outs contain all alarm functions of alert, high and failure, along with check source actuation controls. The PING is piped directly to the TSC ventilation system to monitor TSC supply air at all times.
- G. Emergency Response Facilities Computer System/Safety Parameter Display System (ERFCS/SPDS).
- H. Personal Computer(s) with printers.
- I. Emergency Response Message System.
- J. Sign-in Board with identification tags.
- K. Emergency logs.
- L. Status boards.

## EMERGENCY FACILITIES AND EQUIPMENT

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M. The ability to provide output displays to the OSC and EOF.

### 1.3 Staffing

1.3.1 The TSC affords ample space and equipment to support the Emergency Response Organization (ERO) as stated in Section B and additional TSC personnel as defined in the Fort Calhoun ERO Roster. In addition, space has been allocated for NRC representatives.

## 2.0 **EMERGENCY OPERATIONS FACILITY (EOF)**

### 2.1 Facility Functions and Description

- 2.1.1 The function of the Emergency Operations Facility is to serve as the support facility for the licensee's overall management of emergency response activities (including coordination with Federal, State and local officials), the central collection and coordination point for all off-site radiological and environmental samples and assessments in order to make public protective action recommendations (PARs).
- 2.1.2 The Emergency Operations Facility is located 17 miles from the Fort Calhoun Station at the North Omaha Power Station. This site was chosen to ensure continuous habitability and is the only Emergency Operations Facility in the district. The building is capable of providing working space for a minimum of 35 persons consistent with the requirements of NUREG-0696, Revision 1. Space for data systems equipment, communications and storage activities is also available.
- 2.1.3 The alternative facility maintains the capability for staging the TSC/OSC emergency response organization personnel in the event of a hostile action. The alternative facility has the capability for communications with the control room, and plant security; the capability to perform offsite notifications; and the capability for engineering assessment activities. The EOF will satisfy the offsite notification responsibilities for the alternative facility. The EOF staff will support offsite notification responsibilities while the TSC/OSC ERO are performing activities supported by the alternate facility. The alternate facility is co-located with the EOF at OPPD's North Omaha Station.

## EMERGENCY FACILITIES AND EQUIPMENT

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### 2.2 Equipment and Supplies

2.2.1 The EOF is typically equipped with the following emergency response items:

- A. Emergency Status Boards
- B. 10-Mile EPZ Maps
- C. Emergency Monitor Kits
- D. Assignment Board with identification tags
- E. Portable Calculator(s)
- F. Emergency Telephone Books
- G. Emergency Logs
- H. Personal Computers and Printers
- I. Technical Specifications for the nuclear power plant and the ISFSI (electronically)
- J. System Drawings for the nuclear power plant and the ISFSI
- K. Complete latest revision of the Fort Calhoun Station Operating Manual. (This includes the Operating Procedures and Instructions, the Post Shutdown Radiological Emergency Response Plan and Emergency Plan Implementing Procedures).
- L. Emergency Response Facilities Computer System/Safety Parameter Display System (ERFCS/SPDS)
- M. Emergency Response Message System (ERMS)

### 2.3 Staffing

2.3.1 The EOF affords ample space and equipment to support the Emergency Response Organization as stated in Section B. In addition, space has been allocated for NRC Representatives.

## EMERGENCY FACILITIES AND EQUIPMENT

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### **3.0 OPERATIONS SUPPORT CENTER (OSC)**

#### 3.1 Facility Function and Description

3.1.1 The Operations Support Center (OSC) is an onsite facility, separate from the Control Room (CR) and the Technical Support Center (TSC) where support personnel assemble and prepare to perform investigative or corrective actions as deemed necessary by the CR or TSC.

3.1.2 The OSC communicates with the CR and the TSC and is located in the TSC Building.

#### 3.2 Equipment and Supplies

3.2.1 Equipment lockers are provided in the OSC for storage of instruments, SCBAs, supplies and reference documents.

#### 3.3 Staffing

3.3.1 OSC management is comprised of an OSC Director and three technicians representing the radiation protection, chemistry and maintenance disciplines. (See Section B of this plan for a comprehensive organization definition).

### **4.0 CONTROL ROOM**

#### 4.1 Facility Description and Function

4.1.1 The Control Room functions as the onsite location from which the FCS systems are monitored and controlled and from which any ISFSI operations are coordinated. It is large enough to contain all the instrumentation, controls and displays for the nuclear systems, reactor coolant systems, steam systems, electrical systems, safety and accident monitoring systems. The Control Room plays a vital role in the Emergency Response Organization by providing the initial response actions needed to react to any emergency situation. The Control Room personnel will respond to all emergency situations in an attempt to mitigate the emergency and minimize the impact on the surrounding environment, health and safety of the public as well as plant personnel and equipment.

## EMERGENCY FACILITIES AND EQUIPMENT

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### 4.2 Equipment and Supplies

4.2.1 The Fort Calhoun Station Control Room is typically supplied with the following emergency supplies:

- Emergency Locker (Computer Room)
- Operating and Emergency Procedures and Manuals
- Radiological Monitoring Equipment
- Technical Specifications for FCS and the ISFSI (electronically)
- System Drawings for the nuclear power plant and the ISFSI (electronically)

### 4.3 Staffing

4.3.1 In addition to normal CR personnel, additional positions are called out in the event of an emergency situation as stated in Section B.

## 5.0 EMERGENCY KITS

5.1 The emergency kits and equipment are inventoried in accordance with Fort Calhoun Station Surveillance Tests Procedures. Extra quantities of equipment, spare parts and supplies are located at the Fort Calhoun Station Warehouse to support extended emergencies.

### 5.2 Radiological Emergency Kits

5.2.1 These kits include protective equipment, radiological monitoring equipment and emergency supplies. Kits are located in the Control Room, Technical Support Center, Operations Support Center and the Emergency Operations Facility.

5.2.2 The Radiation Protection Department establishes the method and frequency for instrument calibration. Individual instruments are calibrated using approved calibration procedures. Repair/replacement of equipment is coordinated through the Radiation Protection Department.

### 5.3 Dosimetry Kits

5.3.1 These kits include dosimetry, dosimeter chargers and appropriate paperwork. Kits are located in the Control Room, Technical Support Center, Operations Support Center and Emergency Operations Facility.

## EMERGENCY FACILITIES AND EQUIPMENT

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### 5.4 Medical Kits

#### 5.4.1 First Aid Equipment and Supply Kits

- A. First aid equipment and supplies are located in the First Aid Room. Trauma and primary response kits are available throughout the plant. These kits are inspected and maintained by the Industrial Safety Coordinator.

#### 5.4.2 Contaminated/Injured Person Kit

- A. These kits are located in the Operations Support Center and near the RP Count Room. These kits are maintained by the Radiation Protection Department.

### 5.5 Decontamination Area

- 5.5.1 Decontamination equipment and supplies are located in the main warehouse and the radiation protection work area.

### 5.6 Field Monitoring Kits

- 5.6.1 OPPD maintains two vehicles designated for emergency use, each vehicle is equipped with radiological monitoring equipment, emergency supplies, and other equipment/supplies that may be used by teams monitoring radiological conditions on and off site. Each vehicle also has a permanently installed communications system as described in Section F.
- 5.6.2 Radiological equipment or other equipment that is/or may be affected by climate changes may be stored in a designated storage area.
- 5.6.3 Use of these emergency vehicles is authorized by the Manager-Emergency Planning or designee. In the event a vehicle requires servicing every effort will be made to have it returned on the same day. A sign reminding users that the vehicle shall be returned to its home base in the event of a declared emergency at Fort Calhoun Station is posted in each vehicle.

## EMERGENCY FACILITIES AND EQUIPMENT

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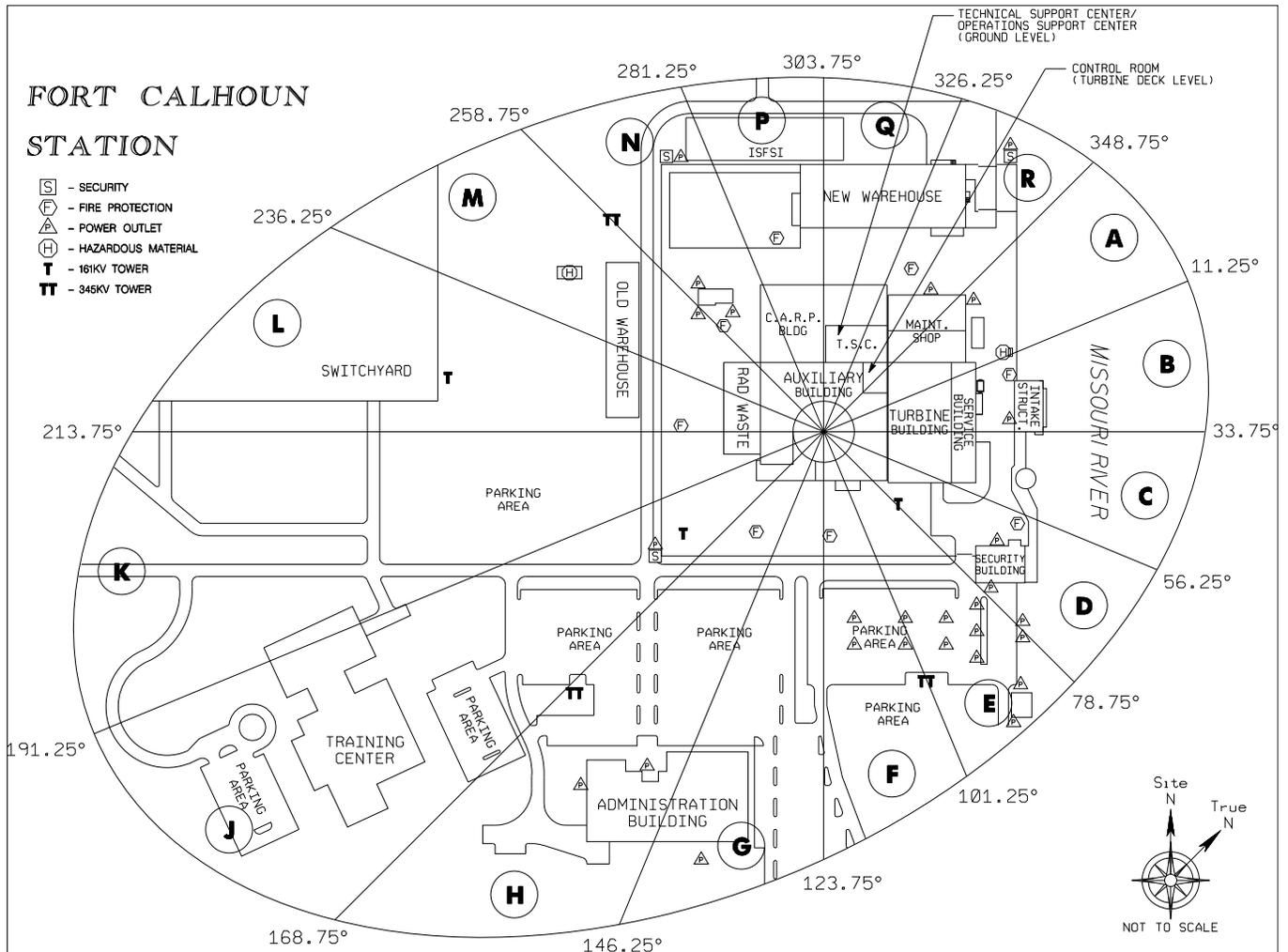
### 5.7 Other OPPD Resources

5.7.1 OPPD has other facilities and resources that may be useful in support of an emergency at Fort Calhoun Station. Examples are:

- A. Fort Calhoun Station Simulator could be used to model plant transients or serve as an alternate location for support and technical personnel. The simulator has the following communications equipment: Conference Operation Network (COP), Operations Liaison Network, FTS-ENS Phone, Gai-tronics, remote radio base station, regular phone systems, computer terminal for dose assessment, and FAX machine.
- B. The FCS Training Center, the FCS Administration Building, and Energy Plaza make available resources such as: briefing rooms, classrooms, technical libraries, a chemistry laboratory, a radiation protection laboratory, communications, computers, food storage and preparation facilities, alternate water supply, and shop areas.

## EMERGENCY FACILITIES AND EQUIPMENT

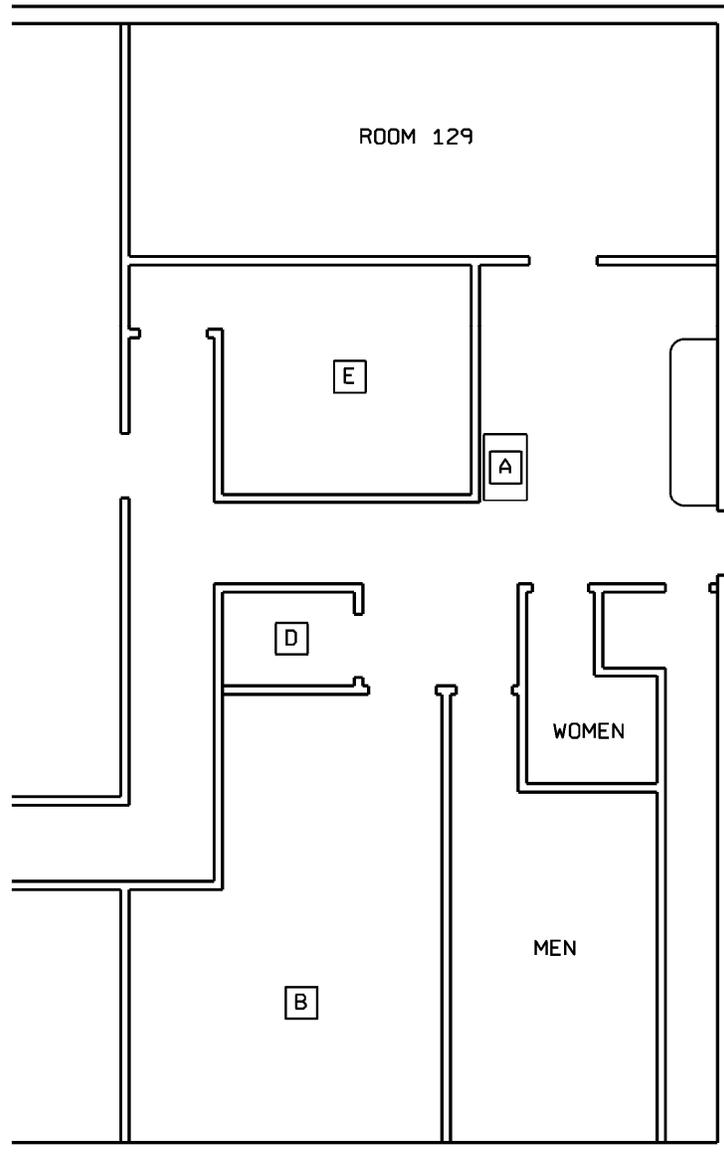
Figure H-1 - Onsite Emergency Response Facilities





## EMERGENCY FACILITIES AND EQUIPMENT

Figure H-3 - Typical TSC Entry/Briefing Area



LEGEND

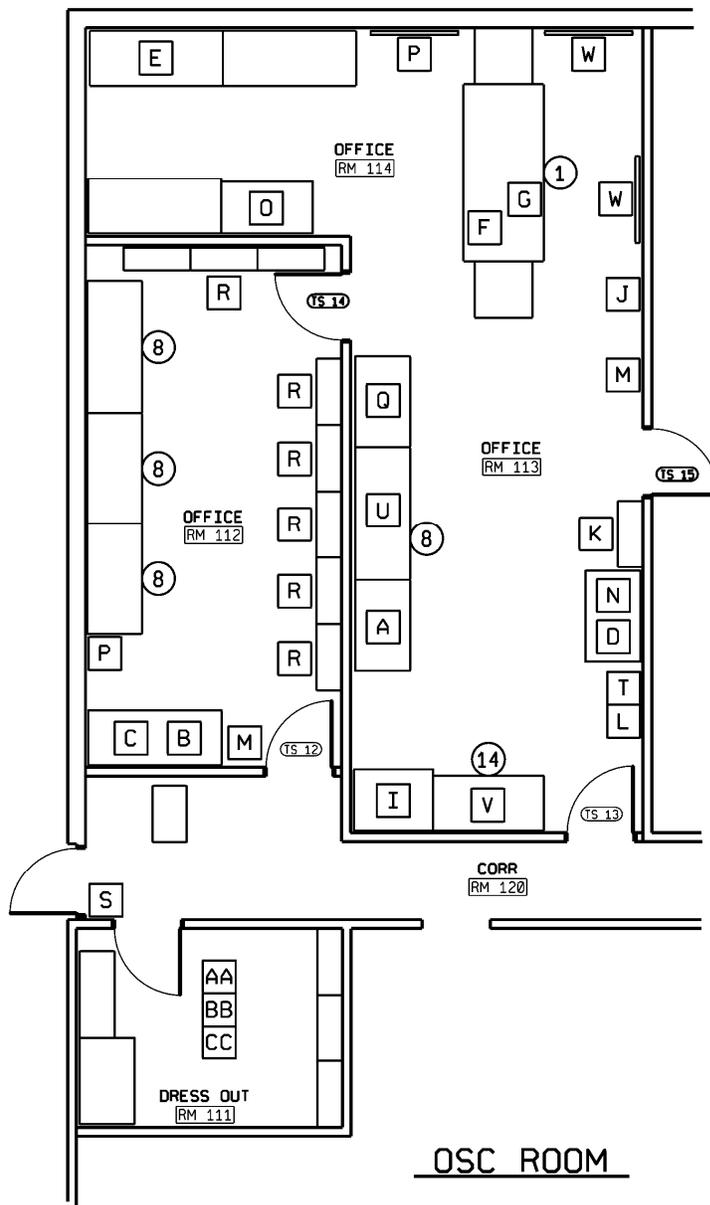
- A - COPY MACHINE
- B - BRIEFING ROOM
- C - TSC CARD READER
- D - ADMIN. SUPPLIES
- E - NRC CONFERENCE ROOM

TSC ENTRY / BRIEFING AREA

DRAWING FILE NO.
P-00273

EMERGENCY FACILITIES AND EQUIPMENT

Figure H-4 - Typical Operations Support Center Layout



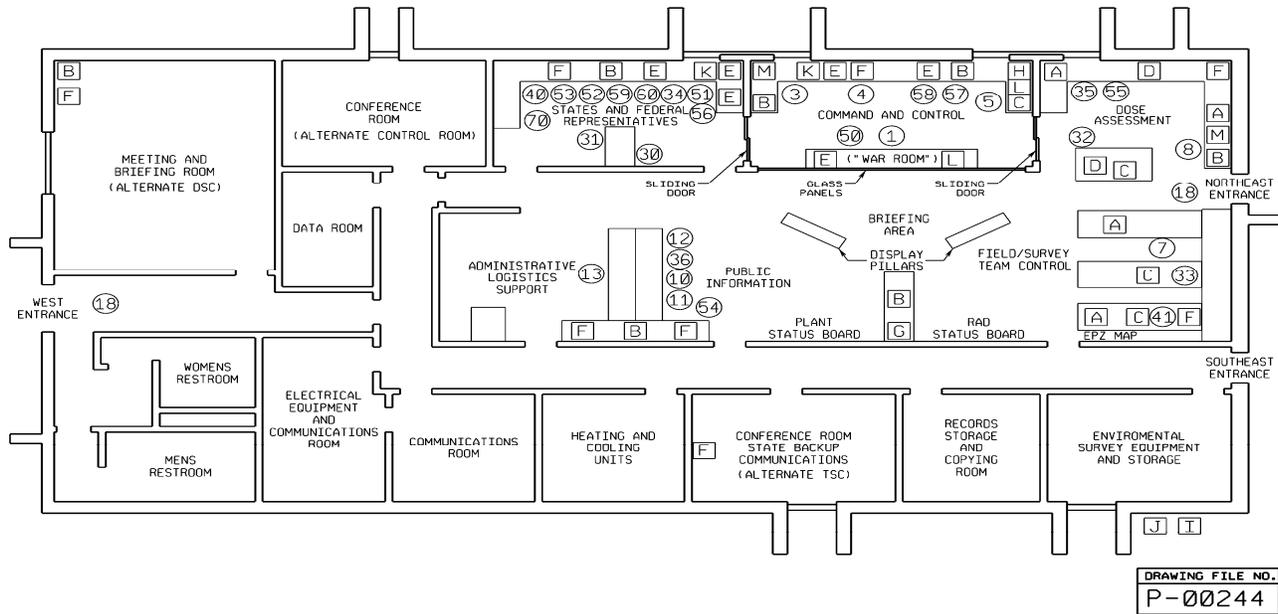
**LEGEND**

- A - ERF COMPUTER
  - B - ERMS
  - C - OSC BASE RADIO
  - D - DOSIMETRY ISSUE KIT
  - E - CENTRAL MONITORING STATION
  - F - MOP
  - G - CHP
  - I - PLOTTER PRINTER
  - J - EGG MAP
  - K - PROCEDURE RACK
  - L - SIGN IN BOARD
  - M - GAITRONICS
  - N - HIS-20 SYSTEM
  - O - FAX MACHINE
  - P - TEAM STATUS BOARD
  - Q - ERMS NETWORK PRINTER
  - R - TECHNICAL LIBRARY
  - S - OSC CARD READER
  - T - OSC BADGES
  - U - DOSE ASSESSMENT WORKSTATION
  - V - MICROFILM READER
  - W - 60 INCH MONITOR
- 
- 1 - OSC DIRECTOR
  - 8 - OSC TECHNICIANS
  - 14- DOSE ASSESSMENT SPECIALIST  
(ALTERNATE LOCATION)
- 
- AA - RESPIRATORS/AIR TANKS
  - BB - SCBA' s
  - CC - RP INSTRUMENTS/PROTECTIVE CLOTHES

DRAWING FILE NO.  
P-00272

EMERGENCY FACILITIES AND EQUIPMENT

Figure H-5 - Typical Emergency Operations Facility Layout



- |                              |                   |                                    |                             |
|------------------------------|-------------------|------------------------------------|-----------------------------|
| A. Dose Assessment Terminals | E. ENS Phones     | I. NRC Van Elect/Tele Hookup       | M. Operations Liaison Phone |
| B. ERF Terminals             | F. Fax Machines   | J. Nebr. "CRUSH" Elect/Tele Hookup |                             |
| C. CHP Phones                | G. ERF Printer    | K. COP Phone                       |                             |
| D. HPN Phones                | H. Siren Terminal | L. Mop Phone                       |                             |
1. Emergency Director
  3. EOF Operations Liaison
  4. EOF COP Communicator
  5. Protective Measures Manager
  7. EOF Field Team Specialist
  8. EOF Dose Assessment Specialist
  11. EOF Technical Liaison
  12. Des Moines Site Representative
  13. EOF Administrative Logistics Manager
  18. EOF Security Personnel
  30. NE. Governor's Authorized Representative
  31. NE. GAR Advisor
  32. NE. Manager
  33. NE. RAD. Team Coordinator
  34. NE. Recorder
  35. NE. Dose Calculations
  36. NE. Public Information Officer
  40. IA. Representative
  41. IA. RAD. Team Coordinator
  50. NRC Site Team Leader/DSO/MCL
  51. NRC Emergency Response Coordinator
  52. NRC Status Summary Coordinator
  53. NRC Governmental Liaison Coordinator
  54. NRC Public Information Representative
  55. NRC Dose Assessment Representative
  56. NRC Reactor Safety Coordinator/RSCL
  57. NRC Protective Measures Team Leader
  58. NRC Protective Measures Coordinator/PMCL
  59. NRC Status Summary Communicator
  60. NRC Emergency Response Assistant
  70. FEMA Representative

## ACCIDENT ASSESSMENT

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### 1.0 ACCIDENT ASSESSMENT SUMMARY

Accident assessment is divided into initial and long term phases. At the beginning of an event initial assessments are performed in the Control Room. These early assessments are used as a basis for classifications, immediate actions and emergency response. The Shift Manager is responsible for initial event assessment, classification and initiation of appropriate notifications. Initial dose assessment with recommended protective actions can be performed and evaluated as soon as practical by onsite staff. These projections will be made available to offsite governmental agencies.

Initial assessments using plant parameters or other indicators are compared to pre-determined emergency action levels to select the proper emergency classification. The plant parameters may be system conditions, system configuration, radiological parameters, etc. The Control Room is equipped with adequate monitoring equipment to determine these parameters for rapid assessment and decision-making.

The long term or continuing accident assessment is performed using the Control Room monitoring equipment and other methods made possible by additional resources from the Emergency Response Organization and offsite organizations. This includes radiological information gathered from field monitoring and environmental monitoring teams.

### 2.0 ASSESSMENT CAPABILITIES

#### 2.1 Resources for Detection/Assessment of Non-Radiological Events

##### 2.1.1 Fire Detection

The fire detection system is detailed in the Station Fire Plan.

##### 2.1.2 Seismic Monitoring

Plant seismic instrumentation is provided to determine the response of the containment and auxiliary building structures in the event of an earthquake so that such response can be compared with that used as the basis of design.

Should a seismic disturbance occur in the neighborhood of the plant, the accelerations recorded within the plant will be the basis for a decision as to continued plant operation.

Seismic information is also available offsite through the U.S. Department of the Interior, United States Geologic Survey, National Earthquake Information Service, Boulder, Colorado.

## ACCIDENT ASSESSMENT

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### 2.1.3 River Level

River level is available from local read-out in the intake structure, the plant computer and offsite sources.

## 2.2 Resources for Detection/Assessment of Radiological Releases

### 2.2.1 Plant Process Radiation Monitors

This instrumentation, a part of the Radiation Monitoring System (RMS), is provided to monitor systems in strategic locations throughout the plant for normal and emergency conditions. The monitors are used for trending, determining radioactive material release permit limits, initiating safety signals to limit releases and assessing release rates during an emergency.

The channels of this system provide data both in the Control Room and on the Emergency Response Facility Computer System (ERFCS).

Depending on the type, the various monitors in the system can be used to detect particulate and gaseous radioactivity levels at release points throughout the plant, including containment. The system also provides accident range capability on the Auxiliary Building Ventilation Stack and the Main Steam line.

### 2.2.2 Area Radiation Monitors

Area Radiation Monitors are strategically located throughout the plant to monitor gamma radiation levels.

### 2.2.3 Meteorological Instrumentation

The plant has a permanent 110m meteorological tower with detectors at 10 and 60 meters, and a redundant power supply; the sole output of information from the tower is the ERFCS. In the event of failure of this system, wind speed and direction can be obtained from the National Weather Service in Valley NE, or the Offutt Air Force Base.

The USAR Section 2.5 discusses the terrain around Fort Calhoun Station and its effects on an airborne plume. Historical meteorological data is also available from the plant computer. This data will be made available by OPPD to the appropriate government agencies.

## ACCIDENT ASSESSMENT

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### 2.2.4 Water Analyses

Analyses of plant liquid systems may be performed to help ascertain the nature of problems detected by other instrumentation (prior to an emergency situation). The samples will be collected and analyzed per applicable Fort Calhoun Station procedures.

### 2.2.5 Post Accident Sampling

Methods have been established to collect and analyze samples from the primary coolant system, containment atmosphere, auxiliary building ventilation duct pathway, the main steam safety relief and atmospheric dump valve pathway, and the occupied areas. These methods are described in applicable Fort Calhoun Station procedures.

## 2.3 Field Monitoring

### 2.3.1 Monitoring Operations

In the event of an unplanned airborne materials release following an accident, field monitoring teams will be dispatched to evaluate activity levels.

River water samples can be collected and analyzed in the event radioactive water or liquid is discharged without proper monitoring per the Environmental Monitoring Program. The Metropolitan Utilities District will be notified when accidental liquid discharges occur.

The primary objective of the emergency onsite and offsite field monitoring teams is to survey areas downwind of the plant site in order to determine the extent and magnitude of any unplanned release of radioactive material following an incident.

The task of each monitoring team is to collect air samples and survey data and transmit information and results to the appropriate emergency response facility. This information will be used to define affected areas, and assess the extent and significance of the release. Surveys are done per the applicable Radiation Protection or Emergency Plan procedures.

### 2.3.2 Personnel

#### A. Onsite Field Monitoring

The onsite field monitoring teams focus is primarily on obtaining radiological data within the protected area. These teams are typically dispatched from either the Control Room or Operations Support Center.

## ACCIDENT ASSESSMENT

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### B. Offsite Field Monitoring

The offsite field monitoring team(s) focus is on obtaining radiological data outside the owner controlled area. Primary direction of the off-site field monitoring teams is from the EOF, with back up capability at the TSC.

### C. Environmental Monitoring

Environmental monitoring may be done as a function of recovery from an emergency. Types of sample media and team makeup are dependent upon the needs determined by management personnel.

### 2.3.3 Equipment

Section H of this plan and the applicable station procedures list the Emergency Kit locations.

## 3.0 **ASSESSMENT OF RADIOLOGICAL RELEASES**

### 3.1 Methods of Assessment

The methods used for the assessment of radioactivity released to the environs are detailed in the Emergency Plan Implementing Procedures.

## PROTECTIVE RESPONSE

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### **1.0 PUBLIC INFORMATION CONTENT AND DISSEMINATION**

#### 1.1 Notification

1.1.1 Onsite personnel are notified of a nuclear emergency via the emergency alarm. This alarm is identified by an intermittent howl and is distinguished from the fire alarm which is a continuous howl. Once the emergency alarm is sounded, the command and control position will give the emergency classification, with other pertinent information, using the intra-plant communication system (Gaitronics). If the owner-controlled area is to be evacuated, personnel will be notified by: 1) Gaitronics System, 2) Administration and Training Building paging systems, 3) Security Personnel, and/or 4) Alert Notification System, if used.

#### 1.2 Evacuation

1.2.1 If the emergency requires Protected Area evacuation, all onsite personnel considered nonessential to the mitigation of the event will normally proceed to a designated location or to their homes. If a release has occurred or there is reason to suspect contamination the evacuees will be sent to the OPPD Elkhorn Center.

1.2.2 Approximately 600 persons might be evacuated during normal work hours and operation; approximately 900 persons might be evacuated during a major outage. During normal operating off-shift hours, no evacuation of onsite individuals is expected. Both OPPD and personal vehicles are used for site evacuation transportation. Agreements with the State of Nebraska and specifically the State Patrol guarantee professional handling and control of traffic. Normal travel time to Elkhorn Center is 37 minutes using the normal evacuation route and 53 minutes using the alternate evacuation route at an average speed of 40 mph. Personnel at the Elkhorn Center will coordinate personnel/vehicle monitoring and decontamination activities, if required.

1.2.3 Security and RP personnel inspect the owner controlled area after a site evacuation has taken place. If any persons other than emergency workers are in the owner controlled area during or after site evacuation, they will be given specific directions and/or escorted off-site.

## PROTECTIVE RESPONSE

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### 1.3 Security and Accountability

#### 1.3.1 Security

- A. The security program is designed to deter, delay and detect an intruder. The Security Area of the plant site is enclosed by an eight foot security fence topped by three strands of barbed wire. All gates to the fence are normally kept locked. An inner perimeter consists of personnel doors, roof hatches, and overhead doors equipped with magnetic alarm switches.
- B. Personnel assigned by the Site Director to enter the plant must pass through the main gate which is guarded. It is extremely unlikely that any unauthorized person would be able to enter the site undetected even during an emergency condition.

#### 1.3.2 Accountability

- A. If accountability of onsite personnel is necessary, the onsite command and control position will notify personnel onsite by announcements on the Gaitronics System, and by sounding the Emergency Alarm (if required). At the completion of the notification(s), the accountability process begins, to be completed within 30 minutes.
- B. Accountability is a process taking place in several areas:
  - 1. Accountability of personnel reporting to the Control Room, TSC, or OSC for emergency response will be performed by personnel using the card readers at these locations.
  - 2. Accountability of security force personnel will be accomplished using established security procedures.
  - 3. Once initial accountability is complete, the command and control position, will be notified of the results.
  - 4. Accountability is maintained by the use of rosters at the Control Room, OSC and TSC. Persons must sign in and out as they enter and leave. These rosters will be compared to a list of personnel who accessed the protected area whenever necessary. Continuous accountability of security personnel is accomplished using established security procedures.

## PROTECTIVE RESPONSE

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### 1.4 Protective Measures

- 1.4.1 It is the policy of OPPD to keep personnel radiation exposure within federal regulations, and station limits and guidelines, beyond that, to keep it As Low As Reasonably Achievable (ALARA). Every effort will be made to keep their exposures within the limits of 10 CFR 20.
- 1.4.2 Personnel monitoring devices are required for all personnel meeting the conditions specified in 10 CFR 20 Section 20.1502, Technical Specifications Section 5.11 and in Radiation Protection Procedures. During emergency conditions, implementing procedure EP-FC-113 will be utilized.
- 1.4.3 Dosimeters and TLDs are typically located in each of the emergency lockers in the Control Room, EOF, OSC and the TSC. Additional dosimeters and TLDs may be obtained from the dosimetry group.
- 1.4.4 Clothing
- A. Protective clothing is a normal use item utilizing both washable and disposables. For entry into affected areas, the OSC has approximately 50 complete sets of protective clothing available. The Control Room has approximately 12 complete sets available. Additional sets are available at the Radiation Control Point. Approximately 2000 sets are ready for use and a large supply of washable and/or disposable coveralls is maintained in the warehouse and RP storage areas. Water-proof protective clothing is also a standard stock item.
- 1.4.5 Respiratory Protection
- A. Respiratory protective devices may be required where an airborne radioactivity condition is potential or existent. In such cases, the air will be monitored and the necessary protective devices specified according to the concentration and type of airborne contaminants present. Monitoring and issue of respiratory protection equipment will be conducted in accordance with Radiation Protection Manual Procedures. Precautions will be taken to keep airborne contamination to a minimum through the use of proper engineering controls and decontamination.
- B. Limits for inhalation of radionuclides are established in Appendix B, Table 1 of 10CFR20. The Radiation Protection Manual establishes the station's administrative limits for inhalation which will be adhered to in emergencies if possible.
- C. Types and recommended use for each type of respirator is specified in the Radiation Protection Manual.

## PROTECTIVE RESPONSE

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- D. Approximately 35 self contained breathing apparatus are maintained onsite. Of these, a portion is maintained for fire brigade use, or normal use, and the remainder for emergency response. Spare bottles are also stored in some locations. The site has the capability to refill bottles with a compressor/air bank unit, with a cascade tank unit as a backup. Full-face respirators are maintained in some emergency gear lockers. Respirators are staged for use in plant radiation areas. The onsite Stores warehouse stocks approximately 150 full-face respirators for reserve supply.

### 1.4.6 Radioprotective Drugs

- A. The need for issuance of radioprotective drugs, specifically potassium-iodide, is determined using appropriate procedures.
- B. Radioprotective drugs in the form of potassium iodide tablets are available in the Control Room, Technical Support Center, Operations Support Center, Emergency Operations Facility and the Field Team equipment lockers. Each bottle contains dosage supply for 14 days. Emergency workers are instructed on the advantages and disadvantages of taking the tablets to provide thyroid blockage. The final decision for use of the potassium iodide is made by the emergency worker.

## 2.0 **PROTECTIVE RESPONSE FOR RESIDENTS WITHIN THE PLUME EXPOSURE PATHWAY**

### 2.1 Protective Action Recommendations

#### 2.1.1 OPPD Guidelines

- A. Fort Calhoun Station is designed and equipped with a series of safety systems engineered to meet all of 10 CFR 100 criteria for reactor safety. OPPD recognizes that in any accident situation, it would be prudent and logical to make every effort to further reduce and minimize exposure to the public. OPPD management will recommend to appropriate State and local authorities that protective actions be initiated if any person is expected to receive an emergency exposure in excess of Environmental Protection Agency (EPA) guidelines.
- B. Tables J-1<sup>1</sup> through J-4<sup>1</sup> provides some information and guidance on formulating Protective Action Recommendations (PAR's). Table J-1<sup>1</sup> summarizes the considerations for selecting the evacuation Protective Action Guides (PAG's). Table J-2<sup>1</sup> outlines the early (plume) phase PAG's due to exposure of airborne and deposited radioactivity. Table J-3<sup>1</sup> summarizes the considerations for selecting relocation PAG's. Table J-4<sup>1</sup> outlines the immediate (relocation) phase PAG's due to exposure to deposited radioactivity.

## PROTECTIVE RESPONSE

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- C. During the early (plume) phase of a radiological emergency, professional judgement will be required in the application of PAG's, due to varying characteristics, such as; plant conditions, evacuation time estimates, environmental conditions, affected population groups, etc. In all cases, the PAR's transmitted by OPPD to the states of Iowa and/or Nebraska are strictly recommendations. The respective government agencies in each state have the ultimate responsibility for implementing necessary protective actions for the general public.

1 Taken from "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents." EPA-400-R-92-001, Revised May, 1992.

- D. Tables J-5 and J-6 provide information pertaining to emergency worker exposure limits and health risks associated with exposure to higher dose levels.

### 2.1.2 Initiation of Recommendations

- A. Recommendations will originate from an Emergency Response Facility based upon data derived from implementing procedure, EP-FC-110, Assessment of Emergencies. This procedure establishes a method for determining projected doses to the population-at-risk. Protective action recommendations based on radiological parameters or plant conditions are determined using EP-FC-111, Emergency Classification and Protective Actions. Total population exposure can be estimated using projected or known dose values and population densities.

## 2.2 Notification

- 2.2.1 In the event public notification is required, both transient and resident population within the plume exposure pathway will be initially notified through the Alert Notification System (reference Section E) and as described in state and county radiological emergency plans. Information will be provided for transient and resident population as well as the general public outside the EPZ through the Emergency Alert System.
- 2.2.2 Information brochures describing notification, protective actions and general radiological education are provided to residents by mail and by public service posting to transients within the EPZ. The States of Iowa and Nebraska will issue messages describing the incident and recommended public protective actions.

## PROTECTIVE RESPONSE

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### 2.3 Evacuation

#### 2.3.1 Evacuation Time Estimate Study

- A. Studies estimating the time required to evacuate the residents in the plume exposure pathway from the emergency planning zone were conducted in accordance with NUREG-0654, Rev. 1, Appendix 4 criteria. These studies are supporting documents to this Plan. Summaries of the Nebraska and Iowa evacuation time estimate studies are outlined in KLD Engineering, P.C., Fort Calhoun Nuclear Station, Development of Evacuation Time Estimates (EP-FC-1001 Addendum 2). Reference Figure 6-1, Tables 7-1 through 7-6, and Table 3-7.

#### 2.3.2 Evacuation of Areas within the EPZ

- A. The Governor (or Governor's Authorized Representative) of Nebraska can authorize the Nebraska State Patrol and Emergency Management Agency, based on recommendations of the State Health Department, to evacuate Nebraska residents to the reception center in Fremont, Nebraska.
- B. The Governor (or Governor's Authorized Representative) of Iowa can authorize the Iowa State Patrol and the Emergency Management Division to evacuate Iowa residents to Denison, Iowa, based upon recommendations of the Iowa Department of Public Health.
- C. Evacuees from the Nebraska portion of the EPZ should go to the Fremont Reception Center. Evacuees from the Iowa portion of the EPZ should proceed to the Denison Reception Center. Figure J-5 shows the boundaries and highways leading to the Reception Centers.
- D. The relocation centers for the host areas are as follows:
  - Fremont  
Fremont Middle School  
540 Johnson Rd
  - Denison  
Denison Community High School, North 16<sup>th</sup>
- E. The ingestion planning zone (IPZ) encompasses a 50 mile radius as illustrated in Figure J-6. Population for the IPZ is presented in Figure J-7 by sectors.

## PROTECTIVE RESPONSE

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- F. The plume exposure EPZ encompasses an approximate 10 mile radius as illustrated in Appendix H, (EP-FC-1001 Addendum 2). The EPZ includes portions of Harrison and Pottawattamie Counties in Iowa, Washington and Douglas Counties in Nebraska. The States of Iowa and Nebraska are separated by the Missouri River. Table 3-5 through 3-8, (EP-FC-1001 Addendum 2), shows the total population within the EPZ, and population totals for each Sub Area. This includes showing Estimated Transient population.

### 2.4 Protective Methods (Other than Evacuation)

#### 2.4.1 Sheltering

- A. Remaining indoors during the passage of a radioactive cloud affords the dweller a reduction in the quantity of radionuclides inhaled, as well as providing shielding. Figure J-9 shows the ratio of the inhaled dose inside a shelter to that outside the shelter as a function of the ventilation rate. A ventilation rate survey showed a rate variance of 0.07 to 3.0 per hour. The ventilation rate is affected by temperature differential, wind speed and direction, quality of construction and topographical setting.
- B. Walls of buildings absorb and scatter gamma rays, thus providing a lower dose to the occupants. The shielding factor of a building is the ratio of the interior dose to the exterior dose. Shielding factor estimates applicable to residential housing units were made using the shielding technology by Z. G. Burson and A. E. Profio (1975). Table J-7<sup>2</sup> summarizes shielding factors for designated structures/locations from a gamma cloud source.
- C. <sup>1,2,3</sup> Table J-8<sup>3</sup> summarizes the shielding factors for designated structures/locations from surface deposition of radioactive material. Burson and Profio proved that the fallout shielding technology developed via nuclear weapons tests could be directly applied to radioactivity deposited on surfaces after a reactor accident. The shielding factors listed in Table J-8 assume uniform distribution of the radioactive fallout.
- D. In each of the cases discussed, inhalation and shielding factors from a gamma cloud source and shielding factors from surface deposition of radioactive material, it is noted that the shielding factors using sheltering as a method of protection ranges from 0.6 to 0.005. Although the best protection seems to be the basement of large multi-structured buildings, the basement of any house has been proven to provide significant shelter from airborne and surface deposited radioactive material.

1 Taken from WASH-1400(NUREG-75/014), October 1975, Figure VI.11-4.

2 Taken from WASH-1400(NUREG-75/014), October 1975, Figure VI-11-7.

3 Taken from WASH-1400(NUREG-75/014), October 1975, Figure VI-11-8.

## PROTECTIVE RESPONSE

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### 2.5 Radiological Environmental Monitoring

2.5.1 In the event of an emergency, the permanent air particulate stations are first utilized for immediate data, concerning airborne releases. Background radiation stations (TLDs) provide short term exposure data and are periodically replaced. See the specific Radiological Environmental Monitoring Surveillance Test for more information. TLD use can be increased during the longer term as the District maintains a TLD services contract with an off-site vendor. The environmental laboratory personnel perform accelerated collection and analysis of samples as their primary responsibility after an emergency occurs. Sampling requirements will be determined by the environmental laboratory personnel.

2.5.2 Sample analysis will be performed by the station and at offsite facilities as deemed necessary.

### 3.0 **REFERENCES AND COMMITMENTS**

3.1 EP-FC-1001 Addendum 2, Evacuation Time Estimates KLD TR-535

3.2 EP-FC-1001, Evacuation Time Estimates

- Table 1, 50 Mile 2010 Population Table
- Table 3-5
- Table 3-7, Summary of Population Demand
- Table 3-8
- Table 7-1 through Table 7-6, Time to clear the Indicated Area of 90% of the Affected Population
- Figure 1, 50 Mile 2010 Population Rose
- Figure 5-2, Evacuation Mobilization Activities
- Figure 6-1, FCNS EPZ Sub Areas
- Appendix K

PROTECTIVE RESPONSE

Table J-1 - Summary of Considerations for Selecting the Evacuation PAG's<sup>1</sup>

DOSE Rem (mrem)	Consideration(s)
50 Rem (50000 mrem)	Assumed threshold for acute health effects in adults.
10 Rem (10000 mrem)	Assumed threshold for acute health effects in the fetus.
5 Rem (5000 mrem)	Maximum acceptable dose for normal occupational exposure for adults.
5 Rem (5000 mrem)	Maximum dose justified to average members of the population, based on the cost of evacuation.
0.5 Rem (500 mrem)	Maximum acceptable dose to the general population from all sources from nonrecurring, non-accidental exposure.
0.5 Rem (500 mrem)	Minimum dose justified to average members of the population, based on the cost of evacuation.
0.5 Rem (500 mrem)	Maximum acceptable dose <sup>2</sup> to the fetus from occupational exposure of the mother.
0.1 Rem (100 mrem)	Maximum acceptable dose to the general population from all sources from routine (chronic) non-accidental exposure.
0.03 Rem (30 mrem)	Dose that carries a risk assumed to be equal to or less than that from evacuation.
<sup>1</sup> Taken, in part, from Table C-8, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, EPA-400-R-92-001, May, 1992 <sup>2</sup> This is also the dose to the 8 to 15 week-old fetus at which the risk of mental retardation is assumed to be equal to the risk of fatal cancer to adults from a dose of 5 rem.	

PROTECTIVE RESPONSE

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Table J-2 - Protective Action Recommendations Based on  
Dose Assessment/Field Team Radiological Data

Instructions: Compare URI or Field Team Dose Assessment results to the following table.  
Expand PAR to include downwind sectors in accordance with EP-FC-111-AD-F-02.

Projected Dose	Protective Action Recommendation (PAR)
< 1 rem TEDE < 5 rem CDE (thyroid)	<b>NONE (No Par Required)</b> And continue monitoring radiological conditions
≥ 1 rem TEDE ≥ 5 rem CDE	<b>Evacuate *see note</b> And continue monitoring radiological conditions
≥ 50 rem SDE (skin)	<b>Evacuate</b> And continue monitoring radiological conditions
<b>NOTE: SHELTERING</b> may be considered for doses up to 5 rem TEDE in special situations such as (1) the presence of severe weather (2) competing disasters (3) institutionalized people who are not readily mobile; and (4) other local factors, which may impede evacuation.	

PROTECTIVE RESPONSE

Table J-3 - Summary of Considerations for Selecting PAG's for Relocation<sup>1</sup>

<b>DOSE Rem (mrem)</b>	<b>Consideration(s)</b>
50 Rem (50000 mrem)	Assumed threshold for acute health effects in adults.
10 Rem (10000 mrem)	Assumed threshold for acute health effects in the fetus.
6 Rem (6000 mrem)	Maximum projected dose in first year to meet 0.5 Rem in the second year <sup>2</sup> .
5 Rem (5000 mrem)	Maximum acceptable dose for normal occupational exposure for adults.
5 Rem (5000 mrem)	Minimum dose that must be avoided by one year relocation based on cost.
3 Rem (3000 mrem)	Minimum projected first-year dose corresponding to 5 Rem in 50 years <sup>2</sup> .
3 Rem (3000 mrem)	Minimum projected first-year dose corresponding to 0.5 Rem in the second year <sup>2</sup> .
2 Rem (2000 mrem)	Maximum dose in first year corresponding to 5 Rem in 50 years from a reactor incident, based on radioactive decay and weathering only.
1.25 Rem (1250 mrem)	Minimum dose in first year corresponding to 5 Rem in 50 years from a reactor incident, based on radioactive decay and weathering only.
0.5 Rem (500 mrem)	Maximum acceptable single-year dose to the general population from all sources from non-recurring, non-incident exposure.
0.5 Rem (500 mrem)	Maximum acceptable dose to the fetus from occupational exposure of the mother.
0.1 Rem (100 mrem)	Maximum acceptable annual dose to the general population from all sources due to routine (chronic), non-incident, exposure.
0.03 Rem (30 mrem)	Dose that carries a risk assumed to be equal to or less than that from relocation.
<sup>1</sup> Taken, in part, from Table E-5, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", EPA-400-R-92-001, May, 1992.	
<sup>2</sup> Assumes the source term is from a reactor incident and that simple dose reduction methods are applied during the first month after the incident to reduce the dose to persons not relocated from contaminated areas.	

PROTECTIVE RESPONSE

Table J-4 - Protective Action Guides for Exposure to Deposited Radioactivity<sup>1</sup>

Protective Action	PAG (projected dose in first year) <sup>2</sup>	Comments
Relocate the general population <sup>3</sup>	≥ 2 Rem (≥ 2000 mrem)	Beta dose to skin may be up to 50 times higher.
Apply simple dose reduction techniques <sup>4</sup>	< 2 Rem (< 2000 mrem)	These protective actions should be taken to reduce doses to as low as practicable levels.
<p><sup>1</sup> Taken, in part, from the "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", EPA-400-R-92-001, May, 1992.</p> <p><sup>2</sup> The projected sum of total effective dose equivalent (TEDE) from external gamma radiation and committed effective dose equivalent (CEDE) from inhalation of resuspended materials, from exposure or intake during the first year. Projected dose refers to the dose that would be received in the absence of shielding from structures or the application of dose reduction techniques. These PAG's may not provide adequate protection from some long-lived radionuclides.</p> <p><sup>3</sup> Persons previously evacuated from areas outside the relocation zone defined by this PAG may return to occupy their residences. Cases involving relocation of persons at high risk from such action (e.g., patients under intensive care) should be evaluated individually.</p> <p><sup>4</sup> Simple dose reduction techniques include scrubbing and/or flushing hard surfaces, soaking or plowing soil, minor removal of soil from spots where radioactive materials have concentrated, and spending more time than usual indoors or in other low exposure rate areas.</p>		

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**PROTECTIVE RESPONSE**

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Table J-5 - Emergency Worker Exposure Limits

<b>Dose Limit</b>	<b>Activity</b>	<b>Condition(s)</b>
≤ 500 mrem TEDE	All Activities	Declared Pregnant Emergency Workers
≤ 5 Rem TEDE	All Activities	Non-Pregnant Emergency Workers
≤ 10 Rem TEDE	Protecting Valuable Property	A lower dose is not practicable
≤ 25 Rem TEDE	Life Saving or Protection of Large Populations	A lower dose is not practicable
>25 Rem TEDE	Life Saving or Protection of Large Populations	Only on a voluntary basis to persons fully aware of the risks involved. (See Table J-6)

PROTECTIVE RESPONSE

Table J-6 - Summary of Risks Involved with Higher Dose Limits  
(taken from EPA 400 R-92-001, May, 1992)

Health Effects Associated with Whole-Body Absorbed Dosed Received Within a Few Hours<sup>a</sup>

Whole Body Absorbed Dose (rad)	Early Fatalities <sup>b</sup> (percent)	Whole Body Absorbed Dose (rad)	Prodromal Effects <sup>c</sup> (percent affected)
140	5	50	2
200	15	100	15
300	50	150	50
400	85	200	85
460	95	250	98

(a) Risks will be lower for protracted exposure periods.

(b) Supportive medical treatment may increase the dose at which these frequencies occur by approximately 50 percent.

(c) Forewarning symptoms of more serious health effects associated with large doses of radiation.

Approximate Cancer Risk to Average Individuals from 25 Rem Effective Dose Equivalent Delivered Promptly

Age at Exposure (years)	Approximate Risk of Premature Death (deaths per 1,000 persons exposed)	Average Years of Life Lost in Premature Death Occurs (years)
20 to 30	9.1	24
30 to 40	7.2	19
40 to 50	5.3	15
50 to 60	3.5	11

PROTECTIVE RESPONSE

Table J-7 - Representative Shielding Factors from Gamma Cloud Source

Structure or Location	Shielding Factor <sup>(a)</sup>	Representative Range
Outside	1.0	----
Vehicles	1.0	----
Wood - frame <sup>(b)</sup> (no basement)	0.9	----
Basement of wood house	0.6	0.1 to 0.7 <sup>(c)</sup>
Masonry house (no basement)	0.6	0.4 to 0.7 <sup>(c)</sup>
Basement of masonry house	0.4	0.1 to 0.5 <sup>(c)</sup>
Large office or industrial building	0.2	0.1 to 0.3 <sup>(c,d)</sup>
<p>(a) The ratio of the interior dose to the exterior dose.</p> <p>(b) A wood frame house with brick or stone veneer is approximately equivalent to a masonry house for shielding purposes.</p> <p>(c) This range is mainly due to different wall materials and different geometries.</p> <p>(d) The reduction factor depends on where the personnel are located within the building (e.g., the basement or an inside room).</p>		
<p><b>NOTE:</b> Consideration is limited to gamma radiation since beta and alpha particles cannot penetrate the walls of structures.</p>		
<p>* Taken from WASH-1400 (NUREG-75/104), October 1975.</p>		

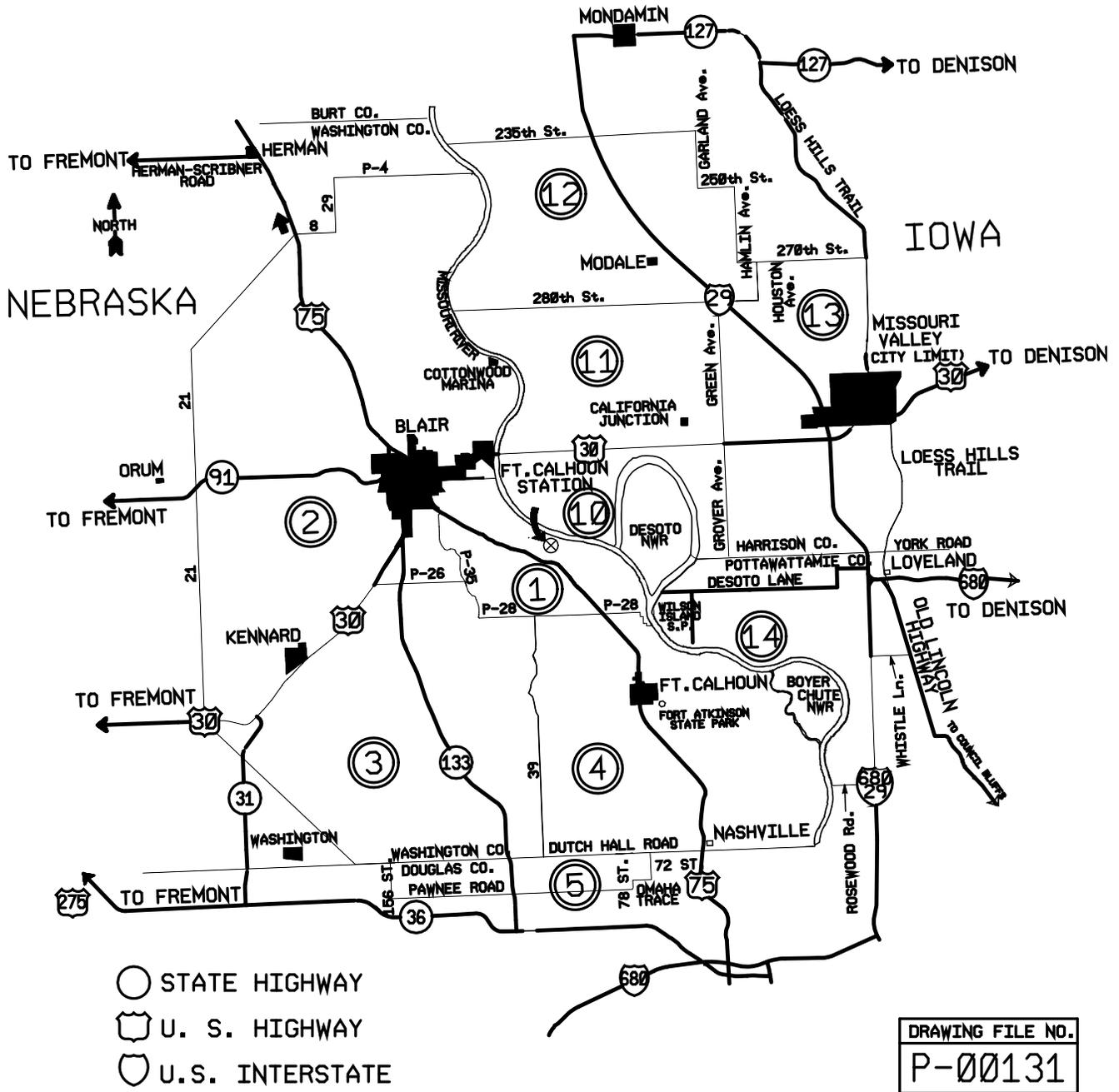
PROTECTIVE RESPONSE

Table J-8 - Representative Shielding Factors for Surface Deposition

Structure or Location	Representative <sup>(a)</sup> Shielding Factor	Representative Range
1 m above an infinite smooth surface	1.00	----
1 m above ordinary ground	0.70	0.47 - 0.85
1 m above center of 50-ft roadways, half contaminated	0.55	0.4 - 0.6
Cars on 50-ft road: Road fully contaminated	0.5	0.4 - 0.7
Road 50% decontaminated	0.5	0.4 - 0.6
Road fully decontaminated	0.25	0.2 - 0.5
Trains	0.40	0.3 - 0.5
One and two-story wood-frame house (no basement)	0.4 <sup>(b)</sup>	0.2 - 0.5
One and two-story block and brick house (no basement)	0.2 <sup>(b)</sup>	0.04 - 0.40
House basement, one or two walls fully exposed:	0.1 <sup>(b)</sup>	0.03 - 0.15
One story, less than 2 ft of basement, walls exposed	0.3 <sup>(b)</sup>	0.03 - 0.07
Two stories, less than 2 ft of basement, walls exposed	0.3 <sup>(b)</sup>	0.02 - 0.05
Three or four-story structures, >5,000 ft <sup>2</sup> per floor:		
First and second floor	0.05 <sup>(b)</sup>	0.01 - 0.08
Basement	0.01 <sup>(b)</sup>	0.001 - 0.07
Multistory structures, >10,000 ft <sup>2</sup> per floor:		
Upper floors	0.01 <sup>(b)</sup>	0.001 - 0.02
Basement	0.005 <sup>(b)</sup>	0.001 - 0.015
<sup>(a)</sup> The ratio of the interior dose to the exterior dose. <sup>(b)</sup> Away from doors and windows.		

## PROTECTIVE RESPONSE

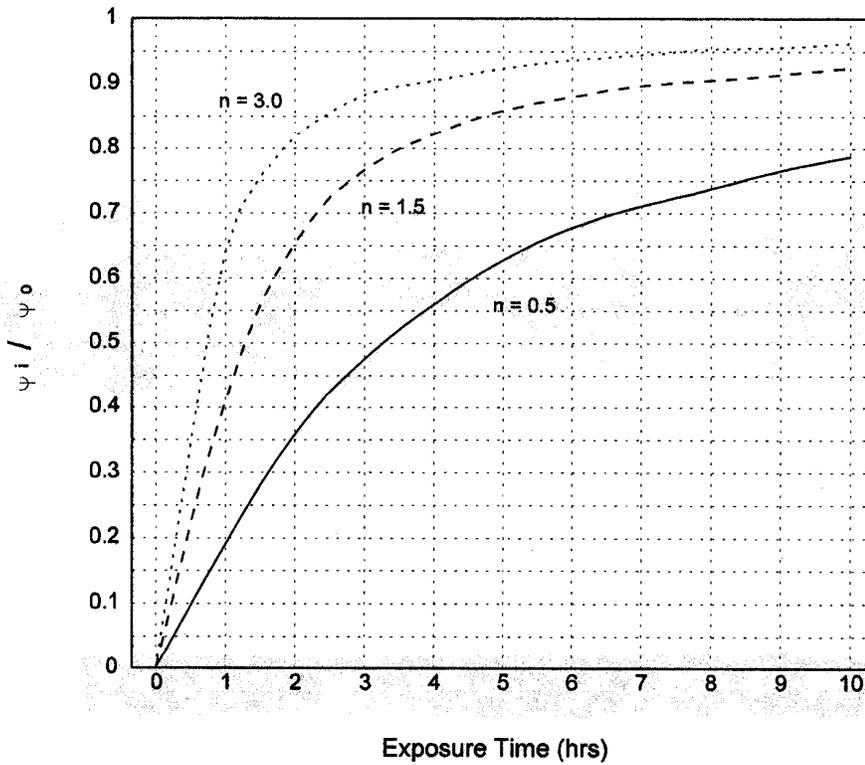
Figure J-5 - Routes to Relocation Centers





PROTECTIVE RESPONSE

Figure J-9 - Ratio of Inhaled Dose Inside a Shelter to that Outside the Shelter as a Function of Ventilation Rates



KEY:	
n	— Ventilation Rate
$\psi_i$	- Dosage inside of building
$\psi_o$	- Dosage outside of building

## RADIOLOGICAL EXPOSURE CONTROL

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### 1.0 EXPOSURE GUIDELINES

- 1.1 It is OPPD policy to comply with the ALARA concept, and all efforts shall be made to keep all workers within normal Fort Calhoun Station limits, as listed in the Radiation Protection Manual. However, if it is expected that workers may exceed these limits, any dose received during emergency conditions in excess of 5 Rem TEDE will be assigned as once in a lifetime exposure.
- 1.2 The facility directors, Shift Manager in the Control Room, Site Director in the TSC, the OSC Director in the OSC or the Emergency Director in the EOF may authorize dose extension up to 5 Rem TEDE per year during declared events for workers in their facility.
- 1.3 The Command and Control position shall authorize any extensions beyond normal occupational exposure limits and direct that any dose received in excess of these limits be assigned as once in a lifetime exposure. The following guidance is from the FCS Radiation Protection Manual, and the Manual of Protective Action Guidelines and Protective Action for Nuclear Incidents, EPA-400-R-92-001.
- 5 Rem TEDE for all emergency workers
  - 10 Rem TEDE when action is necessary to reduce a hazard potential to acceptable levels or to prevent substantial loss of property
  - 25 Rem TEDE when action is necessary to perform lifesaving functions or to reduce the potential hazards to the health and safety of the public
  - >25 Rem TEDE on a voluntary basis and only to save a life or reduce potential hazards to the health and safety of the public
- 1.4 Plant personnel that require access to Radiation Controlled Areas are issued TLDs on a frequency specified by Radiation Protection. Many ERO positions are also issued TLDs depending on the likelihood of having to enter a Radiation Controlled Area under emergency conditions. TLD requirements for ERO positions are identified on the ERO Roster.
- 1.5 Personnel responding to the site that require, but do not have, dosimetry will be issued dosimetry by Security or Radiation Protection personnel. The following ERO positions can also issue dosimetry when necessary:
- Control Room: The Shift RP Technician or OSC RP Technicians
  - TSC: OSC RP Technicians
  - OSC: The OSC RP Technicians

## RADIOLOGICAL EXPOSURE CONTROL

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### **2.0 CONTAMINATION CONTROL**

- 2.1 If actual or potential contamination problems exist onsite, ERO management may elect to establish contamination control and monitoring measures. These may consist of some or all of the following:
- Each Emergency Response Facility onsite has the capability to establish control boundaries to minimize contamination spreading into the facility.
  - Monitoring of personnel evacuating the affected area using installed monitors in the Security Building or personnel with portable equipment. Portable equipment for this purpose is stored both in the warehouse and at the EOF.
- 2.2 If personnel decontamination becomes necessary, the site maintains two facilities for this purpose. One is located in the Auxiliary Building entry/exit point, and is frequently used. It drains to the Radwaste System. The second facility is located in the Warehouse and is designated for emergency use only. It drains to a holding tank, which is controlled after emergency use to ensure that the contents are monitored and processed if necessary.
- 2.3 Contaminated personnel that are evacuated will be decontaminated as determined by Radiation Protection personnel. Additional decontamination facilities are available at state decontamination facilities and at the UNMC Regional Radiation Health Center.
- 2.4 Tools and equipment that become contaminated will be decontaminated as determined by Radiation Protection personnel.
- 2.5 Areas that become contaminated will be decontaminated as determined by Radiation Protection personnel.
- 2.6 Priorities for decontaminating tools, equipment and areas will be established by ERO management, with top priority given to contamination within areas that are or will be inhabited by emergency workers. Decontamination of non-essential areas, tool and equipment should be delayed to allow for natural decay of radioactive materials.
- 2.7 Potable water, normally supplied from the City of Blair, and onsite food supplies can be chemically and radiologically monitored prior to use by emergency workers.
- 2.8 Contamination limits, contamination control, and decontamination criteria may be adjusted based on professional radiological evaluation by the ERO using guidance in the Radiation Protection Manual.
- 2.9 Radioactive waste from any decontamination effort will be prepared and shipped in accordance with Radiation Protection Manual requirements.

## MEDICAL AND PUBLIC HEALTH SUPPORT

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### 1.0 ONSITE FIRST AID

1.1 There are generally four types of response considered at the Fort Calhoun Station:

- 1) Minor injury, no contamination
- 2) Minor injury, contaminated
- 3) Major injury (requiring offsite treatment), no contamination
- 4) Major injury, contaminated

1.2 The order of medical treatment will be:

- 1) Care of severe physical injuries
- 2) Decontamination of personnel
- 3) First aid to other injuries
- 4) Monitor for internal contamination
- 5) Definitive treatment and subsequent therapy as required

1.3 All injuries at the station must be immediately reported to the Shift Manager, who will initiate response according to the Fort Calhoun Station Safety Manual, FCSG-15-7, Medical Emergencies. When the OSC is activated the OSC Director will be responsible for response to medical emergencies.

1.4 When personnel are severely injured and contaminated, first aid shall take precedence over decontamination. In cases where internal exposure is suspected, a bioassay program may be performed as directed by the Radiation Protection Manual.

1.5 First Aid Facilities

1.5.1 A First Aid Room is located in the Maintenance Building. This room is equipped with various medical supplies to provide emergency first aid to injured personnel.

1.5.2 Other equipment located throughout the plant include first aid kits, Emergency Medical Technician (EMT) kits, personnel carriers, a wheelchair, and contaminated/injured personnel response kit. The Industrial Safety Coordinator inspects and maintains this equipment.

## MEDICAL AND PUBLIC HEALTH SUPPORT

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### 1.6 Medical Response

#### 1.6.1 Minor Injury, No Contamination

A. The Shift Manager or other evaluators will determine the extent of medical response required. This could include:

1. On the spot treatment by the individual or first aid qualified responders.
2. On the spot treatment by EMT qualified personnel (if available).
3. Movement of the injured party to the first aid room by medical responders for access to additional equipment.
4. Other response determined necessary by responding personnel.

#### 1.6.2 Minor Injury, Contaminated

A. Personnel that are injured and are potentially contaminated will be treated as explained above, and will also be monitored for contamination by Radiation Protection personnel. Monitoring and decontamination will be performed in accordance with Radiation Protection procedures.

#### 1.6.3 Major Injury, No Contamination

A. Medical responders will be dispatched to the scene to perform first aid as required. The Shift Manager or designee will notify offsite authorities to provide victim transport to an available medical facility. Both air and ground transportation are available.

#### 1.6.4 Major Injury, Contaminated

A. Personnel that are severely injured and are potentially contaminated will be treated as explained above, and will also be monitored for contamination by Radiation Protection personnel. If feasible, monitoring and decontamination will be performed in accordance with Radiation Protection Procedures. If decontamination is successful, the victim may be transported to any available medical facility for treatment.

B. If decontamination is not successful or not feasible, the victim will be transported to the UNMC Regional Radiation Health Center, unless the responding Emergency Medical Services (EMS) personnel deem it medically necessary to proceed to a closer facility. If another facility other than UNMC is used, additional Radiation Protection personnel should be sent to the facility to assist in monitoring, decontamination and clean up.

## MEDICAL AND PUBLIC HEALTH SUPPORT

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### **2.0 MEDICAL TRANSPORTATION**

#### 2.1 Blair Fire Department and Rescue Squad

The Blair Fire Department and Rescue Squad Station is located less than four miles from the Fort Calhoun Station. The Rescue squad furnishes transportation for the injured and administers first aid enroute to the hospital.

#### 2.2 Fort Calhoun Fire and Rescue Squad

The Fort Calhoun Fire and Rescue Squad headquarters is located approximately 3-1/2 miles from the Fort Calhoun Station. This rescue squad serves as backup to the Blair Fire Department and Rescue Squad.

#### 2.3 Missouri Valley Fire and Rescue Squad

The Missouri Valley Fire and Rescue Squad is located approximately fifteen miles from the plant.

#### 2.4 Additional support is available to both the Blair Fire Department and Rescue Squad and the Fort Calhoun Fire and Rescue Squad by request through the Tri-Mutual Aid Association (Douglas, Sarpy, and Washington Counties).

#### 2.5 Other Modes of Transportation

If necessary, there are other modes of transportation for delivering injured personnel to appropriate medical facilities.

2.5.1 Medical Ambulance helicopter

2.5.2 Onsite company vehicles

2.5.3 Private autos of company personnel

### **3.0 OFFSITE MEDICAL SUPPORT**

#### 3.1 Non-Contaminated Personnel

The nearest medical facility is the Blair Memorial Community Hospital which is located five miles from the plant. A physician is readily available as a general medical consultant. Other facilities may be used as determined necessary by medical response personnel.

## MEDICAL AND PUBLIC HEALTH SUPPORT

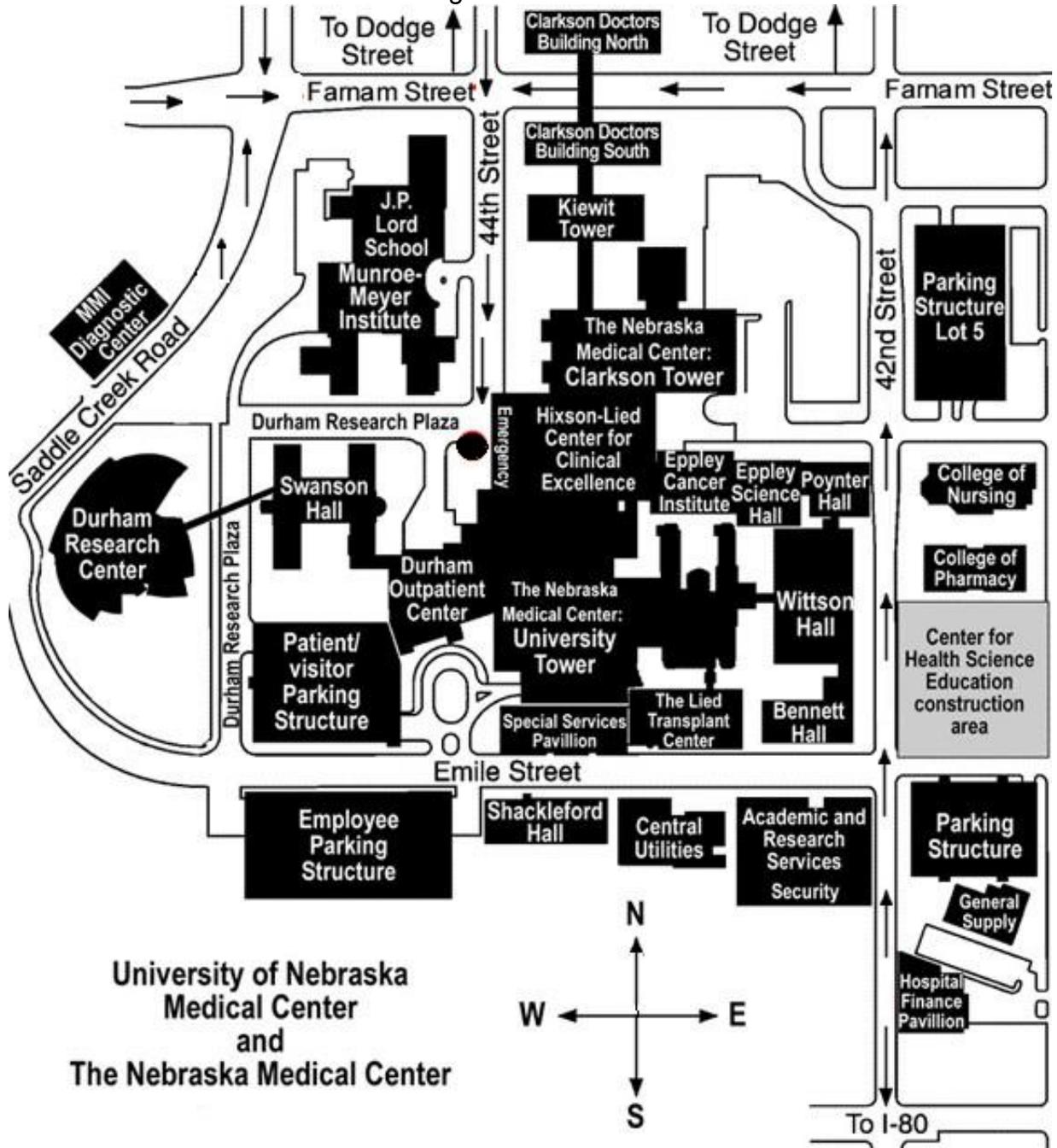
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### 3.2 Contaminated Personnel

- 3.2.1 Omaha Public Power District maintains an agreement with the UNMC Regional Radiation Health Center to supply 24-hour treatment for all injuries involving contamination and/or personnel radiation exposure. The Regional Radiation Health Center is located approximately 25 miles from the plant in Omaha, Nebraska. The facility is part of the UNMC complex, and was established specifically for the treatment of injuries occurring from nuclear and radiation related incidents. An entrance (Figure L1) is available for the ingress and egress of contaminated victims to a special assessment and decontamination facility. Patients can also be transported to the facility via medical ambulance helicopters.
- 3.2.2 The UNMC Regional Radiation Health Center staff administers medical, decontamination, internal bioassay, and other nuclear medicine capabilities. The staff maintains an appropriate "Standard Operating Procedures Manual" which describes their responsibilities and roles. If additional hospital beds should be required during a major incident, the hospital maintains a mutual agreement with several other Omaha area hospitals to assist with decontaminated patients.
- 3.2.3 Due to the large, highly qualified staff, the distance from the plant, the specialized capabilities, and the overall size of the UNMC complex, the Fort Calhoun Station was granted an exemption from requiring a backup medical facility by the Federal Emergency Management Agency.

## MEDICAL AND PUBLIC HEALTH SUPPORT

Figure L-1 - Entrance to Treatment Area  
UNMC Regional Radiation Health Center



University of Nebraska  
Medical Center  
and  
The Nebraska Medical Center

## MEDICAL AND PUBLIC HEALTH SUPPORT

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### **1.0 RECOVERY ORGANIZATION (RO)**

#### 1.1 Responsibilities

The Recovery Organization (RO) responsibilities include the overall coordination and management of the recovery effort and has provisions for technical and administrative services, design work, scheduling, planning, quality control/assurance, construction and vendor support.

#### 1.2 Staffing

The Recovery Organization would be composed of all the necessary technical, administrative, managerial, and support personnel required for the recovery phase of emergency response. This organization would be capable of 24 hour a day sustained operation.

The lead position in the Recovery Organization would be the Recovery Operations Manager. This individual would be appointed by the Command and Control Position of the Emergency Response Organization. The staffing positions of the rest of the Recovery Organization would be dependent upon the needs based on accident type and magnitude.

The responsibilities of the Recovery Operations Manager and the functions of possible staff members are detailed in the Emergency Plan Implementing Procedures.

#### 1.3 Activation

The activation of the Recovery Organization is through the directions given in the Emergency Plan Implementing Procedures governing the downgrading and termination of the emergency response phase. Downgrading and termination is achieved through a checklist format of considering not only the current and past conditions but also those conditions which have the potential to occur.

The ultimate decision for activation of the Recovery Organization rests with the Emergency Command and Control Position.

## MEDICAL AND PUBLIC HEALTH SUPPORT

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### 1.4 Transition

The transition from Emergency Response Organization to Recovery Organization would consist of turning over functions that would continue while terminating other functions that would not be necessary. The extent of the turnover would be based upon the size of the Recovery Operations which would be dependent upon the type and magnitude of the emergency.

As a minimum, the facility directors at each of the Emergency Response Facilities will make an announcement concerning the shift to the Recovery Organization and direct all Emergency Response Organization Members to turn in all pertinent logs and forms to the administrative manager in each facility. A critique would follow at each facility while recovery operations were commencing.

## 2.0 **REENTRY**

### 2.1 Purpose

The purpose for a reentry plan is to provide a means to regain access to an onsite or offsite area that was previously made inaccessible due to an emergency.

### 2.2 Responsibility

The Command and Control Position has the responsibility for authorizing reentry into a previously evacuated area. This could be the Shift Manager, Site Director, or Emergency Director depending on the stage that emergency response has reached.

### 2.3 Implementation

The implementation of the reentry plan is carried out by the Emergency Response Organization. Reentry is normally expected to be accomplished by teams dispatched from the Operations Support Center.

### 2.4 Emergency Radiation Exposure

OPPD is committed to keeping exposure "as low as reasonably achievable" (ALARA). It is understood that there are emergency situations which transcend the normal requirements for limiting exposure. When such situations exist, the Command and Control Position will make the determination as to the amount of radiation exposure that will be permitted based on the guidelines set forth in Section K of this Plan.

## EXERCISES AND DRILLS

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### 1.0 EXERCISES

An emergency preparedness exercise is an event that tests the integrated capability and a major portion of the basic elements existing within the Radiological Emergency Response Plan (RERP), associated Emergency Plan Implementing Procedures (EPIPs) and the various organizations associated with the implementation of the RERP. Typically, an emergency preparedness exercise shall simulate an emergency that results in offsite radiological releases which would require response by offsite authorities. However, whenever the State of Nebraska and the State of Iowa are not participating in a particular exercise, the scenario should concentrate on realistic in-plant emergencies with less emphasis on offsite response.

Periodic emergency preparedness exercises can be conducted to evaluate major portions of emergency response capabilities. Also, exercises provide the opportunity to identify further improvements to the emergency preparedness program. Areas of improvement, weaknesses and deficiencies noted as a result of an exercise will be evaluated and corrected, as appropriate.

Normally, an exercise is not considered a "training function", as the participants are not guided, nor "coached", during an exercise. Interaction between controller/observers and participants is not allowed during an exercise, except for delivery and explanation of scenario information and data.

Exercises are conducted biennially, as a minimum. The states of Iowa and Nebraska, along with associated local governmental agencies, are invited to participate in all training drills and exercises, and are required to participate in the biennial exercise under evaluation by the Federal Emergency Management Agency. The Nuclear Regulatory Commission also performs routine inspections to evaluate licensee emergency response performance. The Resident Inspector(s) or other NRC personnel may observe licensee performance during training drills or non-evaluated exercises.

Drill and Exercise procedures are used to verify the following criteria:

- 1.1 State and local personnel and resources capability to respond to a radiological emergency response scenario.
- 1.2 Scenario variance from year to year in order to provide optimum training for radiological emergency response personnel.
- 1.3 Variance of hours in which the radiological emergency exercise is performed.
- 1.4 Joint radiological emergency exercise involving plant and Federal, State and local support groups, including any that involve a time variance.

## EXERCISES AND DRILLS

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### 2.0 DRILLS

A drill is a supervised instruction period aimed at testing, developing and maintaining skills in a particular ERO position, function, center, or operation. A drill can be used as a specific training component of an exercise, if the exercise objectives identify and authorize such component. Drills will be supervised and evaluated by appropriate emergency planning personnel or other personnel with specific expertise pertaining to the drill or function being observed.

Periodic emergency preparedness drills are conducted to develop and maintain key skills within the ERO. Also, drills provide the opportunity to identify further improvements to the emergency preparedness program. Areas for improvement, weaknesses and deficiencies noted as a result of a drill will be evaluated and corrected, as appropriate.

At least one drill between biennial exercises will involve a combination of some of the principal functional areas of the onsite Emergency Response Organization, such as; command and control, accident assessment and classification, protective action recommendation decision making, and plant system and component repair and corrective actions. Simultaneous activation of all of the licensee's emergency response facilities during training drills is not necessary. Special functional drills can be developed and used to; focus on accident management strategies; supervised instruction periods for special or newly developed activities and/or procedures; allow resolution of problems (success paths) by ERO members, and; focus on identified onsite training objectives.

Normally, a drill is considered a "training function", as the participants are guided or "coached" during the actual drill. Interaction between controller/observers and participants is encouraged during a drill, except for instances where specific knowledge and memory are being tested.

## EXERCISES AND DRILLS

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### 2.1 Communication Drills

Emergency Planning procedures provide for communication checks with appropriate agencies to ensure availability and operability of all channels of communication necessary for adequate response to a radiological emergency requiring off-site support. These tests outline those agencies to be contacted, the person (by name or title) who is responsible for verifying that adequate communication exists, the required frequency for which communication is to be checked, and a procedure for accomplishing the test. Below is the communication schedule for these checks or drills to be performed:

- 2.1.1 Communications are checked monthly from the EOF at the North Omaha Power Station with the States of Nebraska and Iowa and the local governments of the Counties of Harrison, Pottawattamie, and Washington and the NRC using dedicated communications equipment and backup systems. A functional check of the ERFCS is also performed on a monthly basis.
- 2.1.2 Communications are checked monthly from the Fort Calhoun Station Technical Support Center with the State of Nebraska and Iowa EOCs.
- 2.1.3 Communications are checked quarterly with Federal response agencies and the States of Nebraska and Iowa within the ingestion exposure pathway EPZ. Also verified are communications with the JIC and functional checks of the FAX Network, radio system, and the ERF paging systems. Quarterly communications checks are performed from the Control Room with the NRC using both the FTS-ENS phone line and the Emergency Response Data System.
- 2.1.4 Communications are checked annually between the Fort Calhoun Station, the States of Nebraska and Iowa and local Emergency Operations Centers and field teams.

### 2.2 Fire Drills

Fire drills are conducted by plant personnel on a quarterly basis. The drills are held to test the plant's firefighting capability. The drills are varied in order to test all phases of firefighting techniques.

The Blair Fire Department is annually invited to conduct a drill onsite. Onsite drills assist in familiarizing the fire department members with the types and locations of equipment available to mitigate plant fires.

## EXERCISES AND DRILLS

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### 2.3 Medical Emergency Drills

The Nebraska Health Center, University Hospital Radiation Health Center is invited to participate in an annual exercise and/or scheduled drill(s) to demonstrate and practice the receipt and treatment of contaminated patients. The extent of the Center's participation depends on their work load and schedule for hospital patients at the time the exercise or drill is declared.

### 2.4 Health Physics and Radiological Monitoring Drills

Emergency Planning procedures develop guides for the preparation, execution, and documentation of health physics and radiological monitoring drills. Execution of these procedures is shared by Emergency Planning and Radiation Protection.

There are two (2) types of drills performed by Chemistry and Radiation Protection Departments:

2.4.1 Semi-annually, a health physics drill is conducted to monitor the response to and analysis of simulated elevated airborne releases, and direct radiation measurements in the environment. Normally, this drill is conducted in conjunction with a quarterly training drill.

2.4.2 Annually a drill is held which involves the collection of a type of environmental sampling media by the Chemistry Departments Environmental Group.

The NRC waived the requirement for a Reactor Coolant liquid sample drill in the SER related to Technical Specification (T.S.) Amendment 200. Amendment 200 deleted the Post Accident Sampling System (PASS).

### 2.5 Augmentation Call Out Drill

Notification and/or Augmentation Drills will be conducted at least every 12 months. The drills shall evaluate the licensee's capability to notify the minimum staffing positions in the Technical Support Center, Operations Support Center and the Emergency Operations Facility, in addition to meeting the staffing requirements of Table B-1 in RERP, Section B.

## EXERCISES AND DRILLS

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### 3.0 SCENARIOS

Scenarios for a drill are developed by either Emergency Planning or the group responsible for conducting the specific drill. Each drill should include a basic objective and appropriate evaluation criteria.

A special group is assigned the scenario development for the biennial exercise. An Emergency Planning procedure develops the plan for the preparation, execution, and documentation of the biennial exercise. This procedure requires input from major Federal, State, and local agencies, as well as OPPD staff, in order to define the objectives to be accomplished in the exercise. The scenario is then prepared to describe the following features:

- Objectives of the exercise.
- Date, time period, location, and participants.
- Simulated events.
- Time schedule of real and simulated events.
- Summary describing conduct of exercise.

Preparation of the scenario may include such items as identifying Control Room alarms, sequence of alarms, and instrument readings required to initiate the planned emergency exercises essential components.

A strong attempt is made to allow only key officials of Federal, State, and local support agencies to share scenario information in advance of exercises, in order that their participation in the exercise can be developed properly to demonstrate their maximum capabilities without losing confidentiality of exercise information.

### 4.0 CRITIQUES

In addition to the OPPD observers, offsite support agencies may provide observers for the biennial exercise. Observers are given information of the accident scenario prior to the exercise so that they may evaluate participants effectively.

Observers, evaluators, controllers and participants submit their comments and recommendations during a critique that is held after all drills and exercises. An Emergency Planning procedure is used to document and classify all significant comments and issues. Significant observations are incorporated into the plants Corrective Action Program for resolution.

## EXERCISES AND DRILLS

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### 5.0 ACTUAL EMERGENCIES

In the event of an actual emergency, credit for the response may be substituted for a drill or exercise if the event is properly documented according to the guidelines set forth in 10 CFR 50.47 and NUREG-0654, Rev.1/FEMA-REP-1.

## RADIOLOGICAL EMERGENCY RESPONSE TRAINING

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### 1.0 **FIRST AID TRAINING**

Personnel assigned the responsibility for responding to a medical emergency at the Fort Calhoun Station receive the American Red Cross Standard First Aid Training Program, or equivalent. Normally, these are members of the Fort Calhoun Station Fire Brigade which consists of Operations personnel assigned to shift crews. To maintain qualifications in accordance with the American Red Cross, CPR is conducted annually and First Aid Training is given biannually. The training is conducted by the American Red Cross and the associated training records are maintained in accordance with Training Department procedures.

### 2.0 **FIRE BRIGADE TRAINING**

Fire Brigade training is outlined in the TQ-AA-173, Emergency Services Training Programs.

### 3.0 **GENERAL EMPLOYEE TRAINING**

An overview of the Emergency Plan is given to all personnel allowed unescorted access into the protected area at Fort Calhoun Station. Personnel receive this information during initial training and are requalified on an annual basis. This training includes identification of the emergency alarm, the fire alarm and the steps to follow for a plant and site evacuation.

### 4.0 **EMERGENCY PREPAREDNESS TRAINING PROGRAM**

TQ-FC-113, ERO Training and Qualification identifies the initial and continuing training requirements for emergency response personnel.

As appropriate, members of the onsite emergency response organization are qualified to wear respiratory equipment, including self-contained breathing apparatus (SCBA) through the General Employee Training, Level III, Respiratory Protection Training Program.

### 5.0 **EMERGENCY RESPONSE ORGANIZATION TRAINING**

Requirements for initial training and continuing training of personnel assigned to the Emergency Response Organization is accomplished in accordance with TQ-FC-113, ERO Training and Qualification.

Requirements for initial training and continuing training of security personnel are outlined in the Security Training and Qualification Plan.

FCS Management is responsible to ensure all members of the Emergency Response Organization receive the required initial training and continuing training.

## RADIOLOGICAL EMERGENCY RESPONSE TRAINING

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### **6.0 LOCAL SUPPORT SERVICES PERSONNEL TRAINING**

#### 6.1 Fire and Rescue Squads

The Blair Fire Department and Rescue Squad and the Fort Calhoun Fire/Rescue are offered annual training by the Nebraska Emergency Management Agency. The Missouri Valley Fire and Rescue Squad and the Council Bluffs Fire and Ambulance Squad are offered annual training from the Iowa Homeland Security and Emergency Management Division. OPPD will provide assistance with training as requested.

This training normally includes an overview of the plant facility in order to familiarize them with the general area where their assistance may be requested, a review of the basic emergency classification levels, and a review of proper contamination control procedures.

#### 6.2 Offsite Organizations

Lead representatives and selected responders falling under the jurisdiction of the following offsite response organizations shall be offered annual training/retraining.

- Washington County Emergency Management
- Harrison County Emergency Management
- Pottawattamie County Emergency Management
- Douglas County Emergency Management
- Nebraska Region 5/6 Emergency Management

Members of the Fort Calhoun Station may assist with the state of Nebraska Emergency Management Agency and the state of Iowa Homeland Security and Emergency Management Division in preparing and presenting, on an annual basis, training to their Emergency Management agencies in radiological emergency response. Both states have outlined in their respective emergency plans the type of training to be given. Their training is not limited to Emergency Management agencies, but may also include key public officials and emergency services management as well as the state and police agencies and hospitals.

State and local Emergency Management groups are invited to participate in the biennial exercise conducted by the plant. Their participation in the biennial exercise supplements the annual training.

#### 6.3 Law Enforcement Agencies

Training for law enforcement agencies is typically conducted by the states of Iowa and Nebraska.

## 7.0 DOCUMENTATION OF TRAINING

FCS training procedures outline the process to document training of the Fort Calhoun Station Emergency Response Organization. An Emergency Planning procedure is used to verify training received by offsite organizations.

## RESPONSIBILITY FOR THE PLANNING EFFORT: DEVELOPMENT, PERIODIC REVIEW AND DISTRIBUTION

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### **1.0 RESPONSIBILITY FOR RADIOLOGICAL EMERGENCY RESPONSE PLANNING**

- 1.1 The Plant Manager and Nuclear Division Managers are responsible for the implementation of actions required to periodically exercise the Radiological Emergency Response Plan (RERP), and the Implementing Procedures and for maintaining an effective Emergency Response Organization (ERO) staff.
- 1.2 The Plant Operations Review Committee is responsible for the review and approval of revisions to the RERP and the Implementing Procedure used for emergency classification in accordance with EP-FC-120 Attachment 2, EP Document Structure and Revision Process.
- 1.3 The Plant Manager is responsible for the final approval of RERP and the Implementing Procedure used for emergency classification, and for maintaining an effective emergency response capability at Fort Calhoun Station.
- 1.4 Nuclear Organization Responsible Management Contacts are responsible for selecting and proposing personnel to fill ERO positions and for ensuring support of the Radiological Emergency Response Plan.
- 1.5 The Manager- Site Emergency Planning is responsible for the development, administration and maintenance of the RERP, Implementing Procedures, and EP-FC procedures, review and approval of all Implementing Procedure changes (with the exception of the Implementing Procedure used for emergency classification), planner training, the overall development and implementation of the FCS ERO Training and Qualification Program and coordination of off-site emergency preparedness activities in the states of Iowa and Nebraska.
- 1.6 The Manager-Nuclear Training is responsible for the independent review and approval of the FCS ERO Training and Qualification Program.
- 1.7 The Emergency Planning Department is responsible for the preparation of all revisions to the RERP, Implementing Procedures and for coordinating the review processes necessary prior to the implementation of the revisions.

### **2.0 MAINTENANCE OF THE RERP AND IMPLEMENTING PROCEDURES**

- 2.1 Emergency Planning personnel shall review the RERP and Implementing Procedures annually. Any changes found to be necessary as a result of the review shall be submitted using the established procedure change process.
- 2.2 Comments and recommendations made as a result of drills/exercises may require procedure changes to be initiated. These processes are detailed in the drill and exercise program.

## RESPONSIBILITY FOR THE PLANNING EFFORT: DEVELOPMENT, PERIODIC REVIEW AND DISTRIBUTION

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- 2.3 Recurring tasks ensure that copies of the annual review and annual audit reports are reviewed by the Manager-EP and any changes incorporated as necessary.
- 2.4 Changes to the plan will be submitted to the NRC within 30 days in accordance with 10CFR50.54(q). The Radiological Emergency Response Plan and approved changes to the plan will also be forwarded to appropriate organizations and individuals with responsibility for implementation of the plan. A new edition of the Radiological Emergency Response Plan will be issued when major technical and significant philosophical changes are required.
- 2.5 All emergency telephone numbers are updated quarterly.

### **3.0 AUDITS**

- 3.1 The Nuclear Oversight Department will coordinate an independent audit of the Emergency Preparedness Program at intervals not to exceed 24 months or more frequently as required by 10CFR50.54(t)(1). The audit shall include the Radiological Emergency Response Plan, implementing procedures, practices, drills, exercises, training, readiness testing, equipment and interfaces with state and local governments. The results of this audit along with the recommendations for improvement must be documented and reported to the licensee's corporate and plant management. Copies of pertinent sections of the audit will be forwarded to appropriate state and local governments. This audit shall fulfill the requirements of 10CFR50.54(t). The results of this audit shall be retained for a minimum of five years.

## RESPONSIBILITY FOR THE PLANNING EFFORT: DEVELOPMENT, PERIODIC REVIEW AND DISTRIBUTION

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### 1.0 LETTERS OF AGREEMENT REVIEW

- 1.1 Written agreements establishing the concept of operations developed between Fort Calhoun Station and other support organizations having an emergency response role within the EPZs have been developed. These agreements identify the emergency measures to be provided, the mutually accepted criteria for implementation, and the arrangements for exchange of information. Agreement letters are not necessary with Federal Agencies who are legally required to respond based on Federal law; however, agreements are necessary if the agency was expected to provide assistance not required by law. Letters of Agreement with private contractors and others who provide services in support of Fort Calhoun Station shall be maintained on file. Letters of Agreement, as a minimum, state that the cooperating organization will provide their normal services in support of an emergency at the affected station. A contract/purchase order with a private contractor is considered acceptable in lieu of a Letter of Agreement for the specified duration of the contract.

Organizations deemed to be First Responders, who are identified as Local Law Enforcement Agency (LLEA), Volunteer Fire Fighting Organizations, Emergency Medical Services (EMS), and the University of Nebraska Medical Center (UNMC), will contain wording to ensure they will respond to a Radiological event to include a Hostile Action Based event.

**LLEA** will support Fort Calhoun Nuclear Station during a Radiological or Hostile Action Based event, in conjunction with the National Incident Management System upon notification by the station in accordance with established communications protocol.

**Fire Fighting** Organizations will respond to a Radiological Event, including a Hostile Action Based Event, in conjunction with the National Incident Management System in accordance with established response and communication protocol. Fire Fighting Organizations may be requested to obtain and provide fire response, fire apparatus, and fire personnel.

**EMS** Support will provide Emergency Medical Services in response to a Radiological Event including a Hostile Action Based Event. This includes transportation of patients from the Fort Calhoun Nuclear Station, including those who may have been exposed to radiation or may have injuries complicated by radioactive contamination, to the University of Nebraska Medical Center by use of established communication protocol.

**UNMC** agrees in the event of a Radiological event, including a Hostile Action Based Event, to ensure the capability for the evaluation of radiation exposure and uptake, including assurance that persons providing these services are

RESPONSIBILITY FOR THE PLANNING EFFORT: DEVELOPMENT, PERIODIC REVIEW AND DISTRIBUTION

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adequately prepared to handle contaminated individuals and capable of providing medical support for any contaminated individual.

A contract/purchase order with a private contractor is considered acceptable in lieu of a Letter of Agreement for the specified duration of the contract.

<b>i</b>	<b>NOTE</b>	<b>i</b>
	Copies of Current Letters of Agreement are on file in the Emergency Planning Department.	

1.2 Law Enforcement Support Organizations

- Nebraska State Patrol
- Iowa State Patrol
- Harrison County Sheriff's Department
- Washington County Sheriff's Department
- Pottawattamie County Sheriff's Department
- Douglas County Sheriff's Department

1.3 Fire and Rescue Support Organizations

- Blair Fire Department
- Fort Calhoun Fire and Rescue
- Missouri Valley Fire Department

1.4 Medical Support Organizations

- UNMC Regional Radiation Health Center

1.5 Nebraska's Governmental Support Organizations

- State of Nebraska Emergency Management
- State of Nebraska-Department of Health and Human Services, Regulation and Licensure
- Washington County Board of Supervisors
- Nebraska Game and Parks Commission
- Douglas County Emergency Management Agency

1.6 Iowa's Governmental Support Organizations

- Iowa Homeland Security and Emergency Management Division

## RESPONSIBILITY FOR THE PLANNING EFFORT: DEVELOPMENT, PERIODIC REVIEW AND DISTRIBUTION

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- Harrison County Board of Supervisors
- Pottawattamie County Board of Supervisors
- Pottawattamie County Division of Telecommunications

### 1.7 Industrial Support Organizations

- Union Pacific Railroad
- Westinghouse Electric
- Electric Power Research Institute/Nuclear Energy Institute
- Institute of Nuclear Power Operations (INPO)

### 1.8 Other Support Organizations

- Nebraska Public Power District
- Metropolitan Utilities District
- National Weather Service
- Tierney-Blair LLC

### 1.9 Monitoring and Decontamination Support Organizations

- Omaha Fire Department Emergency Worker Decon

## RESPONSIBILITY FOR THE PLANNING EFFORT: DEVELOPMENT, PERIODIC REVIEW AND DISTRIBUTION

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The following is a list of plans for organizations that support or supplement emergency response to the Fort Calhoun Station. These are maintained in the EOF.

### State

Iowa Radiological Emergency Response Plan, Part 2, Nuclear Power Plant Accident/Incident, Annex P of the Iowa Emergency Response Plan.

State of Nebraska - "Radiological Emergency Response Plan for Nuclear Power Plant Incidents"

### Local

Crawford County (Iowa) - "Radiological Emergency Response Plan"

Dodge County (Nebraska) - "Radiological Emergency Reception Plan for Nuclear Power Plant Incidents"

Douglas County (Nebraska) - "Douglas County Supplement to Washington County Radiological Emergency Response Plan for Nuclear Power Plant Incidents"

Harrison County (Iowa) - "Radiological Emergency Response Plan for Nuclear Power Plant Incidents"

Pottawattamie County (Iowa) - "Radiological Emergency Response Plan"

Sarpy County (Nebraska) - "Radiological Emergency Response Plan for Nuclear Power Plant Incidents"

Washington County (Nebraska) - "Radiological Emergency Response Plan for Nuclear Power Plant Incidents"

## NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

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PSRERP Appendix C provides a cross reference to track OPPD's implementation of the guidance provided by NUREG 0654, FEMA REP 1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Rev. 1.

OPPD generally conforms to the guidance of NUREG-0654 in its Post Shutdown Radiological Emergency Response Plan (PSRERP), Emergency Plan Implementing Procedures (EPIP) and other supporting documents. However, OPPD has and may make exceptions to NUREG-0654 guidance providing it does not reduce the effectiveness or intent of the PSRERP or EIPs.

For Section D, Emergency Classification System, OPPD uses the guidance of NEI-99-01, Development of Emergency Action Levels for Non-Passive Reactors. This variance from NUREG-0654 has been approved by the NRC.

All changes to the PSRERP are subject to a 10 CFR 50.54(q) screening, 10 CFR 50.47(b) and 10 CFR 50 Appendix E reviews. If the reviews determine that the change does not reduce the effectiveness or intent of the plan, the Plant Operating Review Committee (PORC) must then approve the change before it is implemented and sent to the NRC for review. If the screening process finds that the change does reduce the effectiveness or intent of the plan the change must be submitted to NRC for pre-approval prior to implementation.

All changes to EIPs and other documents governed by the PSRERP are also subject to 10 CFR 50.54(q) screening. If it is determined that the proposed EPIP or other plant document change requires a PSRERP change a full 10 CFR 50.47(b), 10 CFR 50 Appendix E review and PORC approval is required prior to implementation and submittal to the NRC for review. NRC pre-approval must be obtained if a change is determined to reduce the effectiveness or the intent of the plan.

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>A. Assignment of Responsibility</b>			
A.1.a	Identify the State, Local, Federal and private sector organizations (including utilities) intended to be a part of the ERO.	A 1.1-1.8	N/A
A.1.b	Each organization shall specify its concept of operations and its relationship to the total effort.	A 2.0, C 1.0, 2.0, 3.0, 4.0 Appendix A	EP-FC-112, Crisis Communication Plan
A.1.c	Block diagram of organizational interrelationships.	FIG. A-1	N/A
A.1.d	Identify a specific individual (by title) who shall be in charge of the emergency response.	A 2.0	EP-FC-112
A.1.e	Provide for 24-hr per day response, including communications links.	A 1.0	EP-FC-112
A.2.a	State/Local applicability	N/A	N/A
A.2.b	State/Local applicability	N/A	N/A
A.3	Letters of Agreement	Appen. A	EP-FC-120 (Verification of RERP-Appendix A)
A.4	Capability of continuous 24-hour operations. Identify, by title, the individual in the principal organization responsible for continuity of resources.	A 1.0, 2.0	EP-FC-112

Refer to Attachment 1 – PSRERP Titles, for names of PSRERP Sections

Refer to Attachment 2 – EPIP Titles, for names of EPIP's

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>B. Onsite Emergency Organization</b>			
B.1	Specify the onsite emergency organization of plant staff personnel for all shifts and its relation to the responsibilities and duties of the normal staff complement.	B 2.1, Table B-1	EP-FC-112-100, EP-FC-112-200, EP-FC-112-300, EP-FC-112-400, EP-FC-112-500
B.2	Designate an individual as emergency coordinator who is on shift at all times.	B 7.1, 7.2	EP-FC-112-100
B.3	Identify a line of succession for the emergency coordinator position and identify the specific conditions for higher level utility officials assuming this function.	B 7.0	EP-FC-112
B.4	Specification of responsibilities, and designation of which may not be delegated.	B 6.2	EP-FC-112
B.5	Positions or titles and major tasks to be performed by the persons assigned to the functional areas of emergency activity.	B 8/9/10/11/12, Table B-1	EP-FC-112-100, EP-FC-112-200, EP-FC-112-300, EP-FC-112-400, EP-FC-112-500, Crisis Communication Plan
B.6	Interfaces between and among the onsite, offsite, corporate, state and local government response organizations.	B-13, Table B-3	N/A
B.7	Each licensee shall specify the corporate, management, admin., and technical personnel who will augment plant staff in Table B-1 and in the following areas:	Table B-1 B 4.0	EP-FC-112-100, EP-FC-112-200, EP-FC-112-300, EP-FC-112-400, EP-FC-112-500
B.7.a	Logistics support, e.g., trans, comm, quarters, food, water, special equipment and supplies purchase;	B 9.0, 11.0 Table B-2	EP-FC-112-200-F-03, EP-FC-112-400-F-07
B.7.b	Technical support for planning reentry and recovery operations;	B 6.0	EP-FC-115
B.7.c	Management level interface with government authorities; and	B 13	EP-FC-112
B.7.d	Release of information to news media during an emergency (coordinated with governmental authorities).	B 12,13	EP-FC-112 Crisis Comm. Plan
B.8	Specification of contractor and private organizations to provide assistance.	A 1.0, B-13, B-15, Fig. B-3, Appen A	EP-FC-112-200-F-03, EP-FC-112-400-F-07, EP-FC-120 (Verification of RERP-Appendix A)
B.9	Expected services from local agencies e.g., police, fire, ambulance, medical, hospital.	A 1.0 Appen A B 15, Table B-1, Fig B-3 RERP Sec L	EP-FC-120 (Verification of RERP-Appendix A)

Refer to Attachment 1 – PSRERP Titles, for names of PSRERP Sections

Refer to Attachment 2 – EPIP Titles, for names of EPIP's

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>C. Emergency Response Support and Resources</b>			
C.1	Incorporation of Federal response into the operational plan:	C1	
C.1.a	Specific persons to request Federal assistance (See A.1.d and A.2.a)	C1.1, B 6.3.1	EP-FC-112
C.1.b	Specific Federal resources expected and expected times of arrival, and	C 1.2-1.3	N/A
C.1.c	Specific licensee, state, local resources to support Federal response, air fields, command posts, tel lines, radio frequencies, and telecommunications centers.	C 2.0	N/A
C.2.a	State/Local Applicability	N/A	N/A
C.2.b	Licensee representative to offsite EOC's	C 3.0	EP-FC-112-400
C.3	Radiological laboratories, general capabilities and expected availability to provide radiological monitoring and analyses services which can be used in an emergency.	C 2.2 4.0	N/A
C.4	Identify Nuclear and other facilities, organizations or individuals which can be relied upon in an emergency to provide assistance. Such assistance shall be identified and supported by appropriate letters of agreement.	C 4.0, Appen A	EP-FC-112-200-F-03, EP-FC-112-400-F-07, EP-FC-120 (Verification of RERP Appendix A)

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>D. Emergency Classification System</b>			
D.1 *	Establish an Emergency Action Level Scheme and Emergency Classification scheme.	D 2.0	EP-FC-1001 Addendum 3
D.2 *	Initiating conditions shall include NUREG-0654, Appendix 1 conditions and all FSAR postulated accidents.	D 1.0	EP-FC-1001 Addendum 3
D.3	State/Local applicability	N/A	N/A
D.4	State/Local applicability	N/A	N/A
* NEI-99-01 Guidance has replaced NUREG-0654 Appendix 1 guidance.			

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>E. Notification Methods and Procedures</b>			
E.1	Notification procedures consistent with EALs including a means for verification of messages.	E 2.0	EP-FC-114
E.2	Procedures for alerting, notifying and mobilizing emergency response personnel.	E 2.0	EP-FC-112-100-F-06
E.3	Licensee and state/local establish content of the initial messages, and shall contain: class, release, potentially affected population, and if PARs are needed.	E 3.1	EP-FC-114
E.4	Provisions for follow-up messages, and shall contain the following:	E 3.2	EP-FC-114
E.4.a	Location of incident, and name and telephone number (or communications channel identification) of caller;	E 3.2	EP-FC-114
E.4.b	Date/time of incident;	E 3.2	EP-FC-114
E.4.c	Class of emergency;	E 3.2	EP-FC-114
E.4.d	Type of actual/projected release, and estimated duration/impact times;	E 3.2	EP-FC-114
E.4.e	Estimate of radioactive material released or being released and the points and height of releases.	E 3.0	EP-FC-110-200
E.4.f	Chemical and physical form of material, estimates of quantities/concentration of noble gases, iodines, and particulates;	E 3.0	EP-FC-110-200
E.4.g	Met conditions at appropriate levels: wind speed, direction (to and from) stability, precip, if any;	E 3.0	EP-FC-114
E.4.h	Type of actual projected does rates at site boundary, projected integrated dose at site boundary:	E 3.0	EP-FC-110-200
E.4.i	Projected dose rates and integrated dose at 2, 5, and 10 miles, include the sector(s) affected;	E 3.0	EP-FC-110-200
E.4.j	Estimate of any surface contamination inplant, onsite, offsite;	E 3.0	EP-FC-110-200
E.4.k	Licensee emergency response actions underway;	E 3.0	EP-FC-114
E.4.l	Recommended emergency actions, including protective measures;	E 3.2	EP-FC-114
E.4.m	Request for any needed onsite support by offsite organizations, and;	E 3.0	EP-FC-114
E.4.n	Prognosis for worsening/termination based on plant information.	E 3.2	EP-FC-114
E.5	State/Local applicability	N/A	N/A
E.6	Notification/prompt instructions to the public. (ANS)	E 4.0	EP-FC-112, EP-FC-121
E.7	Written messages for the public, consistent with the EALs, to include ad hoc PARs.	E 5.0	EP-FC-112

Refer to Attachment 1 – PSRERP Titles, for names of PSRERP Sections

Refer to Attachment 2 – EPIP Titles, for names of EPIP's

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>F. Emergency Communications</b>			
F.1.a	Provision for 24 hour notification to and activation of the State/local ER network, with telephone link and backup, and 24-hour manning of communication links that initiate emergency response actions;	E 2.0 F 1.0 F 2.0 F 2.3 F 2.4	EP-FC-114
F.1.b	Communications with contiguous states/locals;	F 2.0, 2.3, 2.4, Fig F-1, F-2	EP-FC-114
F.1.c	Communications with Federal EROs;	F 2.3, 2.9, 2.10, F 2.12, F 2.13, Fig. F-1	EP-FC-114
F.1.d	Communication between the plant, EOF, state and local EOCs, and rad monitor teams;	F 2.4, 2.5, 2.8, 2.11, 2.17, Fig. F-1, Fig. F-2	EP-FC-112
F.1.e	Provision for alerting or activating emergency personnel in each response organization, and	E 2.0	EP-FC-112-100-F-06
F.1.f	Communication (by licensee) with NRC HQ and Regional Office EOC and the EOF and Rad Mon Team Assembly area.	F 2.3, 2.8, 2.9, 2.10, F-2.12, 2.22	EP-FC-112-400
F.2	Each organization shall ensure that a coordinated comm link for fixed and mobile medical support facilities exists.	F 3.0	EP-FC-112-300-AD-F-04,FCSG-15
F.3	Each organization shall conduct periodic testing of the entire emergency communications system. (See also H.10, N.2.a and Appendix 3).	N 2.1	EP-FC-124

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NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>G. Public Education and Information</b>			
G.1	Each organization shall provide a coordinated periodic (at least annually) dissemination of information to the public re: how they will be notified, and what their actions should be.	G 1.0	Corporate Crisis Communication Plan; EP-FC-120
G.2	The public information program shall provide permanent and transient adult population within the EPZ an adequate opportunity to become aware of the information annually. This section also makes reference to: Signs, decals, posted notices, for hotel, motels, gas stations, and phone booths).	G 1.0	Corporate Crisis Communication Plan; EP-FC-120
G.3.a	Media contact point during an emergency (i.e., JIC, etc).	G 2.0	Corporate Crisis Communication Plan
G.3.b	Space for limited number of news media at the EOF.	G 2.0	Corporate Crisis Communication Plan
G.4.a	Each organization shall have a spokesperson.	G 3.0	Corporate Crisis Communication Plan
G.4.b	Each organization shall establish arrangements for timely exchange of information among designated spokes persons.	G 3.0	Corporate Crisis Communication Plan
G.4.c	Each organization shall establish coordinated arrangements for dealing with rumors.	G 2.1	Corporate Crisis Communication Plan
G.5	Each organization shall conduct coordinated programs at least annually to acquaint news media with the emergency plans, information concerning radiation, and points of contact for release of public information in an emergency.	G 4.0	EP-FC-120

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>H. Emergency Facilities and Equipment</b>			
H.1	Each licensee shall establish a TSC and an OSC.	H 1.0, 3.0	EP-FC-112
H.2	Establish an EOF.	H 2.0	EP-FC-112
H.3	State/Local applicability	N/A	N/A
H.4	Timely activation of the facilities and centers described in the Plan.	H 1.3, 2.3, 3.3, 4.3	EP-FC-112
H.5	Each licensee shall identify and establish onsite monitoring systems that are to be used to initiate emergency measures, in accordance with Appendix 1, as well as those used to conduct assessment. The equipment shall include:		
H.5.a	Geophysical phenomena monitors, (e.g., met, hydrological, seismic);	I 2.0, I 2.1.2, I 2.1.3, I 2.2.3, I 2.3.2(c)	EP-FC-1001 Addendum 3
H.5.b	Rad monitors, (e.g., process, area, emergency, effluent, wound and portable monitors and sampling equipment);	H.1.2, 2.2, 3.2, 4.2, 5.0 I 2.2.1 I 2.2.2	EP-FC-1001 Addendum 3 EP-FC-110 EP-FC-112-500 EP-FC-113 RP-AA-350
H.5.c	Process monitors (e.g., reactor coolant system pressure and temp, containment pressure and temp, liquid levels, flow rates, status or lineup of equipment components); and	I 2.2	EP-FC-1001 Addendum 3 EP-FC-121
H.5.d	Fire and combustion products detectors.	I 2.1.1	EP-FC-1001 Addendum 3 SO-G-28, Station Fire Plan
H.6	Each licensee shall make provision to acquire data from or for emergency access to offsite monitoring and analysis equipment, including:		
H.6.a	Geophysical phenomena monitors (e.g., met, hydrologic, seismic):	I 2.1.2 2.1.3 2.2.3	EP-FC-1001 Addendum 3
H.6.b	Radiological monitors including ratemeters and sampling devices. Dosimetry shall be provided and shall meet, as a minimum, the NRC Rad Assessment Branch Tech Position for the Environmental Rad Monitoring program; and	H 2.2 5.2 5.3 5.6	EP-FC-112-500 EP-FC-113 RP-AA-700
H.6.c	Laboratory facilities, fixed or mobile.	C 2.0, C 4.0	EP-FC-112-500
H.7	Each organization, where appropriate, shall provide for offsite rad monitoring equipment in the vicinity of the plant.	I 2.3.3 J 2.5	EP-FC-112-500

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
H.8	Each licensee shall provide met instrumentation and procedures which satisfy the criteria in Appendix 2, and provisions to obtain representative current met data from other sources.	I 2.2.3	EP-FC-110-200 EP-FC-110-201
H.9	Each licensee shall provide for an onsite OSC which shall have adequate capacity and supplies, including, for example, respiratory protection, protective clothing, portable lighting, portable radiation monitoring equipment, cameras and communications equipment for personnel present in the OSC.	H 3.0	EP-FC-112-300
H.10	Inspect/inventory/operationally check equipment at least quarterly and after each use. There shall be sufficient reserves of instruments/equipment to replace those which are removed from emergency kits for calibration or repair.	H 5.0	EP-FC-124 RP-AA-700
H.11	Identify emergency kits, by general category (i.e., protective equipment, comm equipment, rad monitoring equipment.	H 5.0	EP-FC-124
H.12	Each organization will establish a central point for receipt and analysis of all field monitoring data and coordination of sample media.	H 2.1	EP-FC-112-500

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>I. Accident Assessment</b>			
I.1	Identify plant system and effluent parameter values characteristic of a spectrum of off-normal conditions and accidents, and shall identify the plant parameter values or other information which correspond to the example initiating conditions of Appendix 1.	Sec D I 1.0 2.0	EP-FC-1001 Addendum 3
I.2	Onsite capability and resources to provide initial values and continuing assessment throughout the course of an accident shall include post accident sampling capability, radiation and effluent monitors, in-plant iodine instrumentation and containment radiation monitoring.	I 1.0 2.0	EP-FC-1001 Addendum 3 EP-FC-110-200 EP-FC-110-201
I.3	Each licensee shall establish methods and techniques to be used for determining:		
I.3.a	The source term of releases of radioactive material within plant systems.	D 1.0 Table D-1	EP-FC-110-200 EP-FC-110-201
I.3.b	The magnitude of the release of radioactive materials based on plant system parameters and effluent monitors.	D 2.0	EP-FC-111-AD-F-02 EP-FC-110-200 EP-FC-110-201
I.4	Each licensee shall establish the relationship between effluent monitor readings and onsite and offsite exposures and contamination for various met conditions.	D 2.0	EP-FC-111-AD-F-02 EP-FC-110-200 EP-FC-110-201
I.5	Each licensee shall have the capability of acquiring and evaluating met information sufficient to meet the criteria of Appendix 2.	I 2.2.3	EP-FC-111-AD-F-02 EP-FC-110-200 EP-FC-110-201
I.6	Each licensee shall establish the methodology for determining the release rate/projected doses of the instrumentation used are offscale or inoperable.	I 3.1	EP-FC-111-AD-F-02 EP-FC-110-200 EP-FC-110-201
I.7	Field monitoring plans.	I 2.3	EP-FC-112-500
I.8	Provide methods, equipment and expertise to make rapid assessment of the actual or potential magnitude of any rad hazard through liquid or gaseous release pathways.	I 3.0	EP-FC-111-AD-F-02 EP-FC-110-200 EP-FC-110-201
I.9	Each organization shall have a capability to detect and measure radioiodine concentrations in air in the plume exposure EPZ as low as $10^{-7}$ $\Phi$ Ci/cc under field conditions.	I 3.0	EP-FC-112-500

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**NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST**

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<b>NUREG Section</b>	<b>NUREG Criteria</b>	<b>RERP Section</b>	<b>Implementing Procedure(s)</b>
I.10	Each organization shall establish means for relating the various measured parameters (e.g. contamination levels, water and air activity levels) to dose rates for key isotopes and gross radioactivity measurements.	I 3.0	EP-FC-110-200 EP-FC-110-201
I.11	Arrangements to locate and track the plume.	I 2.3	EP-FC-112-500 EP-FC-110-200 EP-FC-110-201

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>J. Protective Response</b>			
J.1	Each licensee shall establish the means and time required to warn or advise individuals within the owner-controlled area, including:	J 1.3.2 J 1.1	
J.1.a	Employees not having emergency assignments;	J 1.1 J 1.3.2	EP-FC-113
J.1.b	Visitors;	J 1.1 J 1.3.2	EP-FC-113
J 1.c	Contractor and construction personnel, and	J 1.1 J 1.3.2	EP-FC-113
J 1.d	Other persons who may be in the public access areas or passing through the site or within the owner-controlled area.	J 1.1 J 1.3.2	EP-FC-113
J.2	Make provisions for evacuation routes and transportation for onsite individuals to some suitable offsite location, including alternatives for inclement weather, high traffic density and specific rad conditions.	J 1.2 Table J-9	EP-FC-113
J.3	Each licensee shall provide for radiological monitoring of people evacuated from the site.	J 1.2	EP-FC-113
J.4	Each licensee shall provide for the evacuation of onsite non-essential personnel in the event of a Site Area or General Emergency and shall provide a decon capability at or near the monitoring point specified in J.3, above.	J 1.2	EP-FC-113
J.5	Each licensee shall provide for a capability to account for all individuals onsite at the time of the emergency and ascertain the names or missing individuals within 30 minutes of the start of the emergency and account for all onsite individuals continuously thereafter.	J 1.3.2	EP-FC-113 SY-AA-101-121
J.6	Each licensee shall, for people remaining onsite, make provisions for:		
J.6.a	Individual respiratory protection;	J 1.4.4	EP-FC-113 RP Manual
J.6.b	Use of protective clothing;	J 1.4.3	EP-FC-113 RP Manual
J.6.c	Use of KI.	J 1.4.5	EP-FC-113
J.7	Each licensee shall establish a mechanism for recommending PAs to State and locals.	J 2.1.1	EP-FC-114

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
J.8	Each licensees plan shall contain an ETE. These shall be in accordance with Appendix 4.	J 2.3	EP-FC-1001 Addendum 2
J.9	State/local applicability	N/A Table J-9 J-10	N/A
J.10	The organizations plans to implement protective measures for the EPZ shall include:		
J.10.a	Maps showing evacuation routes, evacuation areas, preselected radiological sampling and monitoring points, relocation centers in host areas, and shelter areas;	J 2.3.2 Fig J-1 J-2	EP-FC-113 ANS Map 10-Mile EPZ Map
J.10.b	Maps showing pop distribution around the Nuclear facility. This shall also be by evacuation areas;	J 2.3.3 Fig J-4 J-7 J-8	EP-FC-1001 Addendum 2
J.10.c	Means for notifying all segments of the transient and resident population;	J 2.2	EP-FC-121
J.10.d	State/local applicability	N/A	N/A
J.10.e	State/local applicability	N/A	N/A
J.10.f	State/local applicability	N/A	N/A
J.10.g	State/local applicability	N/A	N/A
J.10.h	State/local applicability	N/A	N/A
J.10.i	State/local applicability	N/A	N/A
J.10.j	State/local applicability	N/A	N/A
J.10.k	State/local applicability	N/A	N/A
J.10.l	State/local applicability	N/A	N/A
J.10.m	The basis for the choice of recommended protective actions from the EPZ during emergency conditions.	J 2.1 Table J-2 J-3 J-4	EP-FC-111
J.11	State applicability	N/A	N/A
J.12	State/local applicability	N/A	N/A

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>K. Radiological Exposure Control</b>			
K.1	Each licensee shall establish onsite exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity PAGs for:		
K.1.a	Removal of injured persons;	K 1.0	EP-FC-113, RP Manual
K.1.b	Undertaking corrective actions;	K 1.0	EP-FC-113, RP Manual
K.1.c	Performing assessment actions;	K 1.0	EP-FC-113, RP Manual
K.1.d	Providing first aid;	K 1.0	EPIP-EOF-11, FCSG-15-7 RP Manual
K.1.e	Performing personnel decon;	K 1.0	EP-FC-113, RP Manual
K.1.f	Providing ambulance service; and	K 1.0	EP-FC-113, FCSG-15-7 RP Manual
K 1.g	Providing medical treatment services.	K 1.0	EP-FC-113, FCSG-15-7 RP Manual
K.2	Each licensee shall provide an onsite rad protection program to be implemented during emergencies, including methods to implement exposure guidelines.	K 1.0	EP-FC-113 RP Manual
K.3.a	24 hour capability to determine the doses received by emergency personnel involved in any nuclear accident, including volunteers.	K 1.2	RP Manual EP-FC-113
K.3.b	Each organization shall ensure that dosimeters are read at appropriate frequencies.	J 1.4.2 K 1.2	RP Manual
K.4	State/local applicability	N/A	N/A
K.5.a	Action levels for determining the need for decon.	K 2.1	RP-AA-350
K.5.b	Decon of personnel wounds, supplies, instruments and equipment and for waste disposal.	K 2.0, 3.0	RP-AA-350
K.6	Each licensee shall provide onsite contamination control measure including:		
K.6.a	Area access control;	K 2.0	RP-AA-350
K.6.b	Drinking water and food supplies;	K 2.4	EP-FC-112-200-F-14
K.6.c	Criteria for permitting return of areas and items to normal use (see ANSI 12.13).	K 2.5	RP-AA-350
K.7	Each licensee shall provide the capability for decon of relocated onsite personnel, including provisions for extra clothing and decontaminants suitable for the type of contamination given to radioiodine contamination of the skin.	K 2.1, 2.2, 2.3 L 3.2	EP-FC-113

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>L. Medical and Public Health Support</b>			
L.1	Each organization shall arrange for local and backup hospital and medical services having the capability for evaluation of radiation exposure and uptake, including assurances that persons providing these services are adequately prepared to handle contaminated persons.	L 3.0	RP-AA-220 FCSG-15-7
L.2	Each licensee shall provide for onsite first aid capability.	L 1.0	FCSG-15-7
L.3	State applicability	N/A	N/A
L.4	Each organization shall arrange for transportation of rad victims to medical support facilities.	L 2.0	FCSG-15-7

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>M. Recovery and Reentry Planning and post Accident Operations</b>			
M.1	Each organization shall develop plans and procedures for reentry and recovery and describe the means by which decisions to relax protective measures are reached.	M 1.3 2.0	EP-FC-115
M.2	Each licensee plan shall contain the position/title, authority and responsibilities of individuals who will fill key positions in the recovery organization.	M 1.2	EP-FC-115
M.3	Each licensee and state plan shall specify the means for informing members of the response organizations that a recovery operation is to be initiated, and of any changes in the organizational structure that may occur.	M 1.2	EP-FC-115
M.4	Each plan shall establish a method for periodically estimating total population exposure.	I 3.0	EP-FC-200

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NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>N. Exercises and Drills</b>			
N.1.a	Exercises shall be conducted as set forth in NRC and FEMA rules.	N	EP-FC-122
N.1.b	An exercise shall include mobilization of State and local personnel and resources...shall provide for a critique by federal and state observers/evaluators...scenario varied from year to year....6:00 PM and Midnite/Midnite and 6:00 AM exercises....under various weather conditions....some unannounced.	N 1.0	EP-FC-122
N.2.a	Communications drills:		
	Comm with State and Locals (monthly)	N 2.1	EP-FC-122
	Comm with Federal EROs and states within the IPZ (quarterly)	N 2.1	EP-FC-122
	Comm between the plant, state and local EOCs, and field assessment teams (annually)	N 2.1	EP-FC-122
N.2.b	Fire Drills	N 2.2	OP-AA-201-005
N.2.c	Medical Emergency Drills	N 2.3	EP-FC-122
N.2.d	Rad Monitoring Drills	N 2.4	EP-FC-122
N.2.e	HP Drills		
	Shall be conducted semi-annually which involve response to and analysis of simulated elevated airborne and liquid samples and direct rad measurements. The state drills need not be at each site.	N 2.4	EP-FC-122
	Analysis of inplant liquid samples with actual elevated rad levels including use of the PASS shall be included in HP drills by licensees annually.	N 2.4	EP-FC-122
N.3	Each organization shall describe how exercises and drills are to be carried out to allow free play for decision making and to meet the following objectives. ....The scenarios shall include, but not be limited to, the following:		
N.3.a	Basic objectives and appropriate evaluation criteria;	N 1.0, 2.0, 3.0	EP-FC-122
N.3.b	Dates, time periods, places, and participating organizations;	N 1.0, 2.0, 3.0	EP-FC-122
N.3.c	The simulated events;	N 1.0, 2.0, 3.0	EP-FC-122
N.3.d	Time schedule of real and simulated initiating events;	N 1.0, 2.0, 3.0	EP-FC-122
N.3.e	A narrative summary;	N 1.0, 2.0, 3.0	EP-FC-122

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**NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST**

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<b>NUREG Section</b>	<b>NUREG Criteria</b>	<b>RERP Section</b>	<b>Implementing Procedure(s)</b>
N.3.f	A description of arrangements and advance materials for official observers.	N 1.0, 4.0	EP-FC-122
N.4	An exercise critique.	N 4.0	EP-FC-122
N.5	Evaluating the comments from observers and participants.	N 4.0	EP-FC-122

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>O. Radiological Emergency Response Training</b>			
O.1	Each organization shall assure training of appropriate individuals.	O 4.0 5.0	TQ-FC-113
O.1.a	Each facility shall train members of the ERO.	O 5.0	TQ-FC-113
O.1.b	State/local applicability	O 6.0	N/A
O.2	Training shall include drills.	N 2.0	TQ-FC-113
O.3	Licensee training for First Aid teams to include ARC Multi-Media or equivalent.	O 1.0	TQ-AA-174
O.4	Each organization shall establish a training program for ERO. Training shall be in the following categories:		
O.4.a	Directors or coordinators of EROs;	O 5.0	TQ-FC-113
O.4.b	Accident assessment personnel;	O 5.0	TQ-FC-113
O.4.c	Rad Mon Teams and rad analysis personnel;	O 5.0	TQ-FC-113
O.4.d	Police, security and fire fighting personnel;	O 6.0	EP-FC-10 SY-AA-150
O.4.e	Repair and damage control/correctional action teams (onsite);	O 5.0	TQ-FC-113
O.4.f	First aid and rescue personnel;	O 1.0 6.0	TQ-AA-173
O.4.g	Local support services personnel, including CD/Emergency Services personnel;	O 6.0	EP-FC-10
O.4.h	Medical Support Personnel;	L 3.2 O 6.0	TQ-AA-173
O.4.i	Licensee Headquarters support personnel;	O 4.0	TQ-FC-113 Crisis Communication Plan
O.4.j	Personnel responsible for transmission of emergency information and instructions.	O 4.0	TQ-FC-113
O.5	Initial and annual retraining.	O 5.0	TQ-FC-113

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>P. Responsibility for the Planning Effort; Development, Periodic Review and Distribution of Emergency Plans</b>			
P.1	Each organization shall provide for the training of individuals responsible for the planning effort.	P 1.0	EP-FC-11
P.2	Each organization shall identify by title the individual with overall planning authority;	P 1.0	EP-FC-11
P.3	Each organization will designate an Emergency Planning Coordinator.	P 1.0	EP-FC-11
P.4	Each organization shall update its plan and agreements as needed, review and certify it to be current on an annual basis. Changes will take into consideration items from drills and exercises.	P 2.0	EP-FC-120
P.5	Plans and plan changes shall be forwarded to all organizations and appropriate persons with EP responsibility. Revised pages dated and marked to show changes.	P 2.0	EP-FC-120
P.6	List supporting plans and source.	APPEN B	N/A
P.7	Each plan shall contain an appendix listing procedures required to implement the plan. The listing shall include the sections of the plan to be implemented by each procedure.	APPEN C	N/A
P.8	Each plan shall contain a table of contents. Plans submitted for review should be cross-referenced to these criteria.	APPEN C	N/A
P.9	Independent review of the plans.	P 3.0	EP-FC-120
P.10	Quarterly update of plan telephone numbers.	P 4.0	EP-FC-124

Refer to Attachment 1 – PSRERP Titles, for names of PSRERP Sections

Refer to Attachment 2 – EPIP Titles, for names of EPIP's

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

Attachment 1 – PSRERP Titles

Document	Document Title
<a href="#">PSRERP</a>	Radiological Response Plan For Fort Calhoun Station
<a href="#">PSRERP-SECTION A</a>	Assignment of Organizational Responsibility (Organizational Control)
<a href="#">PSRERP-SECTION B</a>	Organizational Control of Emergencies
<a href="#">PSRERP-SECTION C</a>	Emergency Response Support and Resources
<a href="#">PSRERP-SECTION D</a>	Emergency Classification System
<a href="#">PSRERP-SECTION E</a>	Notification Methods and Procedures
<a href="#">PSRERP-SECTION F</a>	Emergency Communications
<a href="#">PSRERP-SECTION G</a>	Public Education and Information
<a href="#">PSRERP-SECTION H</a>	Emergency Facilities and Equipment
<a href="#">PSRERP-SECTION I</a>	Accident Assessment
<a href="#">PSRERP-SECTION J</a>	Protective Response
<a href="#">PSRERP-SECTION K</a>	Radiological Exposure Control
<a href="#">PSRERP-SECTION L</a>	Medical and Public Health Support
<a href="#">PSRERP-SECTION M</a>	Recovery and Reentry Planning and Post Accident Operations
<a href="#">PSRERP-SECTION N</a>	Exercises and Drills
<a href="#">PSRERP-SECTION O</a>	Radiological Emergency Response Training
<a href="#">PSRERP-SECTION P</a>	Responsibility for the Planning Effort: Development, Periodic Review and Distribution
<a href="#">PSRERP-APPENDIX A</a>	Letters of Agreement
<a href="#">PSRERP-APPENDIX B</a>	Supporting Emergency Plans
<a href="#">PSRERP-APPENDIX C</a>	NUREG/RERP/Implementing Procedure Cross Reference List
<a href="#">PSRERP-APPENDIX D</a>	OPPD Resolution #4731, Radiological Emergency Response Plan Authority

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

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PSRERP-APPENDIX E	Definitions and Abbreviations
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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

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## Attachment 2 – EPIP Titles

<b>Document</b>	<b>Document Title</b>
EP-FC-1001 Addendum 3	EMERGENCY ACTION LEVELS FORT CALHOUN STATION
EP-FC-110	ASSESSMENT OF EMERGENCIES
EP-FC-111	EMERGENCY CLASSIFICATION AND PROTECTIVE ACTION RECOMMENDATIONS
EP-FC-112	EMERGENCY RESPONSE ORGANIZATION (ERO) EMERGENCY RESPONSE FACILITY (ERF) ACTIVATION AND OPERATION
EP-FC-112-100	CONTROL ROOM OPERATIONS
EP-FC-112-200	TSC ACTIVATION AND OPERATION
EP-FC-112-300	OPERATIONS SUPPORT CENTER ACTIVATION AND OPERATION
EP-FC-112-400	EMERGENCY OPERATIONS FACILITY ACTIVATION AND OPERATION
EP-FC-112-500	EMERGENCY ENVIRONMENTAL MONITORING
EP-FC-112-700	ALTERNATE FACILITY OPERATION
EP-FC-113	PERSONNEL PROTECTIVE ACTIONS
EP-FC-114	NOTIFICATIONS
EP-FC-115	TERMINATION AND RECOVERY

OPPD RESOLUTION # 4731, RADIOLOGICAL EMERGENCY RESPONSE PLAN  
AUTHORITY

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BOARD OF DIRECTORS

## Board Action

January 13, 1997

### ITEM

Renewal and Update of Board Resolution No. 3083 for the Fort Calhoun Station (FCS) Radiological Emergency Response Plan (RERP).

### PURPOSE

Update the current Board Resolution which is Appendix D to the FCS RERP to reflect the development of several guidance documents for radiological emergency preparedness that has been implemented since the initial issuance of NUREG-0654/FEMA-REP-1, Revision 1, dated November 1980. Nuclear power facilities are no longer required to maintain strict adherence to the specific criteria in NUREG-0654/FEMA-REP-1.

### FACTS

- a. Requirements for strict adherence to NUREG-0654/FEMA-REP-1 were removed from Section 10 of the Code of Federal Regulations, Part 50, in the late 1980's.
- b. The Fort Calhoun Station has adopted several response concepts from other emergency preparedness documents, including; the Nuclear Regulatory Commission's (NRC) Response Technical Manual, the Nuclear Energy Institute's Alternative Emergency Action Levels as approved by the NRC, various radiological emergency preparedness guidance documents issued by the Federal Emergency Management Agency, and other alternative guidance which has been approved by the NRC.
- c. 10CFR50, Appendix E, Section IV.A.2.a. requires a "detail discussion" of; "Authorities, responsibilities, and duties of the individual(s) who will take charge during an emergency." The positions identified within the FCS RERP that must have full authority to take all necessary initial emergency response actions are classified as "Command and Control" positions.

### ACTION

Board approval of the Resolution.

RECOMMENDED:

Handwritten signature of W. G. Gates in cursive.

W. G. Gates

APPROVED FOR BOARD CONSIDERATION:

Handwritten signature of F. M. Petersen in cursive.

F. M. Petersen

WGG:llz

Attachment: Resolution

OPPD RESOLUTION # 4731, RADIOLOGICAL EMERGENCY RESPONSE PLAN  
AUTHORITY

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OMAHA PUBLIC POWER DISTRICT

**CERTIFIED COPY OF  
RESOLUTION NO. 4731**

*WHEREAS*, the United States nuclear industry has refined activities, personnel training, equipment and facilities required for immediate response to a nuclear incident since the March 28, 1979 accident at the Three Mile Island nuclear electric generating facility, and

*WHEREAS*, Title 10, Code of Federal Regulations, Part 50, entitled "Energy," contains the minimum requirements for a Radiological Emergency Preparedness (REP) program at any U.S. nuclear power reactor site, and

*WHEREAS*, additional guidance documents, such as, NUREG-0654, FEMA-REP-1, Revision 1, Nuclear Regulatory Commission's (NRC) Response Technical Manual, Federal Emergency Management Agency's various REP documents, and others, also contain activities which may be incorporated into a nuclear power reactor's radiological emergency preparedness (REP) program, and

*WHEREAS*, minimum REP acceptance criteria requires that each licensee shall designate personnel who shall have the authority and responsibility to immediately and unilaterally initiate any emergency actions, without prior Board approval, including awards of emergency related contracts and expenditures of District funds, as deemed absolutely necessary.

*NOW, THEREFORE, BE IT RESOLVED* that the Board of Directors of Omaha Public Power District authorizes and directs the President and Chief Executive Officer of Omaha Public Power District, or designee, to appoint and train emergency "Command and Control" positions to take immediate and decisive actions following any occurrence at the Fort Calhoun Station, which results in an emergency classification per the station's NRC approved Radiological Emergency Response Plan, to mitigate the consequences of the occurrence as to protect the health and safety of the public and plant personnel and minimize any impact to the environment.

I HEREBY CERTIFY THAT THE FOREGOING IS A TRUE AND CORRECT COPY OF RESOLUTION NO. 4731 ADOPTED BY THE BOARD OF DIRECTORS OF THE OMAHA PUBLIC POWER DISTRICT AT A MEETING HELD ON JANUARY 15, 1998.



  
Assistant Secretary

## DEFINITIONS AND ABBREVIATIONS

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### 1.0 DEFINITIONS AND ABBREVIATIONS

- 1.1 ALARA - As Low As is Reasonably Achievable - Means making every reasonable effort to maintain exposures to radiation as far below the dose limits as is practical consistent with the purpose for which the licensed activity is undertaken, taking into account the state of technology, the economics of improvements in relation to state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy and licensed materials in the public interest
- 1.2 ANS - Alert Notification System - Described in Section E
- 1.3 AR - Action Request
- 1.4 Assessment Actions - The appropriate actions taken during or following an accident evaluation before implementing the specific corrective and/or protective actions
- 1.5 CDE - Committed Dose Equivalent - ( $H_{T50}$ ) The dose equivalent to organs or tissues of reference (T) that will be received from an intake of radioactive material by an individual during the 50 year period following the intake
- 1.6 CFR - Code of Federal Regulations
- 1.7 CHP - Conference Health Physics Network - Described in Section E
- 1.8 Committed Effective Dose Equivalent - ( $H_{E50}$ ) Sum of the products of the weighing factors applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to these organs or tissues
- 1.9 Control Room - Functions described in Section H
- 1.10 COP - Conference Operations (Phone) Network- Described in Section E
- 1.11 Corrective Actions - Measures taken to correct or mitigate an emergency condition at its origin in order to prevent an uncontrolled release of radioactive material or reduce the magnitude of the release.
- 1.12 CR - Control Room - Functions described in Section H
- 1.13 Deep Dose Equivalent - (DDE or  $H_d$ ) applies to external whole-body exposure, is the dose equivalent at a tissue depth of 1 cm ( $1000 \text{ mg/cm}^2$ )
- 1.14  $\Delta T$  - Delta Temperature - The difference in temperature between points 10 meters and 60 meters above the ground in units of centigrade. The value displayed on the ERFCs equates to;  $100\text{m } \Delta T = [(T @ 60\text{m} - T @ 10\text{m}) \times 2]$

## DEFINITIONS AND ABBREVIATIONS

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- 1.15 DOE - Department Of Energy - Role is discussed in Section C
- 1.16 Drill - Described in Section N
- 1.17 DSC – Dry Shielded Canister
- 1.18 DSO - Director of Site Operation (NRC)
- 1.19 EAD Electronic Alarming Dosimeter
- 1.20 URI/RASCAL - Emergency Assessment of Gaseous and Liquid Effluent-Section E
- 1.21 EAL - Emergency Action Level - Described in Section D
- 1.22 EAS - (Emergency Alerting System) - Described in Section E
- 1.23 ECCS - Emergency Core Cooling System
- 1.24 ENS - (FTS-ENS) Federal Telephone System Emergency Notification System - Described in Section F
- 1.25 EOC - Emergency Operations Center - Discussed in Sections C and F
- 1.26 EOF - Emergency Operations Facility - Functions described in Section H
- 1.27 EPA - Environmental Protection Agency - Role Discussed in Section C
- 1.28 EPIP - Emergency Plan Implementing Procedures
- 1.29 EPT - Emergency Plan Test - Described in Section P
- 1.30 EPZ - Emergency Planning Zone - Described in Section J
- 1.31 ERDS - Emergency Response Data System - Described in Section F
- 1.32 ERFCS - Emergency Response Facilities Computer System - Described in Section H
- 1.33 ERO - Emergency Response Organization - Duties Described in Section B
- 1.34 Exercise - Described in Section N
- 1.35 FAA - Federal Aviation Administration - Role discussed in Section C
- 1.36 FEMA - Federal Emergency Management Agency - Role described in Section C
- 1.37 FTS - Federal Telecommunications Systems (NRC Phone Circuits) - Discussed in Section F

## DEFINITIONS AND ABBREVIATIONS

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- 1.38 GAR - Governor's Authorized Representative - Authorized by letters in Appendix A
- 1.39 HPN - Health Physics Network - Described in Section F
- 1.40 HSM – Horizontal Storage Module
- 1.41 ISFSI – Independent Spent Fuel Storage Installation
- 1.42 IPZ - Ingestion Pathway Zone - Discussed in Section J
- 1.43 JIC – Joint Information Center - Functions discussed in Section B
- 1.44 NAWAS - National Warning System - Functions described in Section F
- 1.45 NRC - Nuclear Regulatory Commission - Role discussed in Section C
- 1.46 NWS - National Weather Service - Role discussed in Section C
- 1.47 Operation Liaison Network- Described in Section F
- 1.48 OSC - Operation Support Center - Functions described in Section H
- 1.49 PABX - Private Automatic Branch Exchanges - Function described in Section H
- 1.50 PAG - Protective Action Guideline - Discussed in Section J
- 1.51 PAR - Protective Action Recommendation - Discussed in Section J
- 1.52 Protective Actions - Discussed in Section J
- 1.53 REM - The special unit of any of the quantities expressed as dose equivalent. The dose equivalent in rems is equal to the absorbed dose in rads multiplied by the quality factor (1 rem = .01 sievert).
- 1.54 SDE - Shallow Dose Equivalent - Is the dose equivalent at a tissue depth of 0.007 cm or 7 mg/cm<sup>2</sup> averaged over an area of 10 cm<sup>2</sup>. It applies to the external exposure of the skin or an extremity.
- 1.55 TEDE - Total Effective Dose Equivalent - The sum of the deep-dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures). This represents the combined dose (DDE+CEDE) to a worker.
- 1.56 TLD - Thermoluminescent Dosimeter - A device worn by plant personnel to measure the amount of radiation received.
- 1.57 TSC - Technical Support Center - Functions described in Section H

## DEFINITIONS AND ABBREVIATIONS

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1.58 UNMC Regional Radiation Health Center - Role discussed in Section L

1.59 USAR - Updated Safety Analysis Report

**OMAHA PUBLIC POWER DISTRICT**

**FORT CALHOUN STATION**

**DOCKET NUMBER 50-285 / LICENSE NUMBER DPR-40**

**ATTACHMENT 4**

**ANALYSIS OF PROPOSED POST-SHUTDOWN ON-SHIFT  
STAFFING**

**OPPD NUCLEAR**

**POST-SHUTDOWN  
RADIOLOGICAL EMERGENCY  
RESPONSE PLAN  
FOR FORT CALHOUN STATION**

## POST SHUTDOWN RADIOLOGICAL EMERGENCY RESPONSE PLAN

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### AREA DESCRIPTION

#### 1.0 PLANT LOCATION

Fort Calhoun Station is located midway between Fort Calhoun and Blair, Nebraska, on the west bank of the Missouri River. The site consists of approximately 660.46 acres with an additional exclusion area of 582.18 acres on the northeast bank of the river directly opposite the plant buildings. The Fort Calhoun Station includes the Independent Spent Fuel Storage Installation (ISFSI), located within the protected area, centered approximately 200 meters north-northwest of the Containment Building. The distance from the reactor containment to the nearest site boundary is approximately 910 meters; and the distance to the nearest residence is beyond the site boundary. Except for the city of Blair and the villages of Fort Calhoun and Kennard, the area within a ten mile radius is predominantly rural. The land use within the ten mile radius is primarily devoted to general farming. There are no private businesses or public recreational facilities on the plant property. The DeSoto National Wildlife Refuge occupies approximately 7821 acres east of the plant site. This area is open to the public for day use year-round. Visitors to the refuge generally use areas from two to five miles from the plant. Estimates by the U.S. Fish and Wildlife Service place annual usage of the facility at approximately 120,000 for the Visitors Center and 400,000 for the refuge. The expected maximum daily usage of the facility has been placed at 2500 visitors for a winter weekday and 5000 on a summer weekend. The Boyer Chute Federal Recreation Area is a day use facility occupying approximately 2000 acres southeast of the plant site. Visitors to the recreation area generally use areas seven to ten miles from the plant. The estimates for annual usage of this facility is approximately 50,000 visitors.

The State of Nebraska operates the Fort Atkinson State Historic Park five and half miles southeast of the plant site. This day use facility is mostly seasonal and estimates place annual usage at 60,000. The State of Iowa maintains Wilson Island State Park with 275 camping spaces south of the DeSoto National Wildlife Refuge and four miles southeast of the plant site. The estimates for usage of this facility range from 500 on a winter weekday to 1000 on a summer weekend.

Two private facilities lie to the north of the plant along the Missouri River. The Cottonwood Marina is located approximately four and a half miles from the plant. Estimates place summer weekend usage at 200 people. Riverland Resort Park is a private campground lying directly south of Cottonwood Marina and ranging from four to four and a half miles from the plant. The campground has approximately 235 campsites and is open from April to October.

## POST SHUTDOWN RADIOLOGICAL EMERGENCY RESPONSE PLAN

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### **2.0 AREA INDUSTRIES**

A listing of various industries located within a ten mile radius of the Fort Calhoun Station, including firm name, product, number of employees, and location from the plant site is contained in the Updated Safety Analysis Report.

### **3.0 AREA WATER SUPPLIES**

Local public drinking water supplies are not taken from the Missouri River in this area. The first downstream intake is the city of Omaha approximately 19.5 miles downstream. Industrial water use is limited to cooling purposes in the Omaha area. Drinking water near the Fort Calhoun Station is obtained from either well or reservoirs. Since the known public and private water supplies originate at elevations higher than the river, radioactive liquids that might be discharged from the plant into the river should not contaminate these supplies.

There are also many private wells in the region which draw primarily upon ground water rather than on springs or other surface sources. Several marinas are located along the Missouri River, between 3 miles upstream from Blair and Omaha, 18 miles downstream. In the event of a significant waterborne release incident from the Fort Calhoun Station, the Nebraska Department of Environmental Control acting in conjunction with the Nebraska Department of Health, Division of Radiological Health and the U. S. Coast Guard are prepared to notify all downstream users of Missouri River water. Notification is made through OPPD management directly to the Metropolitan Utilities District (MUD) in the event of an inadvertent liquid release to the river. Swimming, boating and other recreational activities involving river water can be controlled by the Coast Guard until adequate surveys have been taken to determine when normal activities may be resumed.

**POST SHUTDOWN RADIOLOGICAL EMERGENCY RESPONSE PLAN**

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**PURPOSE OF THE EMERGENCY PLAN**

The purpose of the Fort Calhoun Station "Post-Shutdown Radiological Emergency Response Plan" (PSRERP) is to delineate an organization for coping with emergencies, to classify emergencies according to severity, define and assign responsibilities and authorities, and to clearly outline the most effective course of action and protective measures required to mitigate the consequences of an accident and to safeguard the public and station personnel in the event of an incident. The Emergency Plan Implementing Procedures (EPIPs), Radiation Protection procedures, and other station references are available at the plant to further assist personnel during abnormal occurrences. The various emergency procedures are put into effect whenever a system, component or circuit failure could lead to a personnel hazard or major equipment failure. Procedures are sufficiently detailed so that the plant is maintained in a safe condition. The various procedures include such items as radiation hazards, weather conditions and availability of technical and plant personnel.

## POST SHUTDOWN RADIOLOGICAL EMERGENCY RESPONSE PLAN

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### ACCIDENT CONSIDERATIONS

#### 1.0 **FUEL HANDLING ACCIDENT**

The possibility of an incident during fuel handling is unlikely due to the many physical limitations imposed on fuel handling operations and systems. In addition, administrative restrictions placed on fuel handling procedures provide greater control. Nevertheless, the offsite consequences of dropping a spent fuel assembly and damaging the entire assembly have been evaluated and are documented in the Fort Calhoun Station, Unit No. 1 USAR, Section 14.18. Emergency onsite and offsite monitoring practices would begin immediately following the accident to determine actual consequences, and appropriate emergency actions would be taken. Emergency procedures addressing a Fuel Handling Incident provide emergency actions for this mishap.

The transfer cask that is used to transfer spent fuel (32 assembly capacity) contained within a dry shielded canister (DSC) from the Auxiliary Building to the ISFSI, has been analyzed for an 80 inch drop accident in the NUHOMS FSAR. The analysis determined that the DSC would retain its leak tight integrity for this 80 inch drop. This bounds the height of the transfer cask while it is being moved by the heavy-haul trailer between the Auxiliary Building and the ISFSI so that a release of radioactivity due to a drop event during transfer operations would not occur.

#### 2.0 **FIRES**

##### 2.1 Internal Plant Fires (within the Protected Area)

Internal Plant fires are normally handled by the station's Fire Brigade, comprised of trained individuals from the Operations Department and Radiation Protection Department. All efforts are made to prevent the spread of airborne contamination should the fires occur within the Radiological Controlled Area.

##### 2.2 External Fires (outside the Protected Area)

External fires are controlled by local fire department response. In the event high airborne contamination constitutes a possible hazard to areas outside of the protected area, offsite survey teams/personnel can be dispatched immediately.

## POST SHUTDOWN RADIOLOGICAL EMERGENCY RESPONSE PLAN

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### 3.0 EXPLOSION

Because of the accumulation of waste gases in the waste gas decay tanks, the possibility and consequences of an explosion have been considered. An explosion could result in an unexpected, uncontrolled release to the atmosphere of radioactive fission gases that were stored in the waste gas system. A failure of any of the waste gas decay tanks or associated piping could also result in a release of gaseous activity. The noble gases stored in the tanks would diffuse and become diluted during their transport to the site boundary. The projected Deep Dose Equivalent (DDE) at the exclusion area boundary would be less than 1.0 Rem. This conservative analysis is based upon 1% fuel cladding defects, and accumulation of all noble gases without release over a full core cycle. Emergency procedures addressing a Waste Gas Incident, would be placed into effect immediately and offsite monitoring teams would be dispatched downwind.

The ISFSI horizontal storage modules (HSM) are designed to protect the DSC's from the effects of explosions to ensure the DSC's retain their leak-tight integrity and prevent a release of radioactivity to the atmosphere. An analysis of the haul route used to transfer the DSC's from the Auxiliary Building to the ISFSI was performed, and it identified administrative controls needed to prevent explosions in the vicinity of the transfer cask (designed to withstand 3 psi overpressure) during spent fuel transfer operations.

### 4.0 TOXIC CHEMICAL RELEASE ACCIDENTS

The primary toxic chemical release accidents which may result in toxic gas concentrations at Fort Calhoun Station are shown below:

<u>TOXIC CHEMICAL</u>	<u>ACCIDENT</u>
Ammonia (NH <sub>3</sub> )	Rupture of two 25,000 ton offsite refrigerated tanks.
Ammonia	Rupture of two 30,000 gal. offsite non-refrigerated tanks.
Ammonia	Rupture of a 78 ton railroad tank car.
Ammonia	Rupture of a 2 ton tank truck.

The above accidents will not pose a hazard to control room personnel, due to toxic gas monitors located at the fresh air intake of the control room, which isolates the control room before the gases reach the toxic limit. The stringent odor of ammonia makes station personnel immediately aware of any leakage or toxic gas cloud. Spent Fuel storage at the ISFSI relies on passive means of decay heat removal (natural convection), so a toxic gas release does not challenge nuclear safety.

The toxic gas monitors sample for NH<sub>3</sub> and continuously monitor the fresh air to the control room during normal plant operations.

## POST SHUTDOWN RADIOLOGICAL EMERGENCY RESPONSE PLAN

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At different phases of plant operation, Hydrogen and/or Nitrogen gases blanket the volume control tank and the waste gas system. Considering that the deleterious effect of these gases is the exclusion of oxygen, a release to the atmosphere diminishes the harmful effect and a serious hazard is eliminated.

In the event of an offsite accidental release of chemicals, within a five (5) mile radius of the Fort Calhoun Station, the Blair Fire Department emergency procedures require notification to the Fort Calhoun Station. The counties of Washington (Nebraska) and Harrison (Iowa) have agreed to notify the Fort Calhoun Station when hazardous chemical accidents occur within five miles of the station. Appropriate action is taken, especially in the control room, to ensure that air remains breathable. For long duration toxic accidents, six (6) hours of compressed air is available for five (5) control room operators coupled with provisions to obtain additional air within this time period.

### **5.0 PERSONNEL INJURY**

A fully stocked First Aid Room is available in the Plant. Immediate and temporary care may be given to the injured person using standard First Aid practices. If the injury involves contamination, efforts to decontaminate the injured person to reasonable levels are made prior to transfer to the First Aid Room or to offsite medical facilities. If decontamination is not practical, the injured person is covered in such a manner as to minimize the spread of contamination until either medical aid can be obtained or until the injured person can be transported to the UNMC Regional Radiation Health Center.

### **6.0 NATURAL DISASTERS**

A natural disaster may occur which could initiate any of the accidents previously discussed. The Spent Fuel Pool and ISFSI are designed to withstand natural phenomena, including the maximum hypothetical earthquake, design basis tornado and tornado-driven missiles, with no release of radioactivity.

## ASSIGNMENT OF ORGANIZATIONAL RESPONSIBILITY (ORGANIZATIONAL CONTROL)

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### 1.0 **NON-OPPD SUPPORT ORGANIZATIONS**

The following organizations may respond to a declared emergency at the Fort Calhoun Station. Each of these groups are capable of 24 hour response and operation. The details of their responsibilities are contained in their respective emergency response plans/procedures or if applicable, a Letter of Agreement between that organization and OPPD. Figure A-1 outlines the organizational interrelationships of various response organizations.

#### 1.1 Law Enforcement Support Organizations

- 1.1.1 Nebraska State Patrol
- 1.1.2 Iowa State Patrol
- 1.1.3 Washington County Sheriff's Department
- 1.1.4 Pottawattamie County Sheriff's Department
- 1.1.5 Harrison County Sheriff's Department
- 1.1.6 Douglas County Sheriff's Department

#### 1.2 Fire and Rescue Support Organizations

- 1.2.1 Blair Fire Department and Rescue Squad
- 1.2.2 Fort Calhoun Fire/Rescue
- 1.2.3 Missouri Valley Fire & Rescue Squad
- 1.2.4 Council Bluffs Fire and Ambulance Department

#### 1.3 Medical Support Organization

- 1.3.1 UNMC Regional Radiation Health Center

#### 1.4 Nebraska's Governmental Support Organizations

- 1.4.1 Nebraska Emergency Management Agency
- 1.4.2 Washington County Emergency Management Agency
- 1.4.3 Douglas County Emergency Management Agency

## ASSIGNMENT OF ORGANIZATIONAL RESPONSIBILITY (ORGANIZATIONAL CONTROL)

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- 1.4.4 Nebraska Health and Human Services, Regulation and Licensure
- 1.4.5 Region 5/6 Emergency Management Agency
- 1.4.6 Dodge County Emergency Management Agency
- 1.4.7 Sarpy County Emergency Management Agency
- 1.5 Iowa's Governmental Support Organizations
  - 1.5.1 Iowa Homeland Security and Emergency Management Division
  - 1.5.2 Iowa Department of Public Health
  - 1.5.3 Harrison County Emergency Management Agency (via Board of Supervisors)
  - 1.5.4 Pottawattamie County Emergency Management Agency (via Board of Supervisors)
  - 1.5.5 Pottawattamie County Division of Communications
  - 1.5.6 Crawford County Emergency Management Agency
- 1.6 Federal Government Support Organizations
  - 1.6.1 U.S. Coast Guard
  - 1.6.2 Environmental Protection Agency (EPA)
  - 1.6.3 Department of Energy (DOE)
  - 1.6.4 National Weather Service (NWS)
  - 1.6.5 U.S. Nuclear Regulatory Commission (NRC)
  - 1.6.6 Federal Emergency Management Agency (FEMA) Region VII
  - 1.6.7 Federal Aviation Administration (FAA)
  - 1.6.8 Department of the Interior, Branch of Global Seismology

## ASSIGNMENT OF ORGANIZATIONAL RESPONSIBILITY (ORGANIZATIONAL CONTROL)

### 1.7 Industrial Support Organizations

1.7.1 Westinghouse Electric

1.7.2 Union Pacific Railroad

1.7.3 Institute of Nuclear Power Operations (INPO)

1.7.4 Institute of Nuclear Power Operations/Electric Power Research Institute/Nuclear Energy Institute

### 1.8 Other Support Organizations

1.8.1 Metropolitan Utilities District

1.8.2 Nebraska Public Power District (Cooper Nuclear Station)

1.8.3 National Weather Service

### 1.9 Monitoring and Decontamination Support Organizations

1.9.1 Omaha Fire Department Emergency Worker Decon

## **2.0 OPPD CONCEPT OF EMERGENCY OPERATIONS**

2.1 OPPD's overall goals are to mitigate any emergency conditions which may occur at the Fort Calhoun Station and to provide information and support to State and Local agencies needed to protect the health and safety of the general public.

2.2 A predesignated group is assigned to various roles to ensure capable emergency response and mitigation at the Fort Calhoun Station. These assignments are made to ensure that the administrative, managerial and technical support needed for accident mitigation are met. A sufficient number of individuals are assigned to these positions to ensure around-the-clock and continued long term support.

2.3 Responsibility for emergency response initially lies with the Shift Manager. If the Technical Support Center (TSC) is activated, command and control may be transferred to the Site Director. The Emergency Director in the Emergency Operations Facility (EOF) may assume command and control if that facility is activated. The command and control position is responsible for ensuring the continuity of resources throughout an event.

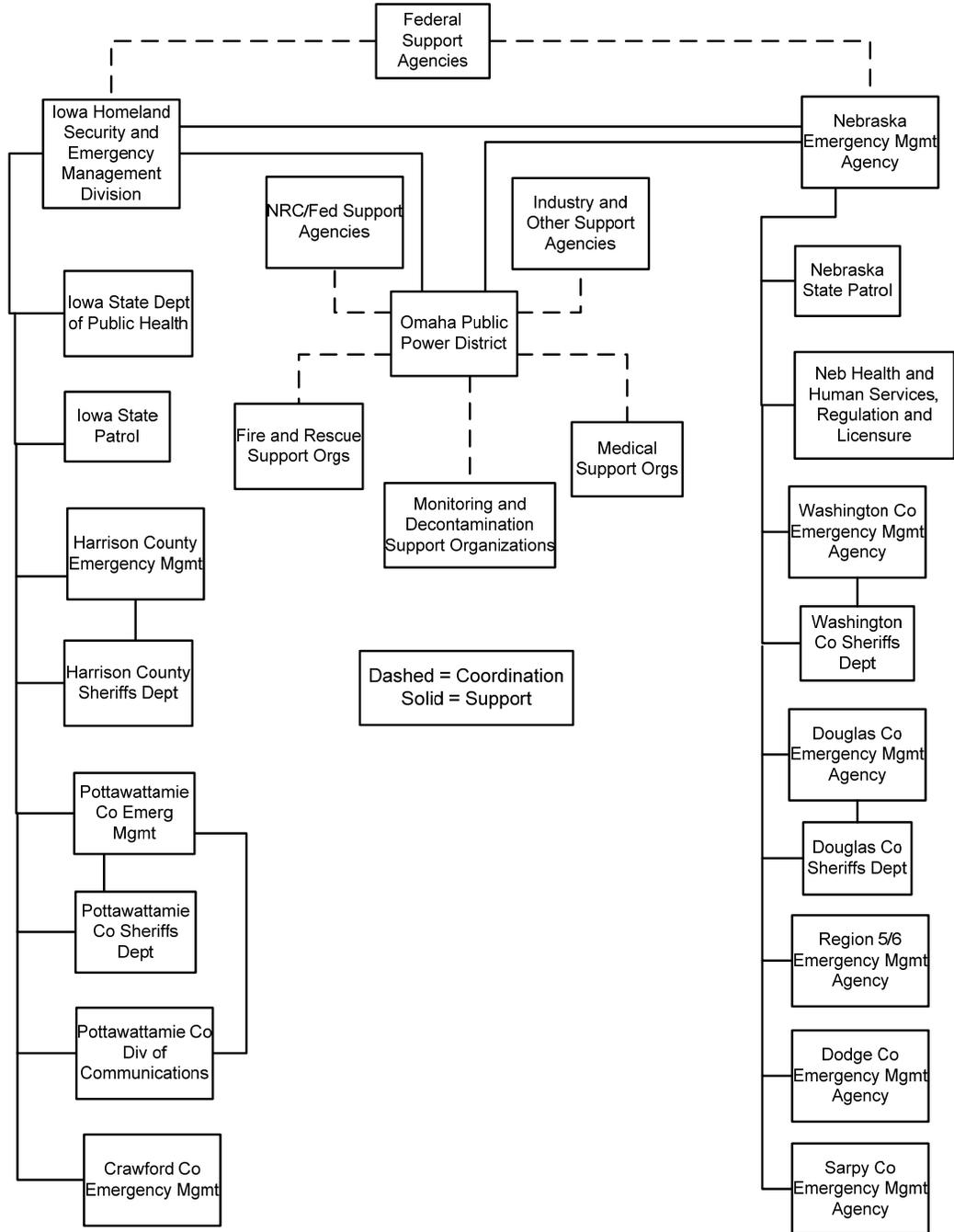
## ASSIGNMENT OF ORGANIZATIONAL RESPONSIBILITY (ORGANIZATIONAL CONTROL)

### **3.0 LETTERS OF AGREEMENT**

- 3.1 Letters of agreement between OPPD and the organizations outlining their roles in the event of an emergency are on file with the Fort Calhoun Station Emergency Planning Department. These letters are reviewed annually in accordance with Emergency Preparedness recurring tasks.

## ASSIGNMENT OF ORGANIZATIONAL RESPONSIBILITY (ORGANIZATIONAL CONTROL)

Figure A-1 - Organizational Interrelationships



## ORGANIZATIONAL CONTROL OF EMERGENCIES

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### **1.0 PURPOSE AND SCOPE**

#### 1.1 Purpose

- 1.1.1 This PSRERP Section establishes the organizational requirements, reporting locations and duties for the Fort Calhoun Station (FCS) Emergency Response Organization (ERO).

#### 1.2 Scope

- 1.2.1 The positions established in this PSRERP Section upon declaration of an emergency will comprise the ERO. The ERO's responsibility is to mitigate the consequences of an event using the facilities and resources described elsewhere in the PSRERP and the supporting Emergency Plan Implementing Procedures (EPIP).

### **2.0 DEFINITIONS**

None

### **3.0 RESPONSIBILITIES**

#### 3.1 Emergency Response Organization (ERO):

- 3.1.1 OPPD has issued a resolution which authorizes the ERO to provide an immediate and decisive response to mitigate the consequences of any nuclear emergency and for the protection of the health and safety of the public. Resolution No. 4731, as approved by the Board of Directors on January 15, 1998, is Appendix D of the PSRERP.
- 3.1.2 The ERO is intended to provide a pre-qualified organization capable of fulfilling the actions described above. The ERO is not confined to utilize only those personnel that are currently listed as qualified. Other OPPD personnel may be assigned and utilized to perform necessary functions at the discretion of the Command and Control positions. Assignment of any non-ERO qualified individual(s) should include adequate instruction to ensure the individual(s) is capable of performing the necessary functions and is knowledgeable of any potential hazards associated with responding to the designated facility.

#### 3.2 Command and Control:

- 3.2.1 The position performing the duties of the Emergency Director is referred to as the Command and Control Position.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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- 3.2.2 The Command and Control position has the following responsibilities that cannot be delegated to other personnel. The position may assign other personnel to assist in conducting the actions necessary, but the responsibility of their completion rests with the position, until relieved by another Command and Control position or qualified individual, or the emergency is terminated:
- A. Overall command and control of the ERO.
  - B. Ensuring that the proper classification of the emergency has been made in accordance with the established EAL/Classification scheme and is periodically reviewed to determine if the classification should be upgraded, downgraded or terminated.
  - C. Ensuring that all required notifications are made to appropriate state, local and federal officials.
  - D. Ensuring that appropriate Protective Action Recommendations (PARs) are provided to offsite officials.
  - E. Authorizing OPPD emergency worker exposure extensions beyond the Federal Radiation Protection Guidance.
  - F. Authorizing issuance of Potassium Iodide for OPPD emergency workers.
- 3.2.3 The Command and Control position also has the following responsibilities that can be delegated to other personnel, as necessary:
- A. Requests for assistance from federal agencies.
  - B. Authorizing any emergency information to be released to the media or the general public.
  - C. Coordinating the transfer of the emergency information from the ERO to other OPPD and non-OPPD organizations called upon to assist.
  - D. Ensuring a timely and complete turnover of information to any qualified relief.
  - E. Declaring the termination of an emergency and transfer into a Recovery Operations Organization, when appropriate.
  - F. Providing information to the authorized representatives of the states of Nebraska and Iowa, and associated local governments.
  - G. Ensuring that the plant is in compliance with Technical Specifications and other licensee conditions, and if deviations are necessary to protect the public health and safety, they are approved, as a minimum, by a Senior Reactor Operator, prior to taking the action.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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### 4.0 PROCEDURE

#### 4.1 ERO Staff On-Shift

4.1.1 The staffing of the normal operating organization for each shift is shown in Table B-1. This staffing consists of, as a minimum:

- One Shift Manager (Senior Reactor Operator (SRO)/Certified Fuel Handler (CFH))
- One Control Room Operator (SRO or Reactor Operator (RO)/CFH)
- One Equipment Operator/Non-Certified Operator (NCO)
- One Radiation Protection Technician
- Additionally, there are several shift Security personnel assigned

4.1.2 All or part of these shift personnel may comprise the initial ERO, and are responsible for taking immediate protective measures in any emergency and implementing this Post-Shutdown Radiological Emergency Response Plan when necessary.

#### 4.2 Activation of the ERO

4.2.1 At a Notification of Unusual Event (NOUE), the Shift Manager may elect to not activate the ERO. In this instance, a notification to certain management personnel is performed and other personnel may be notified to assist as necessary.

A. If the Shift Manager elects to activate the ERO, the notification process will call out the entire ERO (with the exception of the JIC).

4.2.2 It is OPPD's goal that the ERO personnel can staff their emergency positions within one hour following declaration of an Alert or higher classification. In the event of adverse weather and/or other conditions that may limit or slow response, either manmade or natural, it is understood that staffing time may exceed this goal.

#### 4.3 Facility Activation and Operation

4.3.1 There are some functional group activities that may be performed within an Emergency Response Facility prior to actually activating the facility. To be beneficial to the Command and Control facility, these activities, such as dose assessment and field team functions, are dependent upon the establishment of proper communications between the facilities.

4.3.2 OPPD Emergency Response Facilities are considered activated when minimum staffing and basic setup requirements have been attained to allow the facility to provide minimum support to the operating staff and other facilities.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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- A. It is OPPD's goal that the OSC, EOF and TSC be activated within one hour following an Alert classification. The JIC will be activated following a Site Area or General Emergency classification, and can be activated at an earlier classification based on the decisions of the Corporate Communications Division.

4.3.3 Minimum staffing for activation of the OSC is as follows:

- One OSC Director
- One Radiation Protection Technician
- One other person to form a team

4.3.4 Minimum staffing for activation of the TSC is as follows:

- One Site Director
- One TSC Protective Measures Coordinator
- One Engineering Coordinator

4.3.5 Minimum staffing for activation of the EOF is as follows:

- One Emergency Director
- One EOF COP Communicator
- One EOF Protective Measures Manager
- One EOF Dose Assessment Specialist

4.3.6 OPPD Emergency Response Facilities are considered augmented when all minimum and augmenting staffing positions are filled.

4.3.7 Selected support staff, which assists the minimum and augmenting staff, is shown on Attachment 1 - Table B-1 - OPPD Emergency Response Organization (ERO) Functions and Shift Staff Augmentation Plan. The support staff is intended to supplement and enhance operation of their respective facilities. Additional personnel may respond.

4.3.8 If a toxic chemical/hazardous material or other significant event occurs that threatens the habitability of the station, an option exists to have all or part of the TSC and OSC staffs report to the EOF to provide assistance as necessary.

4.3.9 Some ERO personnel may elect to maintain an assistant position. This is acceptable when additional coordination of activities is required or to aid in the turnover process. The primary assignee must maintain overall responsibility of the position, and ensure that 24 hour staffing of the position can be implemented.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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### 4.4 Command and Control Positions

#### 4.4.1 The positions that have Emergency Director Authority are:

- The Shift Manager
- The Site Director
- The EOF Emergency Director

#### 4.4.2 The Shift Manager ERO duties are to:

- A. Perform as Emergency Director until properly relieved by a qualified position.
- B. Direct medical and fire response efforts.
- C. Coordinate in-plant operations response with the TSC and OSC. After being relieved by another Command and Control position, the Shift Manager will provide assistance and direction to the Control Room staff as necessary.
- D. Ensure Control Room communications are established with the TSC, OSC, and EOF.

#### 4.4.3 The Site Director position is intended to assume Command and Control functions from the Control Room if the EOF is not available or cannot assume Command and Control. This position may assume Command and Control at any emergency classification. The Site Director may assume Command and Control in the Control Room proper at any time. If the Site Director elects to assume Command and Control within the TSC, the TSC must meet activation requirements.

- A. The Site Director duties are to promptly relieve the Control Room Command and Control position and perform as Emergency Director until properly relieved by a qualified position, if the EOF is not available or cannot assume Command and Control. Additional duties of the Site Director are to:
  - 1. Manage the onsite activities of the ERO.
  - 2. Keep the Emergency Director informed of those onsite activities as necessary.

#### 4.4.4 The EOF Emergency Director position is intended to assume all Command and Control functions from the plant site. This position may assume Command and Control at any emergency classification, but the EOF must meet activation requirements prior to the transfer of Command and Control duties.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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- A. The Emergency Director duties are to promptly relieve the onsite Command and Control position and perform as Emergency Director until properly relieved by a qualified position or termination of the emergency response phase.

### 4.5 Control Room Positions

4.5.1 The following positions are on-shift staff, and augmenting positions for the Control Room. Additional Control Room support staffing is identified on Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization. Control Room on-shift staff positions are:

A. Shift Managers duties are described in Sections 4.2, 3.2 and 4.4.2.

B. Control Room Operator duties include:

- Assessment of plant conditions,
- Ensuring requirements of the AOPs are met, and
- Notifications as directed by the Shift Manager. These notifications include the following:
  - Required notifications to the states and counties
  - Notifications to the Emergency Response Organization

C. Equipment Operator/NCO duties include making repairs and corrective actions on plant equipment until augmented plant maintenance staff arrives. NCOs also assist in performing notifications/communications and dose assessment as needed.

D. Shift Radiation Protection Technician duties include conducting radiological accident assessment and support, offsite dose assessment and onsite in-plant surveys.

4.5.2 The Control Room (CR) Operations Liaison is an augmenting position. Duties include transmitting plant status/Control Room information, etc. to the TSC, OSC, and EOF.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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### 4.6 Technical Support Center Positions

4.6.1 The following are minimum staffing and augmenting positions for the Technical Support Center (TSC). Additional TSC support staffing is identified on Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization. Minimum staffing positions for the TSC are:

- A. Site Director duties are described in Steps 3.2 and 4.4.3.
- B. Engineering Coordinator duties include:
  - 1. Directing activities of engineering resources requested by the TSC.
  - 2. Analyzing plant problems and providing recommendations for plant modifications to mitigate the effects of the accident.
  - 3. Evaluating possible radiological release paths to the environment.
- C. Protective Measures Coordinator duties include:
  - 1. Coordinating the dispatch of the TSC field team from the site and performing field team direction until the EOF assumes this duty.
  - 2. Monitoring and coordinating on site dose assessment operations performed, and keep the Site Director informed of dose projections and field sample results.
  - 3. Evaluating site radiological conditions, and necessary personnel protective measures.
  - 4. Evaluating and making recommendations for plant evacuation and evacuation routes.
  - 5. Preparing and submitting state update information, including Protective Action Recommendations, to the Site Director for approval and transmittal to state and federal officials if TSC has Command and Control.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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### 4.6.2 Augmenting positions for the TSC are:

- A. TSC Field Team duties include providing off-site monitoring in the areas potentially affected by a radiological release.
- B. Operations Liaison duties include:
  - 1. Obtaining plant status/Control Room information from the Control Room Operations Liaison and transmitting this information to the TSC staff as needed. **[AR 11390]**
  - 2. Assisting the Site Director in formulating appropriate protective action recommendations when necessary.

### 4.7 Operations Support Center Positions

4.7.1 The following are minimum staffing and augmenting positions for the Operations Support Center (OSC). Additional OSC support staffing is identified on Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization. Minimum staffing positions for the OSC are:

#### B. OSC Director duties include:

- 1. Coordinating the development of plans for required maintenance activities.
- 2. Keeping the Site Director informed of OSC activities.
- 3. Coordinating emergency team response as requested by the TSC/Control Room to perform search and rescue, damage assessment, damage control, repair and modification, and in-plant radiological monitoring.

C. Radiation Protection Technician duties include coordination of on-site radiation protection activities.

D. One other person to form a team.

### 4.7.2 Augmenting positions for the OSC are:

- A. Chemistry Technician duties include evaluating and performing all chemistry activities on-site.
- B. Electrical Maintenance Technician duties include providing repairs and corrective actions for plant electrical equipment as directed.
- C. I&C Technician duties include providing repairs and corrective actions to

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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plant instruments as directed.

- D. Machinist or Steam Fitter Mechanic duties include providing repairs and corrective actions to plant mechanical equipment as directed.
- E. Radiation Protection Technicians (three positions) duties include providing radiological surveys and job coverage to repair and corrective action teams as directed.
- F. The Protective Measures Coordinator duties include coordinating all radiation protection activities onsite.

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### 4.8 Emergency Operations Facility Positions

4.8.2 The following positions are minimum staffing and augmented positions for the Emergency Operations Facility (EOF). Additional EOF support staffing is identified on Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization. Minimum staffing positions for the EOF are:

- A. Emergency Director duties are described in Section 3.2 and 4.4.4.
- B. COP Communicator duties include performing notifications as directed by the Command and Control position. These notifications include the following:
  - Required notifications to states and counties
  - Required notifications to the NRC
  - Notifications to the Emergency Response Organization. This position also assists in maintaining status boards within the EOF

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- C. Protective Measures Manager duties include:
  - 1. Directing dose assessment operations performed, coordinating OPPD field teams, and keeping the Emergency Director informed of projections and field survey results.
  - 2. Evaluating site radiological conditions and necessary personnel protective measures.
  - 3. Preparing and submitting state update information, including Protective Action Recommendations, to the Emergency Director, state and federal officials.
  - 4. Coordinating technical briefings for the offsite agencies as requested.
  - 5. Comparing dose projections against field team results.
  - 6. Comparing dose projections and field team results with state and federal agency results.
- D. Dose Assessment Specialist duties include performing offsite dose assessments and submitting the results to the Emergency Director for approval and transmittal to state and federal officials.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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### 4.8.3 Augmenting positions for the EOF are:

#### A. Administrative Logistics Manager duties include:

1. Coordinating administrative personnel support to the EOF.
2. Coordinating scheduling and callout of ERO personnel for 24 hour coverage.
3. Activating the Alert Notification System as requested.
4. Coordinating OPPD resources for the establishment of emergency logistics for the ERO, such as food, beverages, medical and administrative supplies, transportation, special equipment, etc.

#### B. The EOF Field Team duties include providing off-site monitoring in the areas potentially affected by a radiological release.

1. Field Team Specialist duties include coordinating the activities of the OPPD and state Field Teams to achieve the most efficient use of teams for plume tracking.

#### C. Information Specialist duties include:

1. Preparing information for use in periodic press releases.
2. At an Alert or higher emergency classification, submitting all press releases to the Emergency Director (or designee) for approval prior to forwarding the release to the JIC.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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- D. Operations Liaison duties include: 1) obtaining plant status/Control Room information from the Control Room Operations Liaison and transmitting this information to the EOF and NRC staff as needed; and, 2) assisting the Emergency Director in the review of classifications and formulating appropriate protective action recommendations when necessary. **[AR 11390]**

### 4.9 Joint Information Center Positions

#### 4.9.2 The Joint Information Center Manager duties include:

- A. Coordinating with government authorities and to provide periodic briefings and news releases to news media personnel.
- B. Providing public inquiry services.
- C. Keeping OPPD personnel, including senior management, informed of the status of the emergency and emergency response effort. OPPD's Corporate Crisis Communication Plan lists other JIC positions.

### 4.10 Emergency Response Organization Interface with Onsite and Offsite Organizations

4.10.2 Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization illustrates the interface between the EOF and other onsite support centers. Attachment 2 - Figure B-3 - Organization Interrelationships illustrates the interface of the EOF with federal, state, and local support agencies.

4.10.3 The EOF interfaces with each of the onsite support centers on a continuous basis. Even though the EOF serves as the primary interface with the various offsite support agencies, the TSC interfaces with various contractors and vendors to gather needed design data, consultation, and evaluation concerning the plant's status.

### 4.11 Emergency Response Organization Notification

4.11.2 Emergency Response Organization notification occurs as shown in Sections E and M of the PSRERP. The Shift Manager is responsible for initiation of the notification process after an emergency condition has been classified.

### 4.12 Service Provided by Local Agencies

4.12.2 The Nebraska State Patrol and the Washington County Sheriff's Department have agreed to provide the primary law enforcement support to the Fort Calhoun Station Security Department.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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- 4.12.3 The Blair Volunteer Fire Department has agreed to provide the primary fire support services for the Fort Calhoun Station. The Fort Calhoun Volunteer Fire Department has agreed to provide backup fire response.
- 4.12.4 OPPD vehicles may transport non-injured potentially contaminated personnel. The Blair Volunteer Fire Department has agreed to provide primary rescue and transportation support, for injured and/or contaminated personnel. The Fort Calhoun Volunteer Fire and Rescue, Missouri Valley Fire and Rescue and the Council Bluffs Ambulance and Fire Departments have agreed to provide backup services.
- 4.12.5 The Blair Hospital has agreed to provide medical support for work related injuries. Nebraska Health Services University Hospital in Omaha, maintains a regional Radiation Health Center which provides services for the treatment of radiologically contaminated injuries and radiation exposure evaluation.
- 4.12.6 The majority of the organizations listed in this section maintain a Letter of Agreement with OPPD. These letters are on file in the Emergency Planning Department at the Fort Calhoun Station.

### **5.0 RETENTION/RECORDS**

None

### **6.0 REFERENCES AND COMMITMENTS**

- 6.9 AR 11390, LIC-065R
- 6.10 Fort Calhoun Station Analysis of Proposed Post-Shutdown On-Shift Staff, August 2016

### **7.0 ATTACHMENTS**

- 7.9 Attachment 1 - Table B-1 - OPPD Emergency Response Organization (ERO) Functions and Shift Staff Augmentation Plan
- 7.10 Attachment 2 - Figure B-1 - Normal Fort Calhoun Station Management Organization
- 7.11 Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization
- 7.12 Attachment 2 - Figure B-3 - Organization Interrelationships

## ORGANIZATIONAL CONTROL OF EMERGENCIES

Attachment 1 - Table B-1 - OPPD Emergency Response Organization (ERO) Functions and Shift Staff Augmentation Plan

NUREG 0654			Omaha Public Power District	
Major Functional Area	Major Tasks	Emergency Positions	On Shift Minimum Number/Title	Goals for 1 hour Augmentation Minimum Number/Title
Plant Operations and Assessment of Operational Aspects		Shift Manager (SRO) Shift Foreman (SRO) Control Room Operators Auxiliary Operators	1 Shift Manager (SRO/CFH) 1 Control Room Operator (SRO or RO/CFH)*** 1 Equipment Operator/NCO	
Emergency Command and Control (Emergency Coordinator)*		Shift Technical Advisor, Shift Manager or designated Facility Manager	1** Shift Manager	1 Site Director OR 1 Emergency Director
Notification/Communication	Notify License, State local and Federal personnel and maintain communication		1 Control Room Operator (SRO or RO/CFH)***	1 Communicator in EOF
Radiological Accident Assessment and Support of Operational Accident Assessment	Emergency Operations Facility (EOF) Director	Senior Manager		1 Emergency Director
	Offsite Dose Assessment	Senior Health Physics (HP) Expertise	1 R.P Technician	1 Prot. Meas. Coord
	Offsite Surveys			4 Field Team Technicians
	Onsite (Out of plant) In Plant surveys Chemistry/Radiochemistry			1 R.P. Technician 1 Chemistry Technician
Plant System Engineering, Repair and Corrective Actions	Technical Support	Shift Technical Advisor		1 Engineering Coord
		Core/Thermal hydraulics Electrical		1 Machinist OR Steam Fitter Mechanic
	Repair and Corrective Actions	Mechanical	1** Equipment Operator/NCO	1 Equipment Operator/NCO 1 Electrical Maintenance Technicians
		Mechanical Maintenance Electrical Maintenance Instrument and Control (I&C) Technician	1** Equipment Operator/NCO	1 I&C Technician
Protective Actions (Plant)	Radiation Protection: a. Access Control b. HP Coverage for repair, corrective actions, search and rescue, first aid and firefighting c. Personnel monitoring d. Dosimetry	HP Technicians	1 R.P. Technician	1 R.P. Technician
Firefighting			Fire Brigade per SO-G-28, Station Fire Plan	Blair Fire Department
Rescue Operations and First Aid			2** Equipment Operators/NCOs	Blair Rescue Squad
Site Access Control and Personnel Accountability	Security, Firefighting, communications, personnel accountability	Security Personnel	All per Security Plan	

\* Emergency Command and Control responsibility is transferred in accordance with Section B of this plan.

\*\* May be provided by Shift personnel assigned other functions.

\*\*\* Performs initial notification to NRC.

## ORGANIZATIONAL CONTROL OF EMERGENCIES

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### Attachment 2 - Figure B-1 - Normal Fort Calhoun Station Management Organization

The Fort Calhoun Organization is described in Chapter 12 of the USAR.

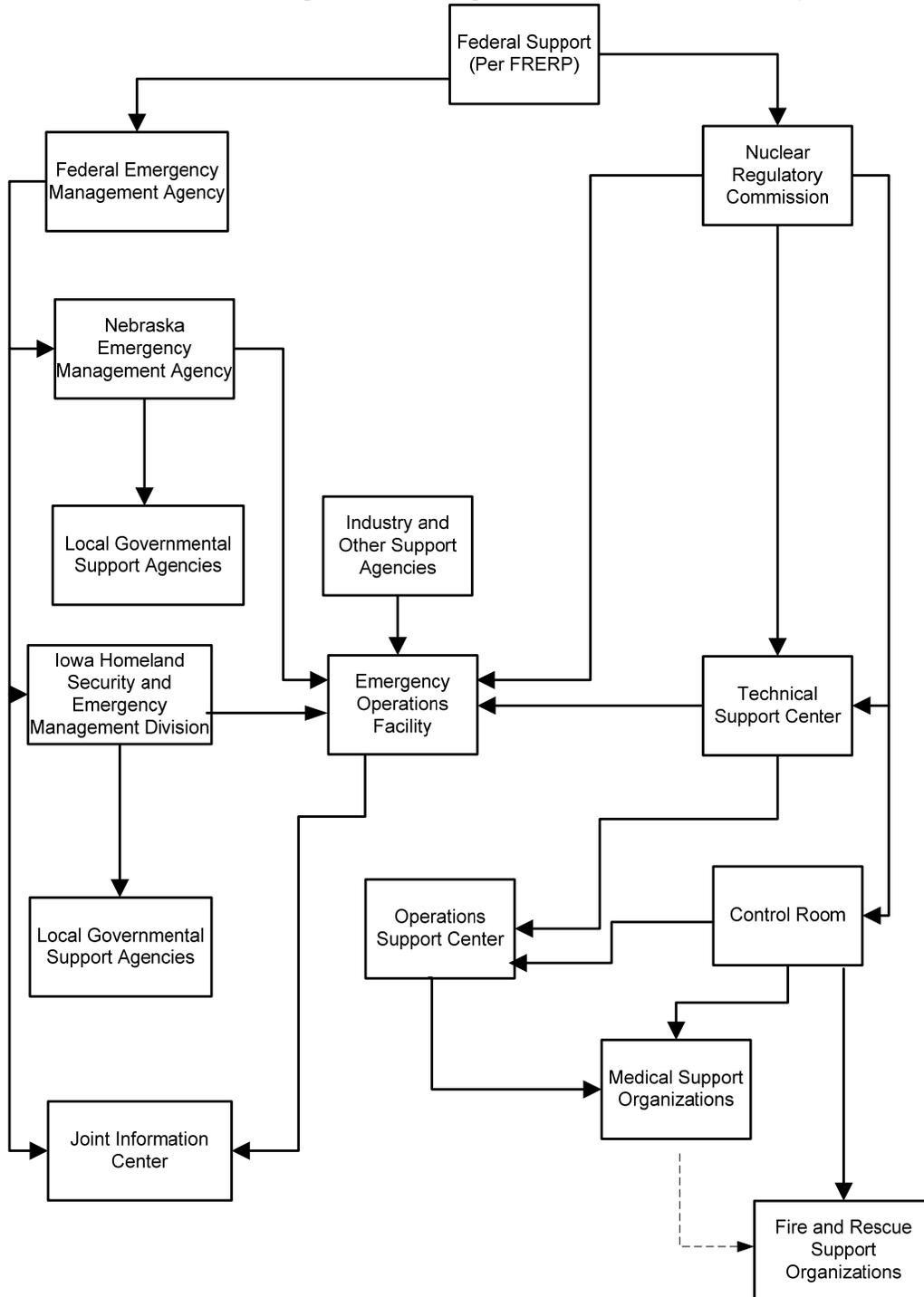
## **ORGANIZATIONAL CONTROL OF EMERGENCIES**

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Attachment 2 - Figure B-2 - Fort Calhoun Station Emergency Response Organization

## ORGANIZATIONAL CONTROL OF EMERGENCIES

Attachment 2 - Figure B-3 - Organization Interrelationships



## EMERGENCY RESPONSE SUPPORT AND RESOURCES

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### 1.0 **FEDERAL RESPONSE**

#### 1.1 Personnel Authorized to Request Federal Assistance

The Emergency Director typically coordinates with the states to secure federal assistance. However, the Emergency Director may also request federal assistance directly, if timely assistance has not been provided as requested by the states. The states will be kept informed of such requests.

#### 1.2 Federal Response Organizations

The Federal Radiological Emergency Response Plan (FRERP) and the Federal Response Plan (FRP) outline the federal response to any type of emergency, including an emergency at a fixed nuclear facility. Some of the typical federal organizations which could respond to an emergency at the Fort Calhoun Station are as follows:

##### 1.2.1 U.S. Coast Guard

Upon notification, the U.S. Coast Guard will control traffic on the Missouri River in the area of Fort Calhoun Station. They will provide waterborne patrols for extended periods if contamination levels persist.

A U.S. Coast Guard cutter is based at the Florence Boat Yard, approximately 18 river miles downstream of the Fort Calhoun Station.

##### 1.2.2 U.S. Environmental Protection Agency (EPA)

Upon request, the EPA will provide trained manpower to assist in reviewing survey data, offsite evaluations and advise on protective actions for the public. They also provide assistance in the collection and analysis of environmental samples.

## EMERGENCY RESPONSE SUPPORT AND RESOURCES

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### 1.2.3 U.S. Department of Energy (DOE)

DOE is the technical support branch of the Federal Radiological Emergency Response Plan (FRERP). DOE would typically be the agency in charge of initial establishment and control of the Federal Radiological Monitoring and Assessment Center (FRMAC).

Some of the capabilities of DOE and the FRMAC operations are as follows:

- A. Support to the state(s) in the coordination of offsite radiological monitoring assessment, evaluation, and reporting activities of all federal agencies during the initial phases of an accident and maintain a technical liaison with the states and local agencies with similar responsibilities.
- B. Ensure the orderly transfer of responsibility for coordinating the intermediate and long term radiological monitoring function at the FRMAC to EPA after the initial phases of the emergency.
- C. Provide the personnel and equipment required to coordinate and perform the offsite radiological monitoring and evaluation activities.
- D. Assist the NRC in assessing the accident potential and in developing technical recommendations on protective measures.
- E. Maintain a common set of offsite radiological monitoring data and provide this data and interpretation to the NRC and to appropriate state and local agencies requiring direct knowledge of radiological conditions and monitoring results.
- F. Provide consultation and support services to all other entities (e.g. private contractors) having radiological monitoring functions and capabilities.
- G. Assist other federal, state and local agencies by providing technical and medical advice concerning treatment of radiological contamination.
- H. Provide telecommunications support and capabilities.
- I. Assist other federal agencies in developing and establishing guidelines on effective systems of emergency radiation detection and measurement, including instrumentation.

## EMERGENCY RESPONSE SUPPORT AND RESOURCES

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### 1.2.4 U.S. National Weather Service (NWS)

The National Weather Service operates on a twenty-four (24) hour per day basis. Upon request, this organization can provide the Fort Calhoun Station with meteorological conditions including predicted temperature inversions, precipitation, wind patterns and velocity.

### 1.2.5 U.S. Nuclear Regulatory Commission (NRC)

The NRC becomes the Lead Federal Agency (LFA) in a response to a fixed nuclear facility, such as the Fort Calhoun Station. In their role as LFA, the NRC will directly coordinate response activities with OPPD and determine the need for appropriate federal response organizations. The NRC will perform the function of LFA from several response locations including the NRC Operations Center, Region IV's Incident Response Center, all OPPD Emergency Response Facilities (once a site team has arrived), and other federal response facilities established.

### 1.2.6 Federal Emergency Management Agency (FEMA)

FEMA is responsible for coordinating the non-technical federal support to state and local governments which could include such tasks as logistics and telecommunications. The senior FEMA official on the scene will notify the federal agency(ies) most capable of meeting the state and local governmental needs. FEMA would take the lead at the federal Disaster Field Office, if such location is established. Fort Calhoun Station is located within FEMA, Region VII.

### 1.2.7 Federal Aviation Administration (FAA)

The FAA controls and directs air traffic in and around the affected area. The FAA has the authority to close the area surrounding the Fort Calhoun Station to all non-response air traffic.

### 1.2.8 U.S. Department of the Interior

The U.S. Department of the Interior, Branch of Global Seismology has the capability to monitor and provide specific seismic activity data should such an event occur in the vicinity of the Fort Calhoun Station.

## EMERGENCY RESPONSE SUPPORT AND RESOURCES

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### 1.3 Response Times

It is anticipated that response time will be based on the level of assistance provided. For example, information on upcoming weather conditions would be expected to be available in a matter of minutes over the telephone from the National Weather Service. Conversely, radiological assistance from the Department of Energy would be expected to take considerably longer. It is expected that the federal assistance requested would be available within 8 to 72 hours.

## 2.0 **RESOURCES TO SUPPORT RESPONDING AGENCIES**

Resources are provided by OPPD in order to support the various federal organizations which respond to an emergency as follows:

### 2.1 Air fields are available for the use of the radiological monitoring teams as follows:

2.1.1 Eppley Air Field, 18 miles South of Fort Calhoun Station, on Abbott Drive in Sector G.

2.1.2 Eagle Field (City of Blair's Air Field), seven (7) miles Southwest of Fort Calhoun Station on State Hwy. 133 in Sector K.

2.1.3 North Omaha Airfield, eleven (11) miles South Southeast of Fort Calhoun Station, on North 72nd street in Sector H.

2.2 A laboratory for radioisotopic analysis is available at the Fort Calhoun Station and Cooper Nuclear Station near Brownsville, Nebraska.

2.3 A laboratory for non-radiological chemical analysis is available at the Fort Calhoun Station and OPPD's North Omaha Power Station.

2.4 Onsite and offsite survey teams with necessary radiation monitoring instruments are available.

2.5 A boat is available for obtaining river samples.

2.6 Space and communication lines have been set aside to accommodate some federal agencies at the Control Room, Technical Support Center, Emergency Operations Facility, and Joint Information Center.

2.7 Electrical and communication access is available at the Emergency Operations Facility for the federal mobile analytical laboratory.

## EMERGENCY RESPONSE SUPPORT AND RESOURCES

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### 3.0 SITE REPRESENTATIVES

The Nebraska State Governor's Authorized Representative (GAR) reports to the state Field Command Post, located at OPPD's Emergency Operations Facility. The GAR is in direct contact with OPPD personnel and has the authority to approve and issue all protective actions for the public in the State of Nebraska.

The State of Iowa's Governor's Authorized Representative (GAR) typically remains in the State Emergency Operations Center. The Iowa GAR has the authority to approve and issue all protective actions for the public in the State of Iowa. A command and control telephone link exists between this position and OPPD's EOF. If personnel are available, an Iowa liaison is sent to work directly with the staff at the EOF.

An OPPD Site Representative is available for dispatch from the utility to the Iowa State EOC. This position can be staffed on a 24 hour a day basis.

### 4.0 RADIOLOGICAL ASSISTANCE

#### 4.1 Nebraska Public Power District (Cooper Nuclear Station)

The Cooper Nuclear Station is capable of providing a backup facility in the event Fort Calhoun's radiochemistry laboratory is not functional. The Cooper Station's radiochemistry laboratory is equipped to do gross and isotopic determinations on radionuclides in concentrations and counting geometries necessary for nuclear power plant operation and emergency monitoring. They will provide analysis of liquid, air particulate and cartridges on a priority basis after receiving the sample.

Additionally, Cooper Station could provide monitoring teams equipped with air sampling, radiation and contamination monitoring equipment.

#### 4.2 Contractor Assistance

In the event of an emergency, it is anticipated that further assistance could be contracted directly from firms currently being utilized by OPPD for non-emergency work at the Fort Calhoun Station or through the assistance of such organizations as the Institute of Nuclear Power Operations (INPO).

#### 4.3 The analysis of field monitoring data by the states is specified in each respective state plan. OPPD field monitoring data can be analyzed by an independent facility providing such services.

## EMERGENCY CLASSIFICATION SYSTEM

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### **1.0 INTRODUCTION**

- 1.1 This section describes the emergency classification scheme adopted by the Omaha Public Power District for Fort Calhoun Station. The Emergency Classification scheme is based on NEI-99-01, Revision 6, Development of Emergency Action Levels for Non-Passive Reactors.
- 1.2 The State of Nebraska and the State of Iowa review the Fort Calhoun Station EALs once per year to ensure that they are consistent with their respective emergency classification schemes in their respective emergency plans. The purpose of this standardized classification is to provide a framework within which all emergency actions can be taken and notifications can be made in response to abnormal plant situations.
- 1.3 Table D-1 shows the projected worst case emergency classification for certain postulated accidents identified in the Fort Calhoun Station Updated Safety Analysis Report.

### **2.0 CLASSIFICATION OF EMERGENCIES**

- 2.1 Emergency conditions are classified into one of four severity levels which cover the spectrum of postulated accidents. The postulated accidents range from precursors to potential degradation of plant safety to those involving actual failure of plant safety systems. Emergency preparedness, including a standardized classification system, is based primarily on preventing or minimizing radiation exposure to individuals onsite and offsite.
- 2.2 The specific Initiating Conditions (ICs) are contained within EP-FC-1001 Addendum 3, Emergency Action Levels For Fort Calhoun Station. The ICs are based on one or more of the key types of initiating conditions, including; symptom based, event based, barrier breach, and essential equipment/system(s) out of service. The ICs at Fort Calhoun Station are presented using six recognition categories as listed below:
  - R - Abnormal Rad Levels/Radiological Effluent
  - C - Cold Shutdown/Refueling System Malfunction
  - E - Events Related to ISFSI
  - F - Fission Product Barrier Degradation
  - H - Hazards and Other Conditions Affecting Plant Safety
  - M - System Malfunction

## EMERGENCY CLASSIFICATION SYSTEM

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- 2.3 Each one of the recognition categories contains ICs as outlined in EP-FC-1001 Addendum 3, Emergency Action Levels For Fort Calhoun Station. Each specific IC is detailed in individual sections which contain predetermined, site-specific, observable thresholds, such as; instrument readings, equipment status indicators, measurable parameter(s), discrete and observable event(s), results of analysis, entry into specific emergency/abnormal procedures, applicable operating mode(s), and/or any other cautions and/or notes pertaining to that particular IC.
- 2.4 To the extent feasible, the ICs are based on readily available information such as Control Room instrumentation readings, Emergency Response Facility Computer System (ERFCS) output, specific station procedure steps, and/or dose projection results. The intent is to eliminate "ambiguity" for command and control positions in determining appropriate emergency classifications. Immediate actions to be taken in response to conditions involving abnormal plant operating parameters are detailed in the Fort Calhoun Station Abnormal Operating Procedures and Operating Instructions. Other immediate actions and follow-up actions are identified in Section J of this plan and are described in detail in applicable Emergency Plan Implementing Procedures, listed in Appendix C of this plan.
- 2.5 The ICs do not signify the need for immediate implementation of protective or corrective measures. They do, however, signify the need for implementation of dose assessment measures both onsite and offsite and assessment of plant status, as applicable.
- 2.6 In using the ICs as the basis for initiating emergency response activity, there may be instances when the plant staff cannot determine which of two emergency classifications is appropriate for a particular occurrence. In those cases where the appropriate classification cannot be defined in a short period of time, the occurrence should be treated as the higher of the two classifications and the appropriate response for that level should be initiated.
- 2.7 Notification of Unusual Event
- 2.7.1 Notification of Unusual Event (NOUE) – Events are in process or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs. Some of these events could indicate a potential degradation in the level of plant safety and/or could escalate to a more severe condition if appropriate action is not taken.
- 2.7.2 The primary purpose for this classification is to ensure that the plant staff recognizes the initiating condition, takes appropriate action, such as assessment and verification, and comes to an appropriate state of readiness to respond in the event that the condition worsens.

## EMERGENCY CLASSIFICATION SYSTEM

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2.7.3 With the exception of possible assistance by local support groups such as fire departments or medical facilities, activation of offsite facilities by offsite organizations is not anticipated for events within this classification. The command and control position at Fort Calhoun Station has the option to call all or part of the Emergency Response Organization (ERO) for support at this emergency classification.

2.7.4 Notification of Unusual Event will be made to offsite authorities in accordance with Section E of this plan.

### 2.8 Alert

2.8.1 Alert – Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of intentional malicious dedicated efforts of **HOSTILE ACTION**. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels. It requires response by the onsite Emergency Response Organization which augments on-shift emergency resources, and constitutes a “standby” initiation of the offsite emergency plan provisions. Generally, offsite emergency response agencies notify their key staff, and may begin to activate offsite response such as activation of facilities and offsite radiological monitoring. Offsite agencies will maintain this level of preparedness until termination or escalation of the Alert classification.

2.8.2 OPPD will augment the Control Room, staff the Technical Support Center and Operations Support Center at the Alert level. Typically, the Emergency Operations Facility staff will also be augmented to be placed in "standby" mode, ready to assume Command and Control if necessary.

2.8.3 Notification to offsite authorities of the Alert will be made in accordance with Section E of this plan.

### 2.9 Site Area Emergency

2.9.1 Site Area Emergency – Events are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or security events that result in intentional damage because of intentional malicious dedicated efforts of **HOSTILE ACTION**; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) prevents effective access to, equipment needed for the protection of the public. Any releases are not expected to result in exposure levels that exceed EPA Protective Action Guideline exposure levels beyond the site boundary. Offsite response agencies are fully mobilized along with notification to the general public by the sounding of the Alert Notification System (ANS) sirens surrounding the plant site.

## EMERGENCY CLASSIFICATION SYSTEM

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- 2.9.2 OPPD staffs all designated Emergency Response Facilities at a Site Area Emergency or General Emergency. The full Emergency Response Organization will be activated.
- 2.9.3 Notification to offsite authorities of the Site Area Emergency will be made in accordance with Section E of this plan.
- 2.10 General Emergency
  - 2.10.1 General Emergency – Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or security events that result in an actual loss of physical control of the facility. Release can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area. Total activation of the onsite and offsite emergency response organizations is required. Protective actions involving offsite populations are highly probable.
  - 2.10.2 OPPD staffs all designated Emergency Response Facilities at a Site Area Emergency or General Emergency. The full Emergency Response Organization will be activated.
  - 2.10.3 Notification to offsite authorities of the General Emergency will be made in accordance with Section E of this plan.

## EMERGENCY CLASSIFICATION SYSTEM

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Table D-1 - Emergency Classification of Postulated Accidents

<b>Postulated Accident</b>	<b>Projected Worst Case Emergency Classification</b>	<b>Key Concern</b>
Fuel Handling Accident (in Spent Fuel Pool Area)	General Emergency	Radiological Effluents
Gas Decay Tank Rupture	Site Area Emergency	Radiological Effluents
Waste Liquid Incident	Alert	Radiological Effluents
Control Room Habitability During Toxic Chemical Release Accident	Alert	Plant Control

## NOTIFICATION METHODS AND PROCEDURES

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### **1.0 PURPOSE AND SCOPE**

#### 1.1 Purpose

1.1.1 The purpose of this PSRERP is to provide guidance for notifying state and local response organizations, the Nuclear Regulatory Commission, and members of the OPPD Emergency Response Organization during radiological emergencies.

#### 1.2 Scope

1.2.1 This PSRERP applies to OPPD Emergency Response Organization personnel responsible for notifying state and local response organizations, the Nuclear Regulatory Commission and members of the OPPD Emergency Response Organization during a radiological emergency.

### **2.0 PROCEDURE**

#### 2.1 Notifications

2.1.1 The decision to make notifications is based on the emergency action levels and corresponding emergency classifications described in Section D of this Plan. As discussed in that section, they are consistent with NEI-99-01, Development of Emergency Action Levels for Non-Passive Reactors, which has been approved by the NRC replacing NUREG-0654, Rev. 1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Appendix 1. The EALs are reviewed annually by the States of Nebraska and Iowa.

2.1.2 OPPD is capable of notifying and activating its Emergency Response Organization 24 hours per day. It is also able to make notifications to the states, Nuclear Regulatory Commission and, if required, local counties on a 24 hour per day basis. The applicable state plans detail the provisions for 24 hour per day notification and activation of their response organizations.

2.1.3 The Command and Control position is responsible for ensuring appropriate notifications are initiated when an emergency is classified. Fort Calhoun Station personnel in the protected area are notified via the Emergency or Fire Alarm and a public address system message. Personnel outside the protected area are notified by public address systems installed in the Administrative and Training buildings. Site Security personnel may assist in the notification of all other personnel on OPPD property. The OPPD Emergency Response Organization is activated as appropriate for the emergency classification level. This is accomplished by an automated call-out system which activates phone calls, text messages, e-mails, and other functions. Maintenance of telephone numbers is discussed in Section P of this Plan.

## NOTIFICATION METHODS AND PROCEDURES

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- 2.1.4 Initial notification of the states of Nebraska and Iowa is made within 15 minutes after declaration of an emergency classification. The states, in turn, notify other governmental response agencies as appropriate for the emergency classification. Notification is also made to Washington, Harrison, and Pottawattamie counties within 15 minutes.
- 2.1.5 The primary means of notification to the states and counties is via the Conference Operations Network (COP) which is a dedicated telephone system. The COP and backup communications systems are discussed in Section F of this plan. Provisions have been made for verification of notification messages when communications are via means other than the COP.
- 2.1.6 Notification to the NRC is the next contact made. This notification occurs immediately after state and local notifications, not to exceed one hour after the declaration of the emergency classification. The primary means for this notification is the Federal Telecommunications System, Emergency Notification System lines (FTS-ENS). The FTS-ENS system is maintained by the NRC, however, it is routinely tested by OPPD. If the FTS-ENS is not available, notifications are made using the normal commercial telephone system.

## 2.2 Emergency Messages

### 2.2.1 Initial Emergency Message

The Omaha Public Power District and the states of Nebraska and Iowa have established the contents of the initial emergency messages to be sent from Fort Calhoun Station in the event an emergency is declared. These messages contain such information as the class of emergency, whether a release is taking place, potentially affected population and areas, and whether protective measures may be necessary. This information is transmitted by a dedicated telephone system, normal telephone systems or by facsimile. Forms are used to record the information for verbal or hard copy transmission to ensure each organization receives identical information.

## NOTIFICATION METHODS AND PROCEDURES

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### 2.2.2 Follow-Up Emergency Messages

- A. The follow-up emergency messages to the states incorporate the majority of the elements of Criteria E.4 of NUREG 0654, Rev. 1, as determined necessary by the states. These messages are transmitted to the states by telephone, dose assessment computer or facsimile. Update messages are sent to the states and counties at least every 60 minutes. Updates may be decreased to shiftily during ongoing events if requested by the states and the status of the event has not changed.
- B. It is the goal of Fort Calhoun to attempt to provide dose assessment updates at 15 minute intervals during a Radiological Release. During a Site Area Emergency or General Emergency, the Conference Health Physics (CHP) Network, a dedicated telephone system, can be used to maintain communications as needed. This ensures rapid transmittal of dose assessment information and protective action recommendations to the states.
- C. Emergency information to the county Emergency Operations Centers (Washington, Harrison and Pottawattamie Counties) is given verbally using the Conference Operation (COP) Network. These messages discuss general conditions of the plant.
- D. The NRC will be kept informed as significant events occur which warrant the upgrading or downgrading of the emergency classification. These communications with the NRC will be via the NRC's FTS-ENS (Emergency Notification System). Dose Assessment personnel will keep the NRC informed of dose assessment information using the NRC's FTS-HPN (Health Physics Network).
- E. OPPD has the capability to transmit key plant parameter information directly to the NRC. This system is entitled the Emergency Response Data System (ERDS). This system is normally activated and will be verified to be functioning within one hour of declaring an Alert or higher. Initiation of this system can be accomplished in either the Control Room or the Technical Support Center.
- F. Requests for assistance from local support agencies, and others, are made using normal telephone systems.

## NOTIFICATION METHODS AND PROCEDURES

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### 2.3 Alert Notification System

- 2.3.1 A system called the Alert Notification System (ANS) has been designed to provide warning to the public within 15 minutes of the decision by offsite authorities to activate the system. The system includes a series of sirens which provide essentially 100 percent coverage of the population within 10 miles of Fort Calhoun Station.
- 2.3.2 The states Emergency Response Plans provide guidance as to when the system should be activated. The counties will then perform the actual activation.
- 2.3.3 Each county has control of only the sirens located within its borders. The exception is one siren which is located in Douglas County, but activated by Washington County. All sirens within a county are sounded simultaneously, and cannot be activated individually.
- 2.3.4 The sirens are activated by radio signal. The county agencies and the activation locations for the sirens are as follows:
- A. Washington County Emergency Communications Center located in the County Court House, Blair, Nebraska.
  - B. Harrison County Emergency Communications Center located in the County Jail Complex, Logan, Iowa.
  - C. Pottawattamie County Emergency Communications Center located in the County Court House, Council Bluffs, Iowa.
- These locations are continuously staffed, providing the capability to activate the siren system 24 hours per day.
- 2.3.5 The Omaha Public Power District has made provisions to sound the sirens when requested to do so by government officials, should a county be unable to activate its sirens. This process can be accomplished from the Emergency Operations Facility or the E.O.-Communications division offices.
- 2.3.6 It is not intended that county or city governments use the ANS for weather alerts or fire signals as frequent use of the system for other purposes would tend to reduce the effectiveness of the sirens if they are needed for a nuclear power plant incident.
- 2.3.7 In the event that one or more sirens activates during non-emergency conditions, provisions have been made to inform the public that no emergency exists, and initiate repairs to the errant siren(s).

## NOTIFICATION METHODS AND PROCEDURES

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2.3.8 System operability is tested periodically in accordance with the updated design report to FEMA for the outdoor public warning system and backup alert and notification.

2.3.9 Backup ANS for the EPZ is achieved through route alerting by the affected county.

### 2.4 Emergency Alert System

2.4.1 Members of the public have been instructed (via the Emergency Planning Booklet discussed in Section G of this Plan) to tune to their Emergency Alert System (EAS) station for emergency instructions when the sirens are activated.

2.4.2 Radio station KGOR- 99.9 FM is the Local Primary I (LP1) control station for Omaha, NE. It has the capability to broadcast emergency instructions 24 hours per day. Most other television and radio broadcast stations have the capability of carrying EAS messages during their normal hours of broadcasting.

2.4.3 For messages the risk counties will contact the National Weather Service (NWS) and request that EAS be activated. The NWS will then send out the signal to activate the EAS. KGOR has agreed to pick up this signal and broadcast the message.

2.4.4 While follow-up messages are the responsibility of the states, Omaha Public Power District has the capability to make similar information releases to the media. This is described in Section G of this plan.

## 3.0 REFERENCES AND COMMITMENTS

3.1 NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plant

## EMERGENCY COMMUNICATIONS

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### **1.0 INTRODUCTION**

This section describes the available communications for use among the principal response organizations and between the Omaha Public Power District emergency response facilities. Provisions for 24-hour per day notification to and activation of the state and local emergency response organizations are discussed in Section E of this plan. Also discussed in Section E are the provisions for activating Omaha Public Power District emergency response personnel. Provisions for periodic testing of the emergency communications system are described in Section N of this plan.

### **2.0 COMMUNICATIONS SYSTEMS**

- 2.1 A number of varied communications systems are available for communications between emergency response facilities. These systems are described in this section and are summarized in Figure F-1.
- 2.2 In the conduct of drills and exercises, OPPD may make use of its training simulator to provide a broad range of Control Room like amenities, without impacting the operating FCS Control Room. The communications equipment in the FCS Control Room is, for the most part, duplicated in the simulator.

## EMERGENCY COMMUNICATIONS

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- 2.3 Each emergency response facility and the personnel responsible for 24 hour communications in each facility is listed below:

Emergency Facility	Primary/Alternate Communications Responsibility
Control Room Fort Calhoun Station	Shift Manager/Control Room Operator
TSC, Fort Calhoun Station	Site Director
EOF, North Omaha Station	Emergency Director/EOF COP Communicator
EOC, State of Nebraska	Operations Officer/Communications and Warning Officer
Forward Command Post, State of Nebraska	Nebraska Emergency Management Agency Director/Asst Nebraska Emergency Management Agency Director
EOC, Washington Cnty (Nebraska)	Washington County Communications Center/County Emergency Management Director
EOC, State of Iowa	Director, Iowa Emergency Management Division/National Guard Adjutant General
Forward Command Post State of Iowa	Harrison County Sheriff's Department/State Liaison Officer
EOC, Harrison County (Iowa)	Communications Director/Harrison County Sheriff's Department
EOC, Pottawattamie County (Iowa)	Communications Director/County Emergency Management Director

### 2.4 Fort Calhoun Station Alarm System

#### 2.4.1 Emergency and Fire Alarms

These alarms are sounded from the Control Room when an emergency requiring ERO activation or fire is declared. Their function is to alert personnel within the Protected Area to an emergency condition.

### 2.5 Fort Calhoun Station Paging Systems

2.5.1 The Protected Area paging system (Gaitronics) provides a means of intra-plant communications. Stations on this system provide access to the plant paging system and to intercom lines. These stations and speakers are placed throughout the plant including the Control Room, the Technical Support Center and the Operations Support Center.

2.5.2 The Administrative and Training buildings at the Fort Calhoun Station also

## EMERGENCY COMMUNICATIONS

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have public address announcing capabilities. Access to the public address system in either or both locations can be accomplished via the site's telephone system. This system can be used to notify personnel of a plant emergency.

### 2.6 Local Private Automatic Branch Exchanges (PABX)

#### 2.6.1 Omaha Public Power District PABXs

- A. Company telephone systems link Omaha Public Power District facilities with those located in Omaha, Nebraska. These systems provide intracompany telephone communications and access to the public telephone network.
- B. The Emergency Operations Facility has installed lines designated for emergency use. These lines are dedicated to specific emergency response positions. Telephone sets for all lines are available in the Emergency Operations Facility.
- C. Trunk lines between the company PABX systems in Omaha and the Fort Calhoun Station PABX systems provide the primary means of communication with the plant. Additional lines can be provided by the local telephone company, as requested.
- D. This system also provides a redundant means of providing emergency notifications to the states and counties, and is the primary backup to the Conference Operations Network (COP).

#### 2.6.2 Fort Calhoun Station PABXs

- A. These dedicated telephone systems provide communications within Fort Calhoun Station locations.
- B. The Technical Support Center has designated extensions for use during an emergency. They include extensions designated for use by NRC personnel. Additional lines can be diverted from other office areas as required.
- C. Dedicated lines from this system are extended to the Emergency Operations Facility. This system is also connected to the company telephone system in Omaha to provide intracompany telephone communications which are not affected by the public telephone network.
- D. Redundant routing of access to the public telephone network is provided via links to the public system in Blair, Nebraska as well as Omaha.

### 2.7 Conference Operations (COP) Network

## EMERGENCY COMMUNICATIONS

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- 2.7.1 The COP system is primary emergency notification system between OPPD, state and county agencies. It is used to provide, initial, and update notifications and for general information flow between these agencies. See Figure F-1 for a list of COP locations.
  - 2.7.2 COP is a dedicated system; each location is capable of making group calls or calling station to station within the network. See Figure F-2 for a system diagram.
  - 2.7.3 A recorder located at the EOF records all conversations on the COP system. The Nebraska State Patrol and the Iowa Dispatcher also have voice recording capability.
- 2.8 Conference Health Physics (CHP) Network
- 2.8.1 This network provides a dedicated means for communicating radiological information between the Technical Support Center, Emergency Operations Facility, Nebraska and Iowa Emergency Operations Centers and the Nebraska and Iowa Radiological Emergency Response Team Coordinators. The system is shown on Figure F-3.
  - 2.8.2 This system provides the capability for conference conversations between the Technical Support Center or Emergency Operations Facility and any one or all of the agencies on the system. A voice recorder in the Emergency Operations Facility provides a record of conversations on this system.
- 2.9 Facsimile (FAX) Capability
- 2.9.1 Facsimile machines provide the capability to link the Control Room, Technical Support Center, Operations Support Center, Emergency Operations Facility, Joint Information Center, other OPPD Headquarters facilities, the Nebraska and Iowa Emergency Operations Centers and the Nebraska and Iowa Forward Command Posts. Capability also exists to access any FAX machine via commercial telephone networks.
  - 2.9.2 The facsimile machines can be used to transmit health physics, operational and dose assessment information from Omaha Public Power District emergency response facilities to state emergency response facilities. They can also be used to disseminate emergency status information to OPPD management. Some of these extensions have voice capabilities and serve as a backup means of voice communications for those locations.

## EMERGENCY COMMUNICATIONS

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### 2.10 800 MHz Radio System

- 2.10.1 A 800 MHz radio communications system links Fort Calhoun Station onsite emergency response facilities, Emergency Operations Facility, plant portable radios, and mobile radios used by radiological monitoring teams. The multi-talk group/channel system is illustrated by Figures F-6, F-7, F-8, F-9 and F-10.
- 2.10.2 Figure F-6 illustrates the talk groups available for the Fort Calhoun Station. Figure F-7 illustrates the dedicated subfleet for the Emergency Response Organization. Figure F-8 illustrates the shared subfleet which the ERO can utilize during emergencies. Figure F-9 provides the details for the "Talk-Around" capability which can be utilized when the 800 MHz trunking system is out of service. Figure F-10 summarizes the subfleets assigned to the Fort Calhoun Station.

### 2.11 NRC Emergency Notification System (FTS-ENS)

- 2.11.1 This NRC Operations Center is contacted via this telephone network. The FTS-ENS is a portion of the Federal Telecommunications System (FTS) and is located in the Control Room, Technical Support Center and Emergency Operations Facility. It provides plant operations information to the NRC Operations Center, in Rockville, Maryland.

### 2.12 NRC Health Physics Network (FTS-HPN)

- 2.12.1 The FTS-HPN is a portion of the Federal Telecommunications System (FTS) and is located in the Technical Support Center and Emergency Operations Facility. The network is used to exchange radiological and dose assessment information between NRC facilities and OPPD.

### 2.13 Priorities System

- 2.13.1 The Technical Support Center establishes priorities for accident mitigation and transmits the priorities to the Operations Support Center and the Emergency Operations Facility for display.

### 2.14 State of Nebraska Emergency Management Radio System

- 2.14.1 The Emergency Operations Facility is equipped with various radio equipment for use by Nebraska Emergency Management personnel. This equipment may be used either alone or in conjunction with the State of Nebraska Emergency Management Mobile Van.

## EMERGENCY COMMUNICATIONS

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### 2.15 State of Iowa Emergency Management Radio System

2.15.1 The Emergency Operations Facility can support radio equipment for use by Iowa State Emergency Management personnel. This equipment may be used either alone or in conjunction with the State of Iowa Emergency Management Mobile Van.

### 2.16 Management Operations (MOP) Network

2.16.1 This system (similar to the COP and Ops Liaison Network) provides dedicated conference capability between the Control Room, TSC Site Director, OSC Director, EOF Emergency Director and the JIC Manager. The purpose of the system is to provide information flow between the directors of all the emergency facilities.

2.16.2 The system allows conferencing without dialing, each set is capable of conferences and individual call capability. Records of conversations on this system are captured by a voice recorder in Emergency Operations Facility.

### 2.17 Joint Information Center Hot Line

2.17.1 A dedicated telephone circuit is provided between the Emergency Operations Facility and Joint Information Center. The telephone sets are equipped with a blank dial plate. Lifting either handset causes a connecting ring at the other set.

2.17.2 This system provides a means for uninterrupted private communications for coordination of information releases to the public.

### 2.18 NAWAS

2.18.1 NAWAS equipment in the Control Room provides a redundant means of providing emergency notifications to the States of Nebraska and Iowa. It also provides the Control Room personnel with weather information.

### 2.19 Emergency Response Message System (ERMS)

2.19.1 A network of computer terminals is used to link the Technical Support Center, Operations Support Center and Emergency Operations Facility. It provides rapid dissemination of plant status information between facilities and ensures consistency of information at all facilities. The JIC is also equipped with a monitor which provides read-only capability. The software used for this function can be any type that provides for electronic log keeping of emergency response actions (WebEOC, ERMS, etc.)

## EMERGENCY COMMUNICATIONS

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### 2.20 Telephone Service Pedestal for State Mobile Communication Vehicles

2.20.1 A telephone service pedestal is located outside of the Emergency Operations Facility near the designated parking area for the mobile communication vehicles. This pedestal is fed by a 12-pair cable from the Emergency Operations Facility and allows quick connection of various telephone facilities to the mobile vehicles. Several telephone lines and dedicated communication facilities are prewired and operational. Spare pairs are available to add additional telephone facilities quickly as the need arises.

### 2.21 Telephone Junction Box for NRC Mobile Vehicle

2.21.1 A telephone junction box is located on the outside wall of the Emergency Operations Facility near the designated parking area. This junction box is fed by a 12 pair cable and is equipped with four standard modular telephone jacks. These jacks are prewired to a distribution frame and allow quick connection of telephone lines to support the NRC as required. Additional jacks can be added up to the 12 pair capacity of the feeder cable.

### 2.22 Operations Liaison Network

2.22.1 This system provides dedicated conference capabilities between the Fort Calhoun Station Control Room/Simulator, TSC, OSC, EOF and JIC. The purpose of the system is to provide operational information from the Control Room to the other facilities for the purpose of developing response plans, determining emergency classifications and implementing assistance to the Control Room.

2.22.2 The system allows conferencing without dialing, and thus permits rapid access to the conference by the Operations Liaisons. Each station is equipped with group call and individual call capability. Records of conversations on this system are captured by a voice recorder in the Emergency Operations Facility.

### 2.23 Emergency Response Data System (ERDS)

2.23.1 This system provides selected ERFCS data to the NRCs Operations Center for the purpose of evaluating plant conditions. Certain data points from the ERFCS are included in the ERDS data library, and when activated, these data points are transmitted to the Operations Center. The system is normally activated and is required to be activated at an ALERT or higher classification.

## EMERGENCY COMMUNICATIONS

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### 2.24 Interactive Notification System (INS)

2.24.1 This system provides rapid notification to Emergency Response Organization personnel in the event of an emergency where the ERO is activated. The system is also used to perform the Management Notification function, and can be adapted to perform other notification functions as determined necessary by the Fort Calhoun Station. A backup ERO notification process is available in the event of failure of the INS.

2.24.2 The system is activated using the internet or contacting a live operator, normally from the Control Room. The system 1) initiates a call-out to ERO members at home, mobile, or work locations, 2) sends text messages to ERO positions that provide a contact number and 3) sends e-mails to ERO personnel.

### 2.25 Satellite Phones

2.25.1 Satellite Phones are located in the Control Room, Technical Support Center, and Emergency Operations Facility to serve as an alternate communications option in the event normal communications equipment is unavailable.

## **3.0 COMMUNICATIONS WITH MEDICAL SUPPORT FACILITIES**

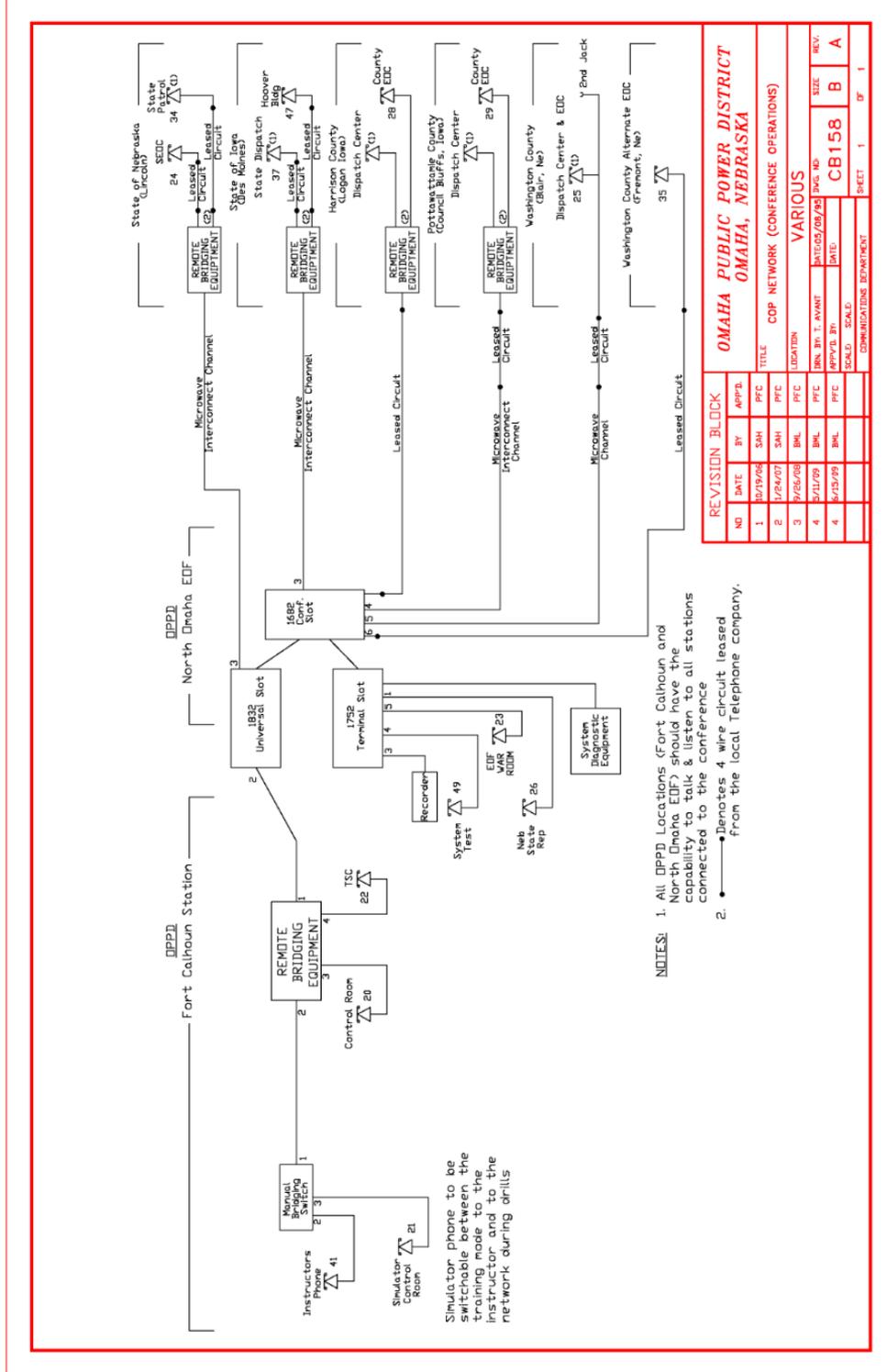
3.1 Fort Calhoun Station emergency response organization personnel can communicate with medical support facilities, Washington County Emergency Communications Center or the University of Nebraska Medical Center, via the site telephone systems described earlier in this section.

3.2 Non-OPPD radio systems provide communications between medical support facilities and mobile rescue units as well as inter-unit communications. These radio systems have the capability to use the common medical emergency frequency which ensures coordinated communications.



## EMERGENCY COMMUNICATIONS

Figure F-2 - Conference Operations Network



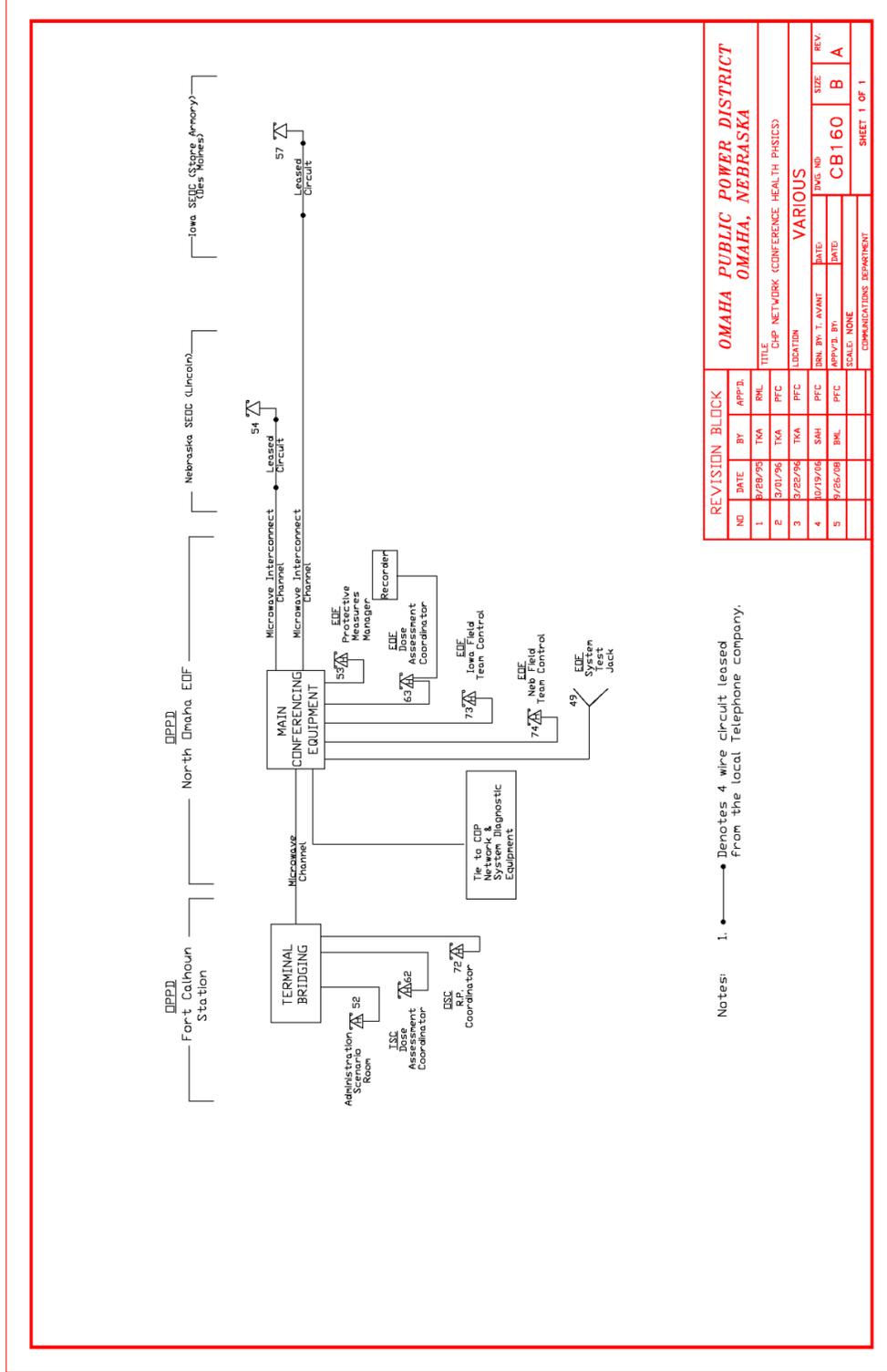
REVISION BLOCK				OMAHA PUBLIC POWER DISTRICT OMAHA, NEBRASKA			
NO	DATE	BY	APP'D.	TITLE	LOCATION	DATE	REV.
1	10/19/92	SAH	PFC	VARIOUS			B
2	1/24/07	SAH	PFC	VARIOUS			A
3	9/26/08	BWL	PFC	VARIOUS			A
4	2/11/09	BWL	PFC	VARIOUS			A
4	5/25/09	BWL	PFC	VARIOUS			A

NO.	DATE	BY	APP'D.	TITLE	LOCATION	DATE	REV.
1	10/19/92	SAH	PFC	VARIOUS			B
2	1/24/07	SAH	PFC	VARIOUS			A
3	9/26/08	BWL	PFC	VARIOUS			A
4	2/11/09	BWL	PFC	VARIOUS			A
4	5/25/09	BWL	PFC	VARIOUS			A

## EMERGENCY COMMUNICATIONS

Figure F-3 - Conference Health Physics Network



Notes: 1. ● Denotes 4 wire circuit leased from the local Telephone company.

REVISION BLOCK			
NO	DATE	BY	APPR'D.
1	8/28/95	TKA	BHL
2	3/20/96	TKA	PFC
3	3/22/96	TKA	PFC
4	10/19/06	SAM	PFC
5	7/26/08	BHL	PFC

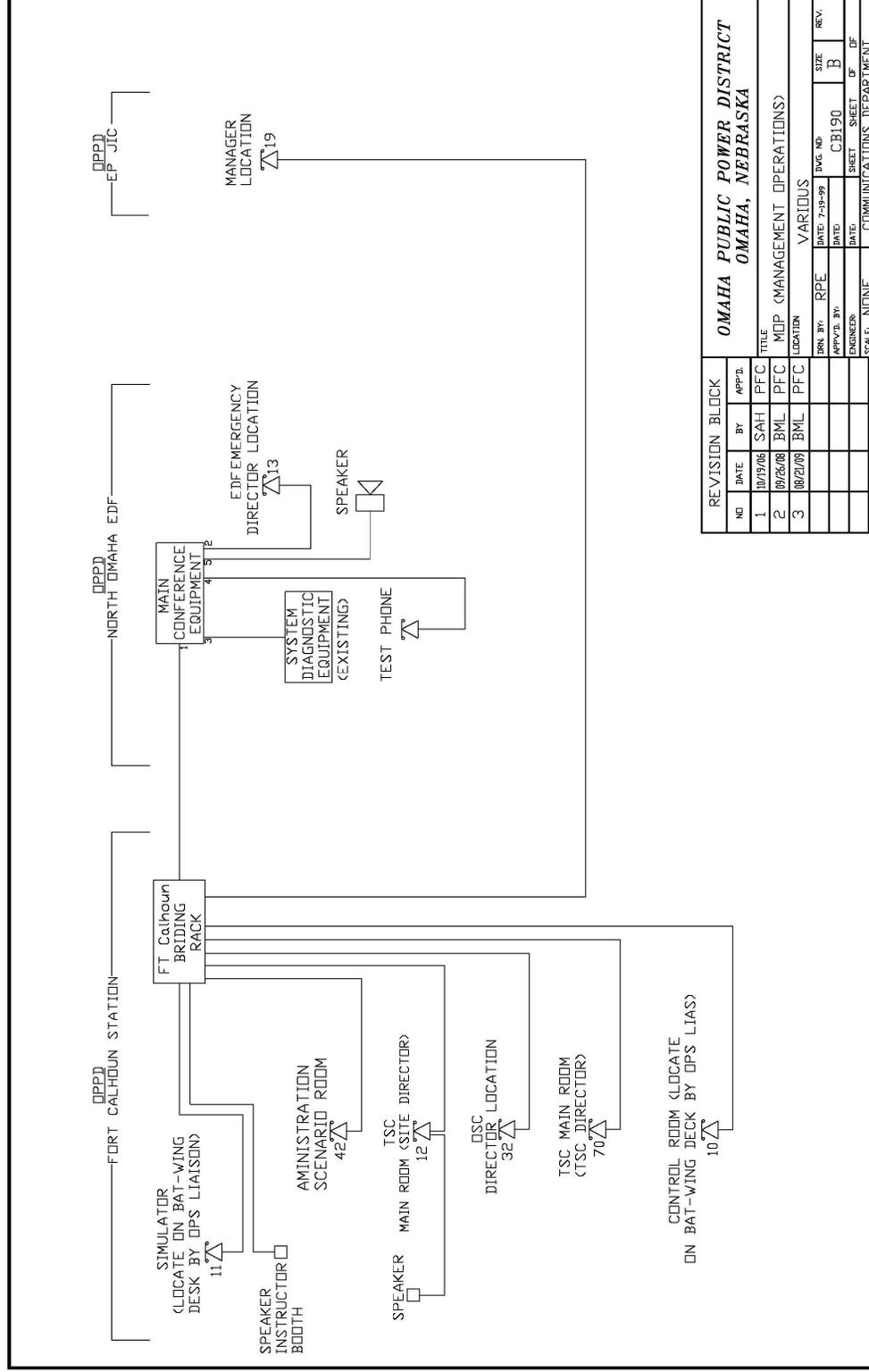
DRAWN BY: T. AVANT		DATE:	DWG. NO.
APPROVED BY:	DATE:	SCALE:	REV.
CORPORATIONS DEPARTMENT		CB160	B A
			SHEET 1 OF 1

OMAHA PUBLIC POWER DISTRICT OMAHA, NEBRASKA	
TITLE	CLIP NETWORK CONFERENCE HEALTH PHYSICS
LOCATION	VARIOUS

## EMERGENCY COMMUNICATIONS

Figure F-4 - MOP (Management Operations)



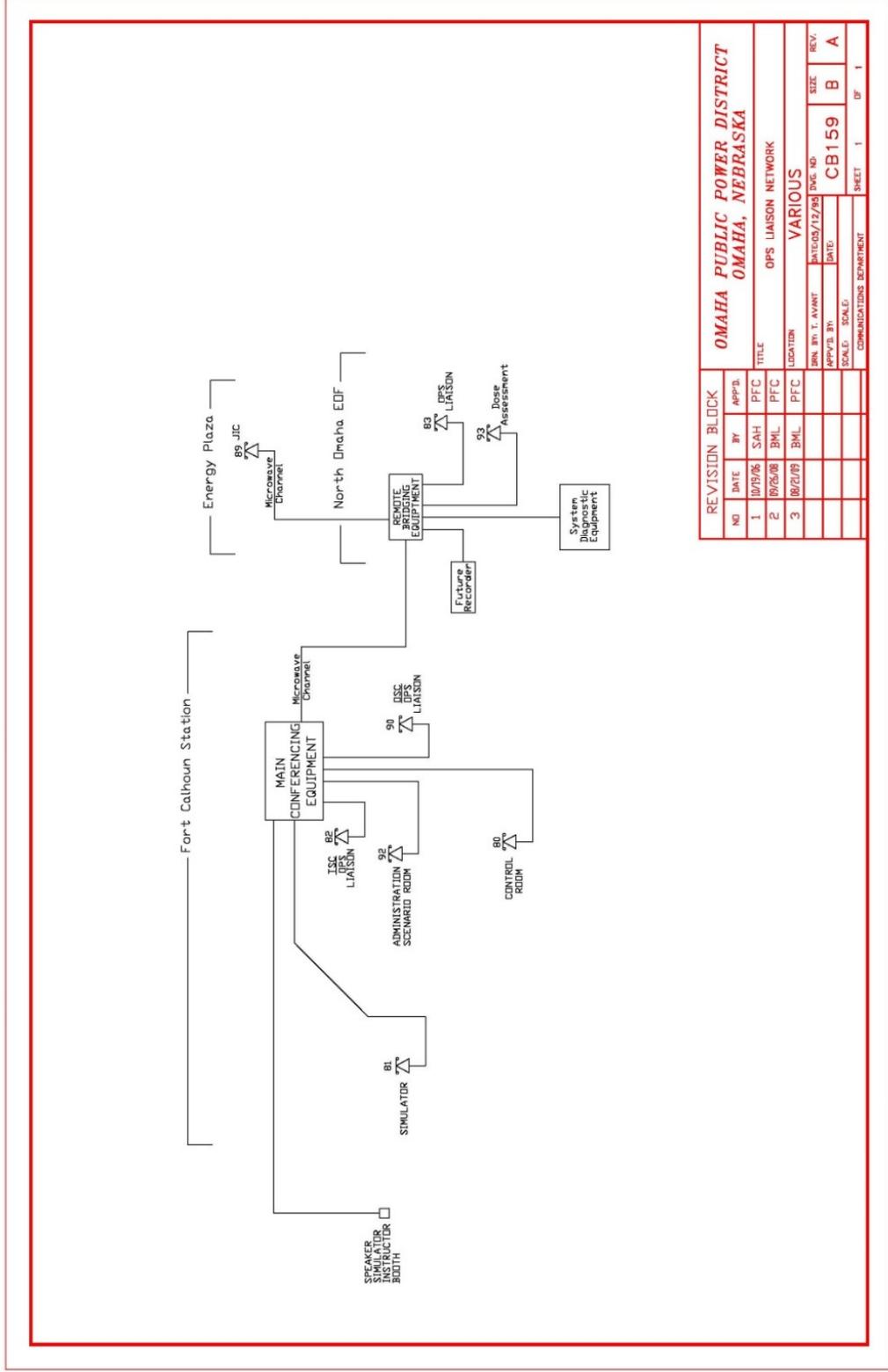
REVISION BLOCK		APP'D.	
NO	DATE	BY	
1	10/19/06	SAH	PFC
2	09/28/08	BML	PFC
3	08/21/09	BML	PFC

TITLE		OMAHA PUBLIC POWER DISTRICT OMAHA, NEBRASKA	
LOCATION		VARIOUS	
DRN. BY	DATE	DWG. NO.	SIZE
RPE	7-19-99	CB190	B
APPR'D. BY	DATE	SHEET	OF
ENGINEER		1	1
SCALE	NONE COMMUNICATIONS DEPARTMENT		

## EMERGENCY COMMUNICATIONS

Figure F-5 - Operations Liaison Network

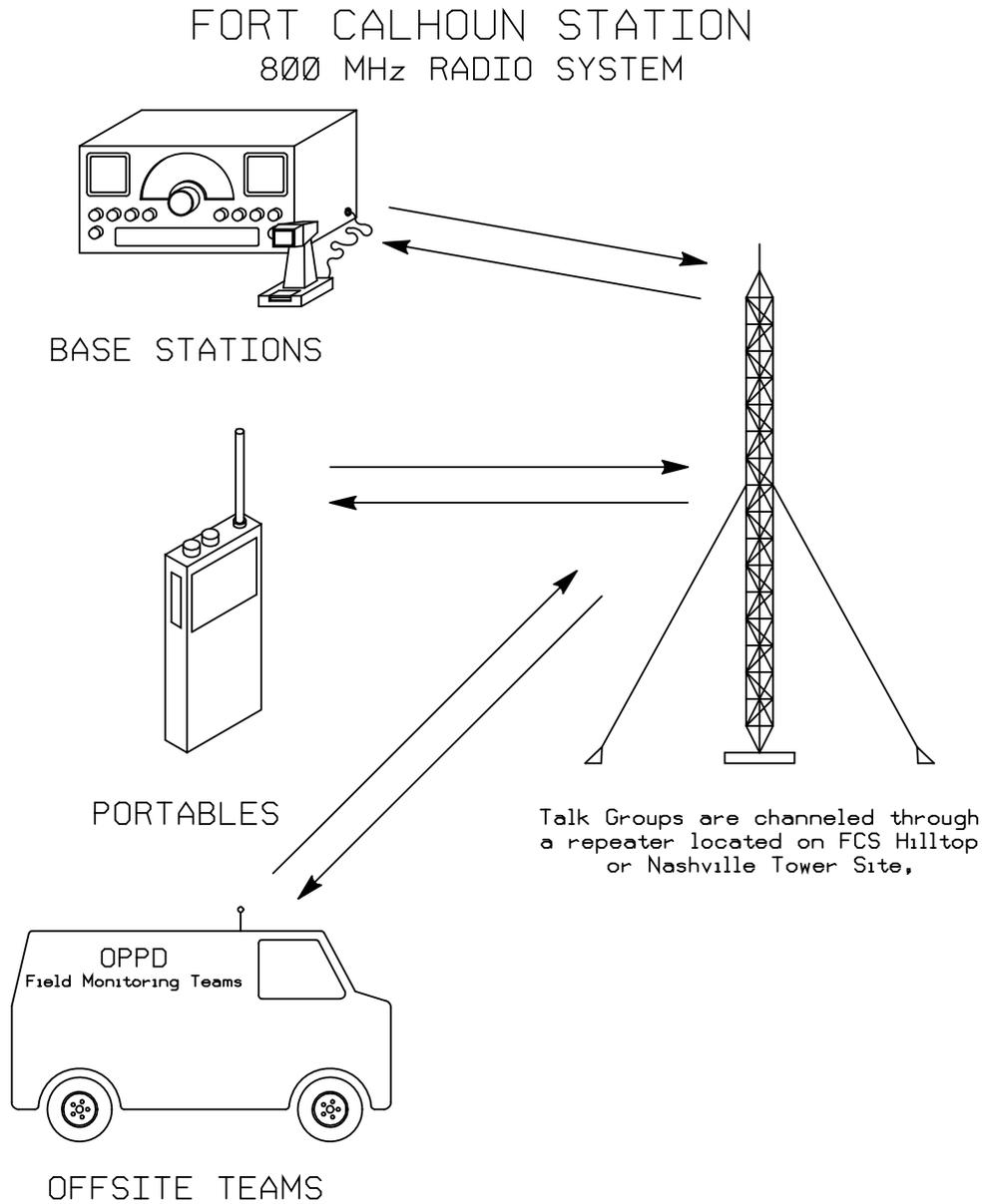


REVISION BLOCK		NO	DATE	BY	APP'D.
1		10/19/06	SAH	PFC	
2		09/06/08	BML	PFC	
3		08/22/09	BML	PFC	
TITLE: OPS LIAISON NETWORK LOCATION: VARIOUS DRN. BY: T. AVANT APPL'D. BY: [DATE] DATE: [DATE] SCALE: [SCALE] COMMUNICATIONS DEPARTMENT					
OMAHA PUBLIC POWER DISTRICT OMAHA, NEBRASKA					SHEET 1 OF 1
SIZE: CB159					REV. B A

## EMERGENCY COMMUNICATIONS

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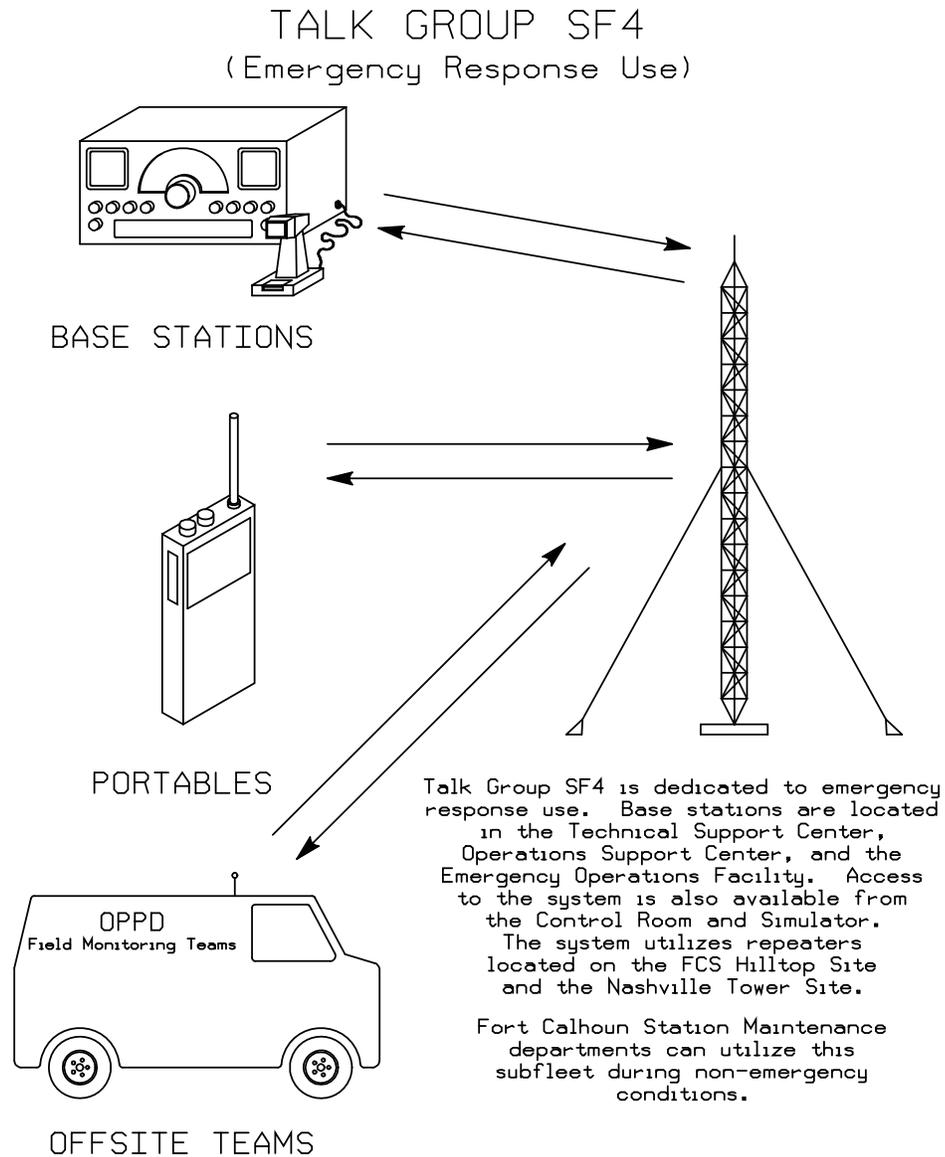
Figure F-6 - OPPD/Fort Calhoun Station 800 MHz Radio System



## EMERGENCY COMMUNICATIONS

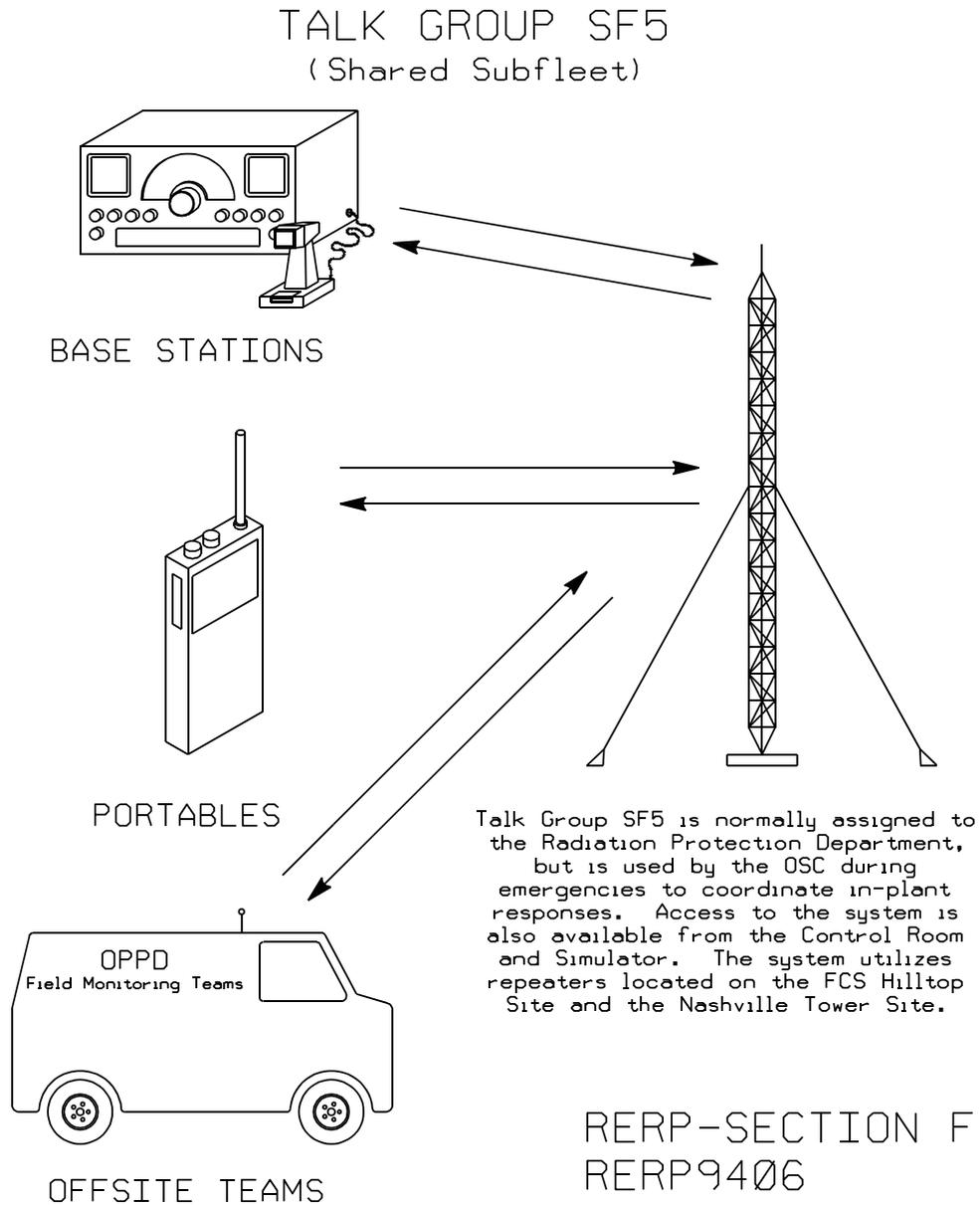
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Figure F-7 - Fort Calhoun Station Subfleet - SF4



## EMERGENCY COMMUNICATIONS

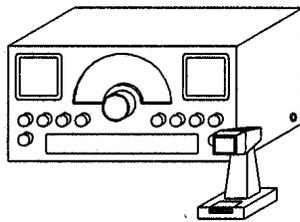
Figure F-8 - Fort Calhoun Station Subfleet - SF5



## EMERGENCY COMMUNICATIONS

Figure F-9 - Fort Calhoun Station Talk-Around Channel (TA)

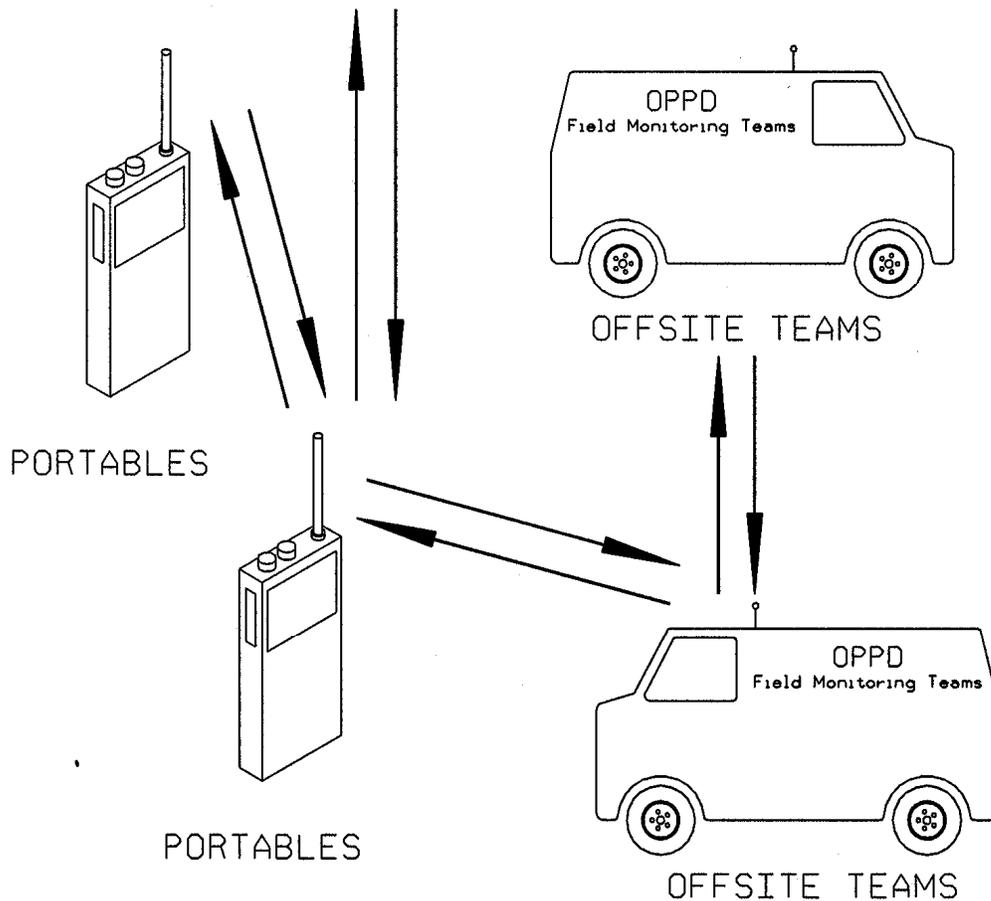
### TALK-AROUND CHANNEL (TA)



The TA Channel provides an alternate (or back-up) means of radio communications.

The TA Channel provides radio transmissions without the benefit of a repeater, therefore, the effective range of coverage is greatly reduced. This option is only good for two closely located units to communicate together. It does not utilize the 800 MHz trunking system.

BASE STATIONS



## EMERGENCY COMMUNICATIONS

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Figure F-10 - Summary of 800 MHz Radio Uses

<b>Channel</b>	<b>Display</b>	<b>Normal Use</b>	<b>Emergency Use</b>
1	SF1 Sec 1	Security-Primary	Security-Primary
2	SF2 Sec 2	Security-Secondary	Security-Secondary
3	SF3 Ops	Operations	Operations
4	SF4 EP	Emergency Planning	Field Team Control
5	SF5 RP	Radiation Protection	In-Plant Team Control
6	SF6 Maint.	Maintenance	In-Plant Team Control
7	SF7 ERO	Emergency Planning	Emergency Planning
8	SF8 Work Ch	Work Channel	Available for Use
9	SF9 EP Cntrl	EP Controller	Available for Use
10	Spare 1	Future	
11	Spare 2	Future	
12	Spare 3	Future	
13	Talk Around	Talk Around	Emergency Use
14	Unprogrammed	Not Available	Not Available
15	Unprogrammed	Not Available	Not Available
16	Unprogrammed	Not Available	Not Available

## PUBLIC EDUCATION AND INFORMATION

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### **1.0 PUBLIC INFORMATION CONTENT AND DISSEMINATION**

#### 1.1 Public Information Content

The Omaha Public Power District (OPPD) Corporate Communications Division has coordinated with the States of Nebraska and Iowa in the preparation and dissemination of educational information. A brochure entitled Fort Calhoun Nuclear Station Emergency Planning Information incorporates the following information:

- 1.1.1 A description of natural background and manmade radiation, including estimated annual doses from various sources of radiation.
- 1.1.2 Public warning procedures and use of radio and television following an emergency at the Fort Calhoun Station.
- 1.1.3 Radiation protection, including such protective actions as in-house sheltering and evacuation.
- 1.1.4 Special evacuation notes, including special needs of the handicapped, medical and nursing home patients, registration centers, evacuation routes and a Sub Area map of the EPZ.
- 1.1.5 Information concerning the primary Emergency Alert System.
- 1.1.6 Additional protective actions including ad hoc respiratory protective devices.
- 1.1.7 A list of contact points to obtain additional information.

#### 1.2 Public Information Dissemination

The Public Information Brochure is distributed in written form annually by mail to the permanent adult population within an approximate 10-mile radius of Fort Calhoun Station. A general distribution to reach the transient population is achieved by posting information in public areas and by placing supplies of prepared written material in motels, service stations, and government buildings. Media advertisements, utility bill inserts, telephone tape messages, news releases, and public seminars may also be utilized for public education and information.

An Emergency Planning recurring task verifies the content and dissemination of this information.

## PUBLIC EDUCATION AND INFORMATION

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### **2.0 NEWS MEDIA COORDINATION AND FACILITIES**

There are two (2) locations available for use of the news media. The Joint Information Center (JIC) is the primary facility for the release of all information; the Emergency Operations Facility (EOF) has limited space for press briefings and may be used on a selective basis. The Corporate Crisis Communication Plan provides the guidance for the operation of the Joint Information Center during emergencies. This plan is reviewed annually in accordance with an Emergency Planning Test.

#### 2.1 Joint Information Center (JIC)

The primary information point is the Joint Information Center located within OPPD's Energy Plaza at 444 South 16th Street Mall, Omaha, Nebraska. This center is activated for either a Site Area Emergency or General Emergency and will accommodate Joint Information Center personnel as well as local, State and Federal public information personnel.

For Classifications below Site Area Emergency, the Division Manager-Corporate Communications shall determine the corporate response for media coordination efforts.

The Joint Information Center also serves as the public inquiry center for OPPD, State and Federal authorities.

#### 2.2 Emergency Operations Facility Briefing Room

A secondary facility is located in the Emergency Operations Facility located at the North Omaha Power Station. However, the Joint Information Center is the preferred point of news media information.

The EOF Briefing Room was constructed as working space for 25 news correspondents. It is anticipated that space in this facility will be for the local media which routinely cover OPPD activities. Remaining space will be allocated to the national and regional media on a pool basis.

## PUBLIC EDUCATION AND INFORMATION

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### **3.0 EMERGENCY CLASSIFICATION INFORMATION RELEASES**

Following the classification of an emergency, Corporate Communications Division representatives will be informed of the emergency action level invoked at the plant and the reason or reasons thereof. Once such notification has been made, release of information to the news media will be coordinated by the Division Manager - Corporate Communications or the Joint Information Center Manager. That position will also coordinate the timely exchange and release of information with the official spokespersons for Federal and State agencies. The JIC Manager will report directly to the Emergency Director. A JIC Technical Liaison at the Joint Information Center will assist in nuclear related information matters. The JIC Technical Liaison will also be in direct contact with the EOF Information Specialist or the EOF Technical Liaison who will provide prompt and accurate information regarding plant status. The Corporate Crisis Communication Plan activates and augments the JIC staff. During all emergency classifications, the Corporate Spokesperson is the official designated spokesperson for OPPD.

### **4.0 NEWS MEDIA EXPOSURE TO EMERGENCY PLANNING INFORMATION**

The Corporate Communications Division mails an annual information packet or conducts an annual seminar to acquaint the local news media with the operation of Fort Calhoun Station and its emergency plan, including the public information procedures to be followed in an emergency. The mailing\seminar also provides educational information concerning radiation, and nuclear related subjects deemed appropriate. An Emergency Planning recurring task verifies the transmittal of the information packet or conduct of the seminar to the local news media outlets.



## EMERGENCY FACILITIES AND EQUIPMENT

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<b>i</b>	<b>NOTE</b>	<b>i</b>
	<p>This section lists the Emergency Response Facilities (ERF) available for activation in the event of an emergency at the Fort Calhoun Nuclear Station, including the ISFSI. General equipment and staffing of emergency facilities are also included in this section. Communications equipment is covered in Section F. Assessment equipment is covered in Section I.</p>	

### 1.0 TECHNICAL SUPPORT CENTER (TSC)

#### 1.1 Facility Function and Description

- 1.1.1 The TSC's primary function is the collection, analysis, and distribution of technical data required to support plant personnel during an emergency. This support is provided from a separate and distinct center, thus reducing personnel congestion in the Control Room. The TSC has the capability to perform EOF functions and responsibilities until that facility can be fully activated.
- 1.1.2 The TSC building is located on the north side of the Auxiliary Building. (See Figure H-1). The north wall of the auxiliary building is shared as the south wall of the TSC. To the east of the building is the maintenance shop. To the north and west of the TSC is the Chemistry/Radiation Protection Building. The TSC building was designed to meet the criteria of NUREG 0696 and is less than a two minute walk from the Control Room.
- 1.1.3 The TSC is composed of a protected area and an equipment area. It is comprised of heavy concrete mat construction with 1-1/2 foot thick reinforced concrete walls and ceiling. This part of the structure is kept at positive pressure and the building air can be filtered through a pre-filter, HEPA filter and charcoal filter. Flood barriers in various locations of the plant protect the TSC from flooding and are designed for a 100 year recurrence frequency.
- 1.1.4 An "L" shaped equipment area is located to the east and south of the TSC protected area. The equipment area has concrete footings and common steel construction with concrete block walls. Items included in the equipment area are the batteries and UPS power distribution systems, HVAC and HEPA filters.

## EMERGENCY FACILITIES AND EQUIPMENT

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### 1.2 Equipment and Supplies

#### 1.2.1 The TSC is typically equipped with the following items:

- A. System Drawings for the nuclear power plant and the ISFSI
- B. Vendor Manuals
- C. An official copy of the Fort Calhoun Station Operating Manual. (This includes the Operating Procedures and Instructions, the Post Shutdown Radiological Emergency Response Plan and Emergency Plan Implementing Procedures.
- D. Updated Safety Analysis Report (USAR) for the nuclear power plant and the NUHOMS Storage System FSAR for the ISFSI (electronically)
- E. Technical Specifications for the nuclear power plant and the ISFSI (electronically)
- F. Direct and Airborne Radiation Monitoring Equipment which is permanently installed:
  - 1. Area Monitor (RM-093):

The area monitor in the TSC is a GM detector (or equivalent) that detects gamma radiation.
  - 2. Particulate, Iodine and Noble Gas (PING) Monitor:

The sampler and detector subsystem contains a combined particulate, iodine and noble gas sampler in one compact, lead-shielded assembly. Three read-outs contain all alarm functions of alert, high and failure, along with check source actuation controls. The PING is piped directly to the TSC ventilation system to monitor TSC supply air at all times.
- G. Emergency Response Facilities Computer System/Safety Parameter Display System (ERFCS/SPDS).
- H. Personal Computer(s) with printers.
- I. Emergency Response Message System.
- J. Sign-in Board with identification tags.
- K. Emergency logs.
- L. Status boards.

## EMERGENCY FACILITIES AND EQUIPMENT

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M. The ability to provide output displays to the OSC and EOF.

### 1.3 Staffing

1.3.1 The TSC affords ample space and equipment to support the Emergency Response Organization (ERO) as stated in Section B and additional TSC personnel as defined in the Fort Calhoun ERO Roster. In addition, space has been allocated for NRC representatives.

## 2.0 **EMERGENCY OPERATIONS FACILITY (EOF)**

### 2.1 Facility Functions and Description

- 2.1.1 The function of the Emergency Operations Facility is to serve as the support facility for the licensee's overall management of emergency response activities (including coordination with Federal, State and local officials), the central collection and coordination point for all off-site radiological and environmental samples and assessments in order to make public protective action recommendations (PARs).
- 2.1.2 The Emergency Operations Facility is located 17 miles from the Fort Calhoun Station at the North Omaha Power Station. This site was chosen to ensure continuous habitability and is the only Emergency Operations Facility in the district. The building is capable of providing working space for a minimum of 35 persons consistent with the requirements of NUREG-0696, Revision 1. Space for data systems equipment, communications and storage activities is also available.
- 2.1.3 The alternative facility maintains the capability for staging the TSC/OSC emergency response organization personnel in the event of a hostile action. The alternative facility has the capability for communications with the control room, and plant security; the capability to perform offsite notifications; and the capability for engineering assessment activities. The EOF will satisfy the offsite notification responsibilities for the alternative facility. The EOF staff will support offsite notification responsibilities while the TSC/OSC ERO are performing activities supported by the alternate facility. The alternate facility is co-located with the EOF at OPPD's North Omaha Station.

## EMERGENCY FACILITIES AND EQUIPMENT

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### 2.2 Equipment and Supplies

2.2.1 The EOF is typically equipped with the following emergency response items:

- A. Emergency Status Boards
- B. 10-Mile EPZ Maps
- C. Emergency Monitor Kits
- D. Assignment Board with identification tags
- E. Portable Calculator(s)
- F. Emergency Telephone Books
- G. Emergency Logs
- H. Personal Computers and Printers
- I. Technical Specifications for the nuclear power plant and the ISFSI (electronically)
- J. System Drawings for the nuclear power plant and the ISFSI
- K. Complete latest revision of the Fort Calhoun Station Operating Manual. (This includes the Operating Procedures and Instructions, the Post Shutdown Radiological Emergency Response Plan and Emergency Plan Implementing Procedures).
- L. Emergency Response Facilities Computer System/Safety Parameter Display System (ERFCS/SPDS)
- M. Emergency Response Message System (ERMS)

### 2.3 Staffing

2.3.1 The EOF affords ample space and equipment to support the Emergency Response Organization as stated in Section B. In addition, space has been allocated for NRC Representatives.

## EMERGENCY FACILITIES AND EQUIPMENT

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### **3.0 OPERATIONS SUPPORT CENTER (OSC)**

#### 3.1 Facility Function and Description

3.1.1 The Operations Support Center (OSC) is an onsite facility, separate from the Control Room (CR) and the Technical Support Center (TSC) where support personnel assemble and prepare to perform investigative or corrective actions as deemed necessary by the CR or TSC.

3.1.2 The OSC communicates with the CR and the TSC and is located in the TSC Building.

#### 3.2 Equipment and Supplies

3.2.1 Equipment lockers are provided in the OSC for storage of instruments, SCBAs, supplies and reference documents.

#### 3.3 Staffing

3.3.1 OSC management is comprised of an OSC Director and three technicians representing the radiation protection, chemistry and maintenance disciplines. (See Section B of this plan for a comprehensive organization definition).

### **4.0 CONTROL ROOM**

#### 4.1 Facility Description and Function

4.1.1 The Control Room functions as the onsite location from which the FCS systems are monitored and controlled and from which any ISFSI operations are coordinated. It is large enough to contain all the instrumentation, controls and displays for the nuclear systems, reactor coolant systems, steam systems, electrical systems, safety and accident monitoring systems. The Control Room plays a vital role in the Emergency Response Organization by providing the initial response actions needed to react to any emergency situation. The Control Room personnel will respond to all emergency situations in an attempt to mitigate the emergency and minimize the impact on the surrounding environment, health and safety of the public as well as plant personnel and equipment.

## EMERGENCY FACILITIES AND EQUIPMENT

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### 4.2 Equipment and Supplies

4.2.1 The Fort Calhoun Station Control Room is typically supplied with the following emergency supplies:

- Emergency Locker (Computer Room)
- Operating and Emergency Procedures and Manuals
- Radiological Monitoring Equipment
- Technical Specifications for FCS and the ISFSI (electronically)
- System Drawings for the nuclear power plant and the ISFSI (electronically)

### 4.3 Staffing

4.3.1 In addition to normal CR personnel, additional positions are called out in the event of an emergency situation as stated in Section B.

## 5.0 **EMERGENCY KITS**

5.1 The emergency kits and equipment are inventoried in accordance with Fort Calhoun Station Surveillance Tests Procedures. Extra quantities of equipment, spare parts and supplies are located at the Fort Calhoun Station Warehouse to support extended emergencies.

### 5.2 Radiological Emergency Kits

5.2.1 These kits include protective equipment, radiological monitoring equipment and emergency supplies. Kits are located in the Control Room, Technical Support Center, Operations Support Center and the Emergency Operations Facility.

5.2.2 The Radiation Protection Department establishes the method and frequency for instrument calibration. Individual instruments are calibrated using approved calibration procedures. Repair/replacement of equipment is coordinated through the Radiation Protection Department.

### 5.3 Dosimetry Kits

5.3.1 These kits include dosimetry, dosimeter chargers and appropriate paperwork. Kits are located in the Control Room, Technical Support Center, Operations Support Center and Emergency Operations Facility.

## EMERGENCY FACILITIES AND EQUIPMENT

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### 5.4 Medical Kits

#### 5.4.1 First Aid Equipment and Supply Kits

- A. First aid equipment and supplies are located in the First Aid Room. Trauma and primary response kits are available throughout the plant. These kits are inspected and maintained by the Industrial Safety Coordinator.

#### 5.4.2 Contaminated/Injured Person Kit

- A. These kits are located in the Operations Support Center and near the RP Count Room. These kits are maintained by the Radiation Protection Department.

### 5.5 Decontamination Area

- 5.5.1 Decontamination equipment and supplies are located in the main warehouse and the radiation protection work area.

### 5.6 Field Monitoring Kits

- 5.6.1 OPPD maintains two vehicles designated for emergency use, each vehicle is equipped with radiological monitoring equipment, emergency supplies, and other equipment/supplies that may be used by teams monitoring radiological conditions on and off site. Each vehicle also has a permanently installed communications system as described in Section F.
- 5.6.2 Radiological equipment or other equipment that is/or may be affected by climate changes may be stored in a designated storage area.
- 5.6.3 Use of these emergency vehicles is authorized by the Manager-Emergency Planning or designee. In the event a vehicle requires servicing every effort will be made to have it returned on the same day. A sign reminding users that the vehicle shall be returned to its home base in the event of a declared emergency at Fort Calhoun Station is posted in each vehicle.

## EMERGENCY FACILITIES AND EQUIPMENT

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### 5.7 Other OPPD Resources

- 5.7.1 OPPD has other facilities and resources that may be useful in support of an emergency at Fort Calhoun Station. Examples are:
- A. Fort Calhoun Station Simulator could be used to model plant transients or serve as an alternate location for support and technical personnel. The simulator has the following communications equipment: Conference Operation Network (COP), Operations Liaison Network, FTS-ENS Phone, Gai-tronics, remote radio base station, regular phone systems, computer terminal for dose assessment, and FAX machine.
  - B. The FCS Training Center, the FCS Administration Building, and Energy Plaza make available resources such as: briefing rooms, classrooms, technical libraries, a chemistry laboratory, a radiation protection laboratory, communications, computers, food storage and preparation facilities, alternate water supply, and shop areas.



## EMERGENCY FACILITIES AND EQUIPMENT

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Figure H-2 - Typical Technical Support Center Layout

## EMERGENCY FACILITIES AND EQUIPMENT

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Figure H-3 - Typical TSC Entry/Briefing Area

## **EMERGENCY FACILITIES AND EQUIPMENT**

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Figure H-4 - Typical Operations Support Center Layout

## EMERGENCY FACILITIES AND EQUIPMENT

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Figure H-5 - Typical Emergency Operations Facility Layout

- |                              |                   |                                    |                             |
|------------------------------|-------------------|------------------------------------|-----------------------------|
| A. Dose Assessment Terminals | E. ENS Phones     | I. NRC Van Elect/Tele Hookup       | M. Operations Liaison Phone |
| B. ERF Terminals             | F. Fax Machines   | J. Nebr. "CRUSH" Elect/Tele Hookup |                             |
| C. CHP Phones                | G. ERF Printer    | K. COP Phone                       |                             |
| D. HPN Phones                | H. Siren Terminal | L. Mop Phone                       |                             |
- 
- |  |  |
|--|--|
| 1. Emergency Director                    | 30. NE. Governor's Authorized Representative |
| 3. EOF Operations Liaison                | 31. NE. GAR Advisor                          |
| 4. EOF COP Communicator                  | 32. NE. Manager                              |
| 5. Protective Measures Manager           | 33. NE. RAD. Team Coordinator                |
|  | 34. NE. Recorder                             |
|  | 35. NE. Dose Calculations                    |
| 7. EOF Field Team Specialist             | 36. NE. Public Information Officer           |
| 8. EOF Dose Assessment Specialist        | 40. IA. Representative                       |
|  | 41. IA. RAD. Team Coordinator                |
|  | 50. NRC Site Team Leader/DSO/MCL             |
| 11. EOF Technical Liaison                | 51. NRC Emergency Response Coordinator       |
| 12. Des Moines Site Representative       | 52. NRC Status Summary Coordinator           |
| 13. EOF Administrative Logistics Manager | 53. NRC Governmental Liaison Coordinator     |
|  | 54. NRC Public Information Representative    |
|  | 55. NRC Dose Assessment Representative       |
|  | 56. NRC Reactor Safety Coordinator/RSCL      |
|  | 57. NRC Protective Measures Team Leader      |
|  | 58. NRC Protective Measures Coordinator/PMCL |
|  | 59. NRC Status Summary Communicator          |
|  | 60. NRC Emergency Response Assistant         |
| 18. EOF Security Personnel               | 70. FEMA Representative                      |

## ACCIDENT ASSESSMENT

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### 1.0 ACCIDENT ASSESSMENT SUMMARY

Accident assessment is divided into initial and long term phases. At the beginning of an event initial assessments are performed in the Control Room. These early assessments are used as a basis for classifications, immediate actions and emergency response. The Shift Manager is responsible for initial event assessment, classification and initiation of appropriate notifications. Initial dose assessment with recommended protective actions can be performed and evaluated as soon as practical by onsite staff. These projections will be made available to offsite governmental agencies.

Initial assessments using plant parameters or other indicators are compared to pre-determined emergency action levels to select the proper emergency classification. The plant parameters may be system conditions, system configuration, radiological parameters, etc. The Control Room is equipped with adequate monitoring equipment to determine these parameters for rapid assessment and decision-making.

The long term or continuing accident assessment is performed using the Control Room monitoring equipment and other methods made possible by additional resources from the Emergency Response Organization and offsite organizations. This includes radiological information gathered from field monitoring and environmental monitoring teams.

### 2.0 ASSESSMENT CAPABILITIES

#### 2.1 Resources for Detection/Assessment of Non-Radiological Events

##### 2.1.1 Fire Detection

The fire detection system is detailed in the Station Fire Plan.

##### 2.1.2 Seismic Monitoring

Plant seismic instrumentation is provided to determine the response of the containment and auxiliary building structures in the event of an earthquake so that such response can be compared with that used as the basis of design.

Should a seismic disturbance occur in the neighborhood of the plant, the accelerations recorded within the plant will be the basis for a decision as to continued plant operation.

Seismic information is also available offsite through the U.S. Department of the Interior, United States Geologic Survey, National Earthquake Information Service, Boulder, Colorado.

## ACCIDENT ASSESSMENT

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### 2.1.3 River Level

River level is available from local read-out in the intake structure, the plant computer and offsite sources.

## 2.2 Resources for Detection/Assessment of Radiological Releases

### 2.2.1 Plant Process Radiation Monitors

This instrumentation, a part of the Radiation Monitoring System (RMS), is provided to monitor systems in strategic locations throughout the plant for normal and emergency conditions. The monitors are used for trending, determining radioactive material release permit limits, initiating safety signals to limit releases and assessing release rates during an emergency.

The channels of this system provide data both in the Control Room and on the Emergency Response Facility Computer System (ERFCS).

Depending on the type, the various monitors in the system can be used to detect particulate and gaseous radioactivity levels at release points throughout the plant, including containment. The system also provides accident range capability on the Auxiliary Building Ventilation Stack and the Main Steam line.

### 2.2.2 Area Radiation Monitors

Area Radiation Monitors are strategically located throughout the plant to monitor gamma radiation levels.

### 2.2.3 Meteorological Instrumentation

The plant has a permanent 110m meteorological tower with detectors at 10 and 60 meters, and a redundant power supply; the sole output of information from the tower is the ERFCS. In the event of failure of this system, wind speed and direction can be obtained from the National Weather Service in Valley NE, or the Offutt Air Force Base.

The USAR Section 2.5 discusses the terrain around Fort Calhoun Station and its effects on an airborne plume. Historical meteorological data is also available from the plant computer. This data will be made available by OPPD to the appropriate government agencies.

## ACCIDENT ASSESSMENT

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### 2.2.4 Water Analyses

Analyses of plant liquid systems may be performed to help ascertain the nature of problems detected by other instrumentation (prior to an emergency situation). The samples will be collected and analyzed per applicable Fort Calhoun Station procedures.

### 2.2.5 Post Accident Sampling

Methods have been established to collect and analyze samples from the primary coolant system, containment atmosphere, auxiliary building ventilation duct pathway, the main steam safety relief and atmospheric dump valve pathway, and the occupied areas. These methods are described in applicable Fort Calhoun Station procedures.

## 2.3 Field Monitoring

### 2.3.1 Monitoring Operations

In the event of an unplanned airborne materials release following an accident, field monitoring teams will be dispatched to evaluate activity levels.

River water samples can be collected and analyzed in the event radioactive water or liquid is discharged without proper monitoring per the Environmental Monitoring Program. The Metropolitan Utilities District will be notified when accidental liquid discharges occur.

The primary objective of the emergency onsite and offsite field monitoring teams is to survey areas downwind of the plant site in order to determine the extent and magnitude of any unplanned release of radioactive material following an incident.

The task of each monitoring team is to collect air samples and survey data and transmit information and results to the appropriate emergency response facility. This information will be used to define affected areas, and assess the extent and significance of the release. Surveys are done per the applicable Radiation Protection or Emergency Plan procedures.

### 2.3.2 Personnel

#### A. Onsite Field Monitoring

The onsite field monitoring teams focus is primarily on obtaining radiological data within the protected area. These teams are typically dispatched from either the Control Room or Operations Support Center.

## ACCIDENT ASSESSMENT

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### B. Offsite Field Monitoring

The offsite field monitoring team(s) focus is on obtaining radiological data outside the owner controlled area. Primary direction of the off-site field monitoring teams is from the EOF, with back up capability at the TSC.

### C. Environmental Monitoring

Environmental monitoring may be done as a function of recovery from an emergency. Types of sample media and team makeup are dependent upon the needs determined by management personnel.

### 2.3.3 Equipment

Section H of this plan and the applicable station procedures list the Emergency Kit locations.

## 3.0 **ASSESSMENT OF RADIOLOGICAL RELEASES**

### 3.1 Methods of Assessment

The methods used for the assessment of radioactivity released to the environs are detailed in the Emergency Plan Implementing Procedures.

## PROTECTIVE RESPONSE

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### **1.0 PUBLIC INFORMATION CONTENT AND DISSEMINATION**

#### 1.1 Notification

1.1.1 Onsite personnel are notified of a nuclear emergency via the emergency alarm. This alarm is identified by an intermittent howl and is distinguished from the fire alarm which is a continuous howl. Once the emergency alarm is sounded, the command and control position will give the emergency classification, with other pertinent information, using the intra-plant communication system (Gaitronics). If the owner-controlled area is to be evacuated, personnel will be notified by: 1) Gaitronics System, 2) Administration and Training Building paging systems, 3) Security Personnel, and/or 4) Alert Notification System, if used.

#### 1.2 Evacuation

1.2.1 If the emergency requires Protected Area evacuation, all onsite personnel considered nonessential to the mitigation of the event will normally proceed to a designated location or to their homes. If a release has occurred or there is reason to suspect contamination the evacuees will be sent to the OPPD Elkhorn Center.

1.2.2 Approximately 600 persons might be evacuated during normal work hours and operation; approximately 900 persons might be evacuated during a major outage. During normal operating off-shift hours, no evacuation of onsite individuals is expected. Both OPPD and personal vehicles are used for site evacuation transportation. Agreements with the State of Nebraska and specifically the State Patrol guarantee professional handling and control of traffic. Normal travel time to Elkhorn Center is 37 minutes using the normal evacuation route and 53 minutes using the alternate evacuation route at an average speed of 40 mph. Personnel at the Elkhorn Center will coordinate personnel/vehicle monitoring and decontamination activities, if required.

1.2.3 Security and RP personnel inspect the owner controlled area after a site evacuation has taken place. If any persons other than emergency workers are in the owner controlled area during or after site evacuation, they will be given specific directions and/or escorted off-site.

## PROTECTIVE RESPONSE

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### 1.3 Security and Accountability

#### 1.3.1 Security

- A. The security program is designed to deter, delay and detect an intruder. The Security Area of the plant site is enclosed by an eight foot security fence topped by three strands of barbed wire. All gates to the fence are normally kept locked. An inner perimeter consists of personnel doors, roof hatches, and overhead doors equipped with magnetic alarm switches.
- B. Personnel assigned by the Site Director to enter the plant must pass through the main gate which is guarded. It is extremely unlikely that any unauthorized person would be able to enter the site undetected even during an emergency condition.

#### 1.3.2 Accountability

- A. If accountability of onsite personnel is necessary, the onsite command and control position will notify personnel onsite by announcements on the Gaitronics System, and by sounding the Emergency Alarm (if required). At the completion of the notification(s), the accountability process begins, to be completed within 30 minutes.
- B. Accountability is a process taking place in several areas:
  - 1. Accountability of personnel reporting to the Control Room, TSC, or OSC for emergency response will be performed by personnel using the card readers at these locations.
  - 2. Accountability of security force personnel will be accomplished using established security procedures.
  - 3. Once initial accountability is complete, the command and control position, will be notified of the results.
  - 4. Accountability is maintained by the use of rosters at the Control Room, OSC and TSC. Persons must sign in and out as they enter and leave. These rosters will be compared to a list of personnel who accessed the protected area whenever necessary. Continuous accountability of security personnel is accomplished using established security procedures.

## PROTECTIVE RESPONSE

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### 1.4 Protective Measures

- 1.4.1 It is the policy of OPPD to keep personnel radiation exposure within federal regulations, and station limits and guidelines, beyond that, to keep it As Low As Reasonably Achievable (ALARA). Every effort will be made to keep their exposures within the limits of 10 CFR 20.
- 1.4.2 Personnel monitoring devices are required for all personnel meeting the conditions specified in 10 CFR 20 Section 20.1502, Technical Specifications Section 5.11 and in Radiation Protection Procedures. During emergency conditions, implementing procedure EP-FC-113 will be utilized.
- 1.4.3 Dosimeters and TLDs are typically located in each of the emergency lockers in the Control Room, EOF, OSC and the TSC. Additional dosimeters and TLDs may be obtained from the dosimetry group.
- 1.4.4 Clothing
  - A. Protective clothing is a normal use item utilizing both washable and disposables. For entry into affected areas, the OSC has approximately 50 complete sets of protective clothing available. The Control Room has approximately 12 complete sets available. Additional sets are available at the Radiation Control Point. Approximately 2000 sets are ready for use and a large supply of washable and/or disposable coveralls is maintained in the warehouse and RP storage areas. Water-proof protective clothing is also a standard stock item.
- 1.4.5 Respiratory Protection
  - A. Respiratory protective devices may be required where an airborne radioactivity condition is potential or existent. In such cases, the air will be monitored and the necessary protective devices specified according to the concentration and type of airborne contaminants present. Monitoring and issue of respiratory protection equipment will be conducted in accordance with Radiation Protection Manual Procedures. Precautions will be taken to keep airborne contamination to a minimum through the use of proper engineering controls and decontamination.
  - B. Limits for inhalation of radionuclides are established in Appendix B, Table 1 of 10CFR20. The Radiation Protection Manual establishes the station's administrative limits for inhalation which will be adhered to in emergencies if possible.
  - C. Types and recommended use for each type of respirator is specified in the Radiation Protection Manual.

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- D. Approximately 35 self contained breathing apparatus are maintained onsite. Of these, a portion is maintained for fire brigade use, or normal use, and the remainder for emergency response. Spare bottles are also stored in some locations. The site has the capability to refill bottles with a compressor/air bank unit, with a cascade tank unit as a backup. Full-face respirators are maintained in some emergency gear lockers. Respirators are staged for use in plant radiation areas. The onsite Stores warehouse stocks approximately 150 full-face respirators for reserve supply.

### 1.4.6 Radioprotective Drugs

- A. The need for issuance of radioprotective drugs, specifically potassium-iodide, is determined using appropriate procedures.
- B. Radioprotective drugs in the form of potassium iodide tablets are available in the Control Room, Technical Support Center, Operations Support Center, Emergency Operations Facility and the Field Team equipment lockers. Each bottle contains dosage supply for 14 days. Emergency workers are instructed on the advantages and disadvantages of taking the tablets to provide thyroid blockage. The final decision for use of the potassium iodide is made by the emergency worker.

## 2.0 **PROTECTIVE RESPONSE FOR RESIDENTS WITHIN THE PLUME EXPOSURE PATHWAY**

### 2.1 Protective Action Recommendations

#### 2.1.1 OPPD Guidelines

- A. Fort Calhoun Station is designed and equipped with a series of safety systems engineered to meet all of 10 CFR 100 criteria for reactor safety. OPPD recognizes that in any accident situation, it would be prudent and logical to make every effort to further reduce and minimize exposure to the public. OPPD management will recommend to appropriate State and local authorities that protective actions be initiated if any person is expected to receive an emergency exposure in excess of Environmental Protection Agency (EPA) guidelines.
- B. Tables J-1<sup>1</sup> through J-4<sup>1</sup> provides some information and guidance on formulating Protective Action Recommendations (PAR's). Table J-1<sup>1</sup> summarizes the considerations for selecting the evacuation Protective Action Guides (PAG's). Table J-2<sup>1</sup> outlines the early (plume) phase PAG's due to exposure of airborne and deposited radioactivity. Table J-3<sup>1</sup> summarizes the considerations for selecting relocation PAG's. Table J-4<sup>1</sup> outlines the immediate (relocation) phase PAG's due to exposure to deposited radioactivity.

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- C. During the early (plume) phase of a radiological emergency, professional judgement will be required in the application of PAG's, due to varying characteristics, such as; plant conditions, evacuation time estimates, environmental conditions, affected population groups, etc. In all cases, the PAR's transmitted by OPPD to the states of Iowa and/or Nebraska are strictly recommendations. The respective government agencies in each state have the ultimate responsibility for implementing necessary protective actions for the general public.

1 Taken from "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents." EPA-400-R-92-001, Revised May, 1992.

- D. Tables J-5 and J-6 provide information pertaining to emergency worker exposure limits and health risks associated with exposure to higher dose levels.

### 2.1.2 Initiation of Recommendations

- A. Recommendations will originate from an Emergency Response Facility based upon data derived from implementing procedure, EP-FC-110, Assessment of Emergencies. This procedure establishes a method for determining projected doses to the population-at-risk. Protective action recommendations based on radiological parameters or plant conditions are determined using EP-FC-111, Emergency Classification and Protective Actions. Total population exposure can be estimated using projected or known dose values and population densities.

## 2.2 Notification

- 2.2.1 In the event public notification is required, both transient and resident population within the plume exposure pathway will be initially notified through the Alert Notification System (reference Section E) and as described in state and county radiological emergency plans. Information will be provided for transient and resident population as well as the general public outside the EPZ through the Emergency Alert System.
- 2.2.2 Information brochures describing notification, protective actions and general radiological education are provided to residents by mail and by public service posting to transients within the EPZ. The States of Iowa and Nebraska will issue messages describing the incident and recommended public protective actions.

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### 2.3 Evacuation

#### 2.3.1 Evacuation Time Estimate Study

- A. Studies estimating the time required to evacuate the residents in the plume exposure pathway from the emergency planning zone were conducted in accordance with NUREG-0654, Rev. 1, Appendix 4 criteria. These studies are supporting documents to this Plan. Summaries of the Nebraska and Iowa evacuation time estimate studies are outlined in KLD Engineering, P.C., Fort Calhoun Nuclear Station, Development of Evacuation Time Estimates (EP-FC-1001 Addendum 2). Reference Figure 6-1, Tables 7-1 through 7-6, and Table 3-7.

#### 2.3.2 Evacuation of Areas within the EPZ

- A. The Governor (or Governor's Authorized Representative) of Nebraska can authorize the Nebraska State Patrol and Emergency Management Agency, based on recommendations of the State Health Department, to evacuate Nebraska residents to the reception center in Fremont, Nebraska.
- B. The Governor (or Governor's Authorized Representative) of Iowa can authorize the Iowa State Patrol and the Emergency Management Division to evacuate Iowa residents to Denison, Iowa, based upon recommendations of the Iowa Department of Public Health.
- C. Evacuees from the Nebraska portion of the EPZ should go to the Fremont Reception Center. Evacuees from the Iowa portion of the EPZ should proceed to the Denison Reception Center. Figure J-5 shows the boundaries and highways leading to the Reception Centers.
- D. The relocation centers for the host areas are as follows:
  - Fremont  
Fremont Middle School  
540 Johnson Rd
  - Denison  
Denison Community High School, North 16<sup>th</sup>
- E. The ingestion planning zone (IPZ) encompasses a 50 mile radius as illustrated in Figure J-6. Population for the IPZ is presented in Figure J-7 by sectors.

## PROTECTIVE RESPONSE

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- F. The plume exposure EPZ encompasses an approximate 10 mile radius as illustrated in Appendix H, (EP-FC-1001 Addendum 2). The EPZ includes portions of Harrison and Pottawattamie Counties in Iowa, Washington and Douglas Counties in Nebraska. The States of Iowa and Nebraska are separated by the Missouri River. Table 3-5 through 3-8, (EP-FC-1001 Addendum 2), shows the total population within the EPZ, and population totals for each Sub Area. This includes showing Estimated Transient population.

### 2.4 Protective Methods (Other than Evacuation)

#### 2.4.1 Sheltering

- A. Remaining indoors during the passage of a radioactive cloud affords the dweller a reduction in the quantity of radionuclides inhaled, as well as providing shielding. Figure J-9 shows the ratio of the inhaled dose inside a shelter to that outside the shelter as a function of the ventilation rate. A ventilation rate survey showed a rate variance of 0.07 to 3.0 per hour. The ventilation rate is affected by temperature differential, wind speed and direction, quality of construction and topographical setting.
- B. Walls of buildings absorb and scatter gamma rays, thus providing a lower dose to the occupants. The shielding factor of a building is the ratio of the interior dose to the exterior dose. Shielding factor estimates applicable to residential housing units were made using the shielding technology by Z. G. Burson and A. E. Profio (1975). Table J-7<sup>2</sup> summarizes shielding factors for designated structures/locations from a gamma cloud source.
- C. <sup>1,2,3</sup> Table J-8<sup>3</sup> summarizes the shielding factors for designated structures/locations from surface deposition of radioactive material. Burson and Profio proved that the fallout shielding technology developed via nuclear weapons tests could be directly applied to radioactivity deposited on surfaces after a reactor accident. The shielding factors listed in Table J-8 assume uniform distribution of the radioactive fallout.
- D. In each of the cases discussed, inhalation and shielding factors from a gamma cloud source and shielding factors from surface deposition of radioactive material, it is noted that the shielding factors using sheltering as a method of protection ranges from 0.6 to 0.005. Although the best protection seems to be the basement of large multi-structured buildings, the basement of any house has been proven to provide significant shelter from airborne and surface deposited radioactive material.

1 Taken from WASH-1400(NUREG-75/014), October 1975, Figure VI.11-4.  
 2 Taken from WASH-1400(NUREG-75/014), October 1975, Figure VI-11-7.  
 3 Taken from WASH-1400(NUREG-75/014), October 1975, Figure VI-11-8.

## PROTECTIVE RESPONSE

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### 2.5 Radiological Environmental Monitoring

2.5.1 In the event of an emergency, the permanent air particulate stations are first utilized for immediate data, concerning airborne releases. Background radiation stations (TLDs) provide short term exposure data and are periodically replaced. See the specific Radiological Environmental Monitoring Surveillance Test for more information. TLD use can be increased during the longer term as the District maintains a TLD services contract with an off-site vendor. The environmental laboratory personnel perform accelerated collection and analysis of samples as their primary responsibility after an emergency occurs. Sampling requirements will be determined by the environmental laboratory personnel.

2.5.2 Sample analysis will be performed by the station and at offsite facilities as deemed necessary.

### 3.0 **REFERENCES AND COMMITMENTS**

3.1 EP-FC-1001 Addendum 2, Evacuation Time Estimates KLD TR-535

3.2 EP-FC-1001, Evacuation Time Estimates

- Table 1, 50 Mile 2010 Population Table
- Table 3-5
- Table 3-7, Summary of Population Demand
- Table 3-8
- Table 7-1 through Table 7-6, Time to clear the Indicated Area of 90% of the Affected Population
- Figure 1, 50 Mile 2010 Population Rose
- Figure 5-2, Evacuation Mobilization Activities
- Figure 6-1, FCNS EPZ Sub Areas
- Appendix K

PROTECTIVE RESPONSE

Table J-1 - Summary of Considerations for Selecting the Evacuation PAG's<sup>1</sup>

DOSE Rem (mrem)	Consideration(s)
50 Rem (50000 mrem)	Assumed threshold for acute health effects in adults.
10 Rem (10000 mrem)	Assumed threshold for acute health effects in the fetus.
5 Rem (5000 mrem)	Maximum acceptable dose for normal occupational exposure for adults.
5 Rem (5000 mrem)	Maximum dose justified to average members of the population, based on the cost of evacuation.
0.5 Rem (500 mrem)	Maximum acceptable dose to the general population from all sources from nonrecurring, non-accidental exposure.
0.5 Rem (500 mrem)	Minimum dose justified to average members of the population, based on the cost of evacuation.
0.5 Rem (500 mrem)	Maximum acceptable dose <sup>2</sup> to the fetus from occupational exposure of the mother.
0.1 Rem (100 mrem)	Maximum acceptable dose to the general population from all sources from routine (chronic) non-accidental exposure.
0.03 Rem (30 mrem)	Dose that carries a risk assumed to be equal to or less than that from evacuation.
<sup>1</sup> Taken, in part, from Table C-8, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, EPA-400-R-92-001, May, 1992  <sup>2</sup> This is also the dose to the 8 to 15 week-old fetus at which the risk of mental retardation is assumed to be equal to the risk of fatal cancer to adults from a dose of 5 rem.	

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Table J-2 - Protective Action Recommendations Based on  
Dose Assessment/Field Team Radiological Data

Instructions: Compare URI or Field Team Dose Assessment results to the following table.  
Expand PAR to include downwind sectors in accordance with EP-FC-111-AD-F-02.

Projected Dose	Protective Action Recommendation (PAR)
< 1 rem TEDE < 5 rem CDE (thyroid)	<b>NONE (No Par Required)</b> And continue monitoring radiological conditions
≥ 1 rem TEDE ≥ 5 rem CDE	<b>Evacuate *see note</b> And continue monitoring radiological conditions
≥ 50 rem SDE (skin)	<b>Evacuate</b> And continue monitoring radiological conditions
<b>NOTE: SHELTERING</b> may be considered for doses up to 5 rem TEDE in special situations such as (1) the presence of severe weather (2) competing disasters (3) institutionalized people who are not readily mobile; and (4) other local factors, which may impede evacuation.	

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Table J-3 - Summary of Considerations for Selecting PAG's for Relocation<sup>1</sup>

<b>DOSE Rem (mrem)</b>	<b>Consideration(s)</b>
50 Rem (50000 mrem)	Assumed threshold for acute health effects in adults.
10 Rem (10000 mrem)	Assumed threshold for acute health effects in the fetus.
6 Rem (6000 mrem)	Maximum projected dose in first year to meet 0.5 Rem in the second year <sup>2</sup> .
5 Rem (5000 mrem)	Maximum acceptable dose for normal occupational exposure for adults.
5 Rem (5000 mrem)	Minimum dose that must be avoided by one year relocation based on cost.
3 Rem (3000 mrem)	Minimum projected first-year dose corresponding to 5 Rem in 50 years <sup>2</sup> .
3 Rem (3000 mrem)	Minimum projected first-year dose corresponding to 0.5 Rem in the second year <sup>2</sup> .
2 Rem (2000 mrem)	Maximum dose in first year corresponding to 5 Rem in 50 years from a reactor incident, based on radioactive decay and weathering only.
1.25 Rem (1250 mrem)	Minimum dose in first year corresponding to 5 Rem in 50 years from a reactor incident, based on radioactive decay and weathering only.
0.5 Rem (500 mrem)	Maximum acceptable single-year dose to the general population from all sources from non-recurring, non-incident exposure.
0.5 Rem (500 mrem)	Maximum acceptable dose to the fetus from occupational exposure of the mother.
0.1 Rem (100 mrem)	Maximum acceptable annual dose to the general population from all sources due to routine (chronic), non-incident, exposure.
0.03 Rem (30 mrem)	Dose that carries a risk assumed to be equal to or less than that from relocation.
<sup>1</sup>	Taken, in part, from Table E-5, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", EPA-400-R-92-001, May, 1992.
<sup>2</sup>	Assumes the source term is from a reactor incident and that simple dose reduction methods are applied during the first month after the incident to reduce the dose to persons not relocated from contaminated areas.

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Table J-4 - Protective Action Guides for Exposure to Deposited Radioactivity<sup>1</sup>

Protective Action	PAG (projected dose in first year) <sup>2</sup>	Comments
Relocate the general population <sup>3</sup>	≥ 2 Rem (≥ 2000 mrem)	Beta dose to skin may be up to 50 times higher.
Apply simple dose reduction techniques <sup>4</sup>	< 2 Rem (< 2000 mrem)	These protective actions should be taken to reduce doses to as low as practicable levels.
<p><sup>1</sup> Taken, in part, from the "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", EPA-400-R-92-001, May, 1992.</p> <p><sup>2</sup> The projected sum of total effective dose equivalent (TEDE) from external gamma radiation and committed effective dose equivalent (CEDE) from inhalation of resuspended materials, from exposure or intake during the first year. Projected dose refers to the dose that would be received in the absence of shielding from structures or the application of dose reduction techniques. These PAG's may not provide adequate protection from some long-lived radionuclides.</p> <p><sup>3</sup> Persons previously evacuated from areas outside the relocation zone defined by this PAG may return to occupy their residences. Cases involving relocation of persons at high risk from such action (e.g., patients under intensive care) should be evaluated individually.</p> <p><sup>4</sup> Simple dose reduction techniques include scrubbing and/or flushing hard surfaces, soaking or plowing soil, minor removal of soil from spots where radioactive materials have concentrated, and spending more time than usual indoors or in other low exposure rate areas.</p>		

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Table J-5 - Emergency Worker Exposure Limits

<b>Dose Limit</b>	<b>Activity</b>	<b>Condition(s)</b>
≤ 500 mrem TEDE	All Activities	Declared Pregnant Emergency Workers
≤ 5 Rem TEDE	All Activities	Non-Pregnant Emergency Workers
≤ 10 Rem TEDE	Protecting Valuable Property	A lower dose is not practicable
≤ 25 Rem TEDE	Life Saving or Protection of Large Populations	A lower dose is not practicable
>25 Rem TEDE	Life Saving or Protection of Large Populations	Only on a voluntary basis to persons fully aware of the risks involved. (See Table J-6)

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Table J-6 - Summary of Risks Involved with Higher Dose Limits  
(taken from EPA 400 R-92-001, May, 1992)

Health Effects Associated with Whole-Body Absorbed Dosed Received Within a Few Hours<sup>a</sup>

Whole Body Absorbed Dose (rad)	Early Fatalities <sup>b</sup> (percent)	Whole Body Absorbed Dose (rad)	Prodromal Effects <sup>c</sup> (percent affected)
140	5	50	2
200	15	100	15
300	50	150	50
400	85	200	85
460	95	250	98

(a) Risks will be lower for protracted exposure periods.

(b) Supportive medical treatment may increase the dose at which these frequencies occur by approximately 50 percent.

(c) Forewarning symptoms of more serious health effects associated with large doses of radiation.

Approximate Cancer Risk to Average Individuals from 25 Rem Effective Dose Equivalent Delivered Promptly

Age at Exposure (years)	Approximate Risk of Premature Death (deaths per 1,000 persons exposed)	Average Years of Life Lost in Premature Death Occurs (years)
20 to 30	9.1	24
30 to 40	7.2	19
40 to 50	5.3	15
50 to 60	3.5	11

PROTECTIVE RESPONSE

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Table J-7 - Representative Shielding Factors from Gamma Cloud Source

Structure or Location	Shielding Factor <sup>(a)</sup>	Representative Range
Outside	1.0	----
Vehicles	1.0	----
Wood - frame <sup>(b)</sup> (no basement)	0.9	----
Basement of wood house	0.6	0.1 to 0.7 <sup>(c)</sup>
Masonry house (no basement)	0.6	0.4 to 0.7 <sup>(c)</sup>
Basement of masonry house	0.4	0.1 to 0.5 <sup>(c)</sup>
Large office or industrial building	0.2	0.1 to 0.3 <sup>(c,d)</sup>
<p>(a) The ratio of the interior dose to the exterior dose.</p> <p>(b) A wood frame house with brick or stone veneer is approximately equivalent to a masonry house for shielding purposes.</p> <p>(c) This range is mainly due to different wall materials and different geometries.</p> <p>(d) The reduction factor depends on where the personnel are located within the building (e.g., the basement or an inside room).</p>		
<p><b>NOTE:</b> Consideration is limited to gamma radiation since beta and alpha particles cannot penetrate the walls of structures.</p>		
<p>* Taken from WASH-1400 (NUREG-75/104), October 1975.</p>		

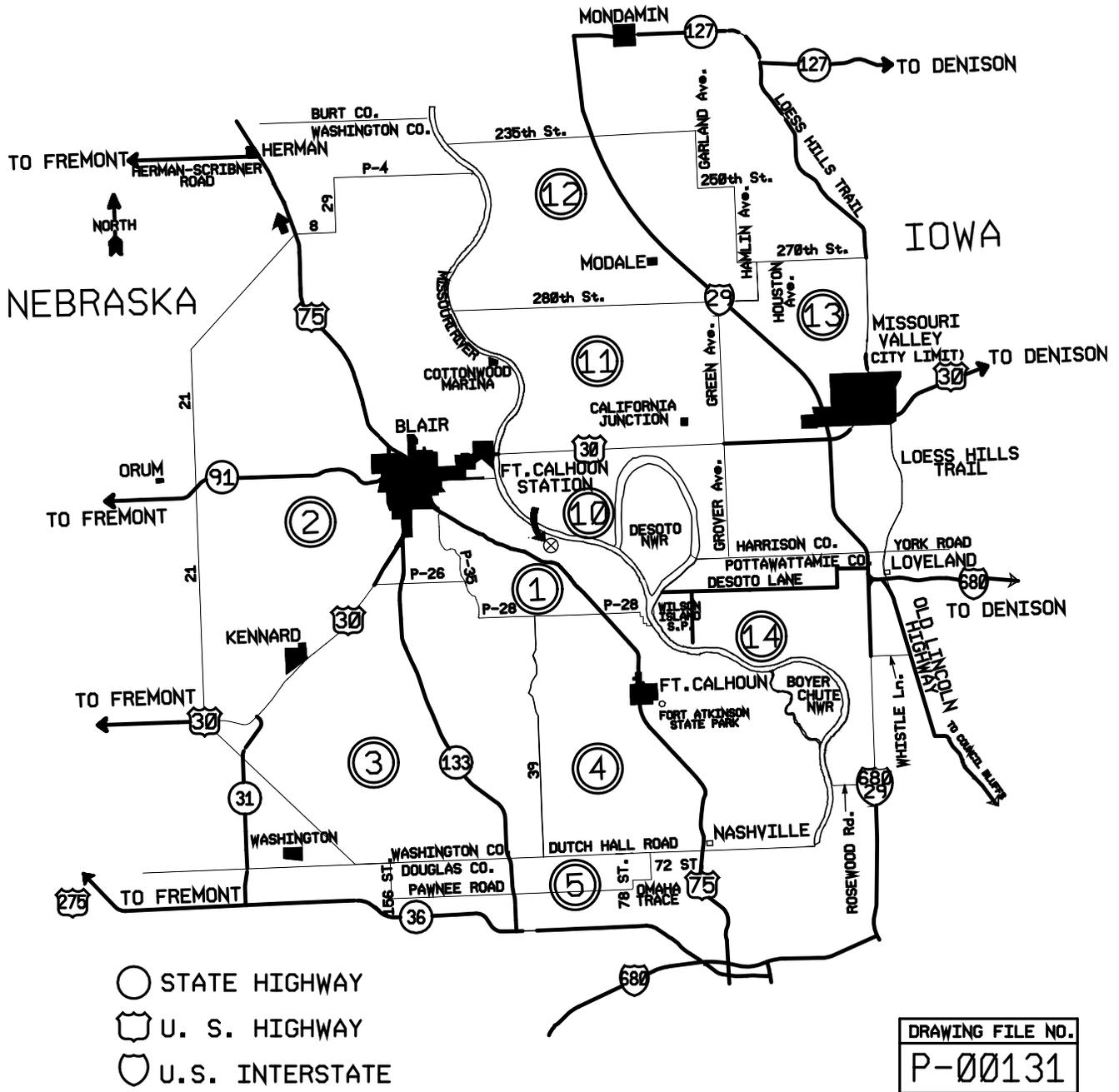
PROTECTIVE RESPONSE

Table J-8 - Representative Shielding Factors for Surface Deposition

Structure or Location	Representative <sup>(a)</sup> Shielding Factor	Representative Range
1 m above an infinite smooth surface	1.00	----
1 m above ordinary ground	0.70	0.47 - 0.85
1 m above center of 50-ft roadways, half contaminated	0.55	0.4 - 0.6
Cars on 50-ft road:		
Road fully contaminated	0.5	0.4 - 0.7
Road 50% decontaminated	0.5	0.4 - 0.6
Road fully decontaminated	0.25	0.2 - 0.5
Trains	0.40	0.3 - 0.5
One and two-story wood-frame house (no basement)	0.4 <sup>(b)</sup>	0.2 - 0.5
One and two-story block and brick house (no basement)	0.2 <sup>(b)</sup>	0.04 - 0.40
House basement, one or two walls fully exposed:	0.1 <sup>(b)</sup>	0.03 - 0.15
One story, less than 2 ft of basement, walls exposed	0.3 <sup>(b)</sup>	0.03 - 0.07
Two stories, less than 2 ft of basement, walls exposed	0.3 <sup>(b)</sup>	0.02 - 0.05
Three or four-story structures, >5,000 ft <sup>2</sup> per floor:		
First and second floor	0.05 <sup>(b)</sup>	0.01 - 0.08
Basement	0.01 <sup>(b)</sup>	0.001 - 0.07
Multistory structures, >10,000 ft <sup>2</sup> per floor:		
Upper floors	0.01 <sup>(b)</sup>	0.001 - 0.02
Basement	0.005 <sup>(b)</sup>	0.001 - 0.015
<sup>(a)</sup> The ratio of the interior dose to the exterior dose.		
<sup>(b)</sup> Away from doors and windows.		

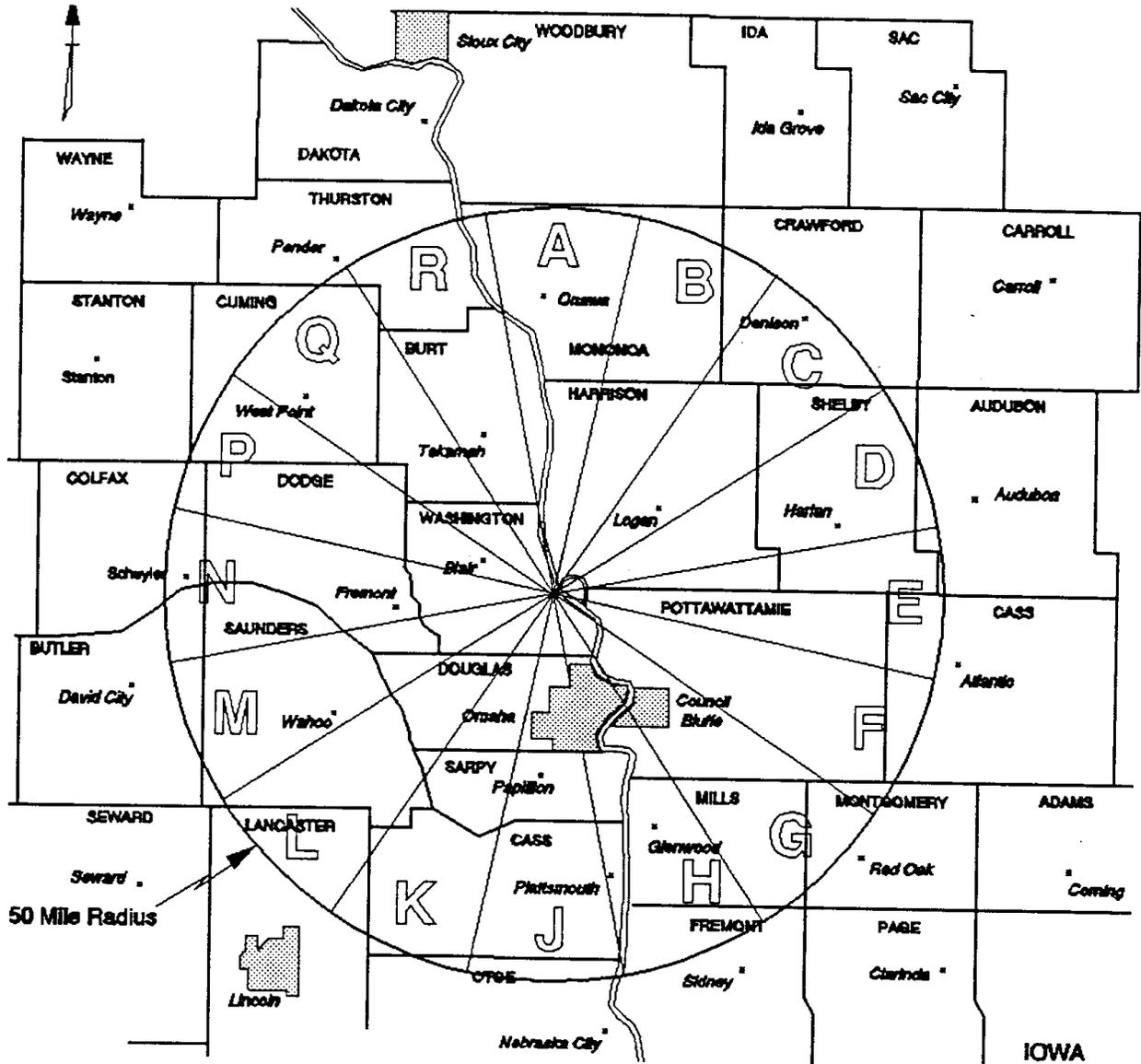
PROTECTIVE RESPONSE

Figure J-5 - Routes to Relocation Centers



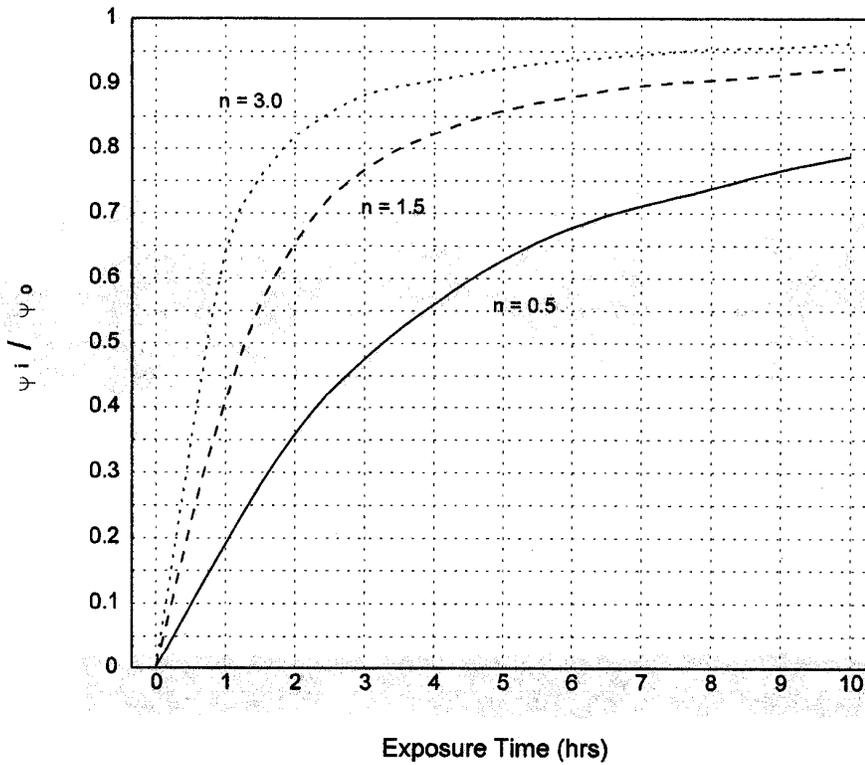
## PROTECTIVE RESPONSE

Figure J-6 - Ingestion Pathway EPZ



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Figure J-9 - Ratio of Inhaled Dose Inside a Shelter to that Outside the Shelter as a Function of Ventilation Rates



KEY:	
n	— Ventilation Rate
ψ <sub>i</sub>	- Dosage inside of building
ψ <sub>o</sub>	- Dosage outside of building

## RADIOLOGICAL EXPOSURE CONTROL

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### 1.0 EXPOSURE GUIDELINES

- 1.1 It is OPPD policy to comply with the ALARA concept, and all efforts shall be made to keep all workers within normal Fort Calhoun Station limits, as listed in the Radiation Protection Manual. However, if it is expected that workers may exceed these limits, any dose received during emergency conditions in excess of 5 Rem TEDE will be assigned as once in a lifetime exposure.
- 1.2 The facility directors, Shift Manager in the Control Room, Site Director in the TSC, the OSC Director in the OSC or the Emergency Director in the EOF may authorize dose extension up to 5 Rem TEDE per year during declared events for workers in their facility.
- 1.3 The Command and Control position shall authorize any extensions beyond normal occupational exposure limits and direct that any dose received in excess of these limits be assigned as once in a lifetime exposure. The following guidance is from the FCS Radiation Protection Manual, and the Manual of Protective Action Guidelines and Protective Action for Nuclear Incidents, EPA-400-R-92-001.
  - 5 Rem TEDE for all emergency workers
  - 10 Rem TEDE when action is necessary to reduce a hazard potential to acceptable levels or to prevent substantial loss of property
  - 25 Rem TEDE when action is necessary to perform lifesaving functions or to reduce the potential hazards to the health and safety of the public
  - >25 Rem TEDE on a voluntary basis and only to save a life or reduce potential hazards to the health and safety of the public
- 1.4 Plant personnel that require access to Radiation Controlled Areas are issued TLDs on a frequency specified by Radiation Protection. Many ERO positions are also issued TLDs depending on the likelihood of having to enter a Radiation Controlled Area under emergency conditions. TLD requirements for ERO positions are identified on the ERO Roster.
- 1.5 Personnel responding to the site that require, but do not have, dosimetry will be issued dosimetry by Security or Radiation Protection personnel. The following ERO positions can also issue dosimetry when necessary:
  - Control Room: The Shift RP Technician or OSC RP Technicians
  - TSC: OSC RP Technicians
  - OSC: The OSC RP Technicians

## RADIOLOGICAL EXPOSURE CONTROL

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### **2.0 CONTAMINATION CONTROL**

- 2.1 If actual or potential contamination problems exist onsite, ERO management may elect to establish contamination control and monitoring measures. These may consist of some or all of the following:
- Each Emergency Response Facility onsite has the capability to establish control boundaries to minimize contamination spreading into the facility.
  - Monitoring of personnel evacuating the affected area using installed monitors in the Security Building or personnel with portable equipment. Portable equipment for this purpose is stored both in the warehouse and at the EOF.
- 2.2 If personnel decontamination becomes necessary, the site maintains two facilities for this purpose. One is located in the Auxiliary Building entry/exit point, and is frequently used. It drains to the Radwaste System. The second facility is located in the Warehouse and is designated for emergency use only. It drains to a holding tank, which is controlled after emergency use to ensure that the contents are monitored and processed if necessary.
- 2.3 Contaminated personnel that are evacuated will be decontaminated as determined by Radiation Protection personnel. Additional decontamination facilities are available at state decontamination facilities and at the UNMC Regional Radiation Health Center.
- 2.4 Tools and equipment that become contaminated will be decontaminated as determined by Radiation Protection personnel.
- 2.5 Areas that become contaminated will be decontaminated as determined by Radiation Protection personnel.
- 2.6 Priorities for decontaminating tools, equipment and areas will be established by ERO management, with top priority given to contamination within areas that are or will be inhabited by emergency workers. Decontamination of non-essential areas, tool and equipment should be delayed to allow for natural decay of radioactive materials.
- 2.7 Potable water, normally supplied from the City of Blair, and onsite food supplies can be chemically and radiologically monitored prior to use by emergency workers.
- 2.8 Contamination limits, contamination control, and decontamination criteria may be adjusted based on professional radiological evaluation by the ERO using guidance in the Radiation Protection Manual.
- 2.9 Radioactive waste from any decontamination effort will be prepared and shipped in accordance with Radiation Protection Manual requirements.

## MEDICAL AND PUBLIC HEALTH SUPPORT

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### 1.0 ONSITE FIRST AID

1.1 There are generally four types of response considered at the Fort Calhoun Station:

- 1) Minor injury, no contamination
- 2) Minor injury, contaminated
- 3) Major injury (requiring offsite treatment), no contamination
- 4) Major injury, contaminated

1.2 The order of medical treatment will be:

- 1) Care of severe physical injuries
- 2) Decontamination of personnel
- 3) First aid to other injuries
- 4) Monitor for internal contamination
- 5) Definitive treatment and subsequent therapy as required

1.3 All injuries at the station must be immediately reported to the Shift Manager, who will initiate response according to the Fort Calhoun Station Safety Manual, FCSG-15-7, Medical Emergencies. When the OSC is activated the OSC Director will be responsible for response to medical emergencies.

1.4 When personnel are severely injured and contaminated, first aid shall take precedence over decontamination. In cases where internal exposure is suspected, a bioassay program may be performed as directed by the Radiation Protection Manual.

1.5 First Aid Facilities

1.5.1 A First Aid Room is located in the Maintenance Building. This room is equipped with various medical supplies to provide emergency first aid to injured personnel.

1.5.2 Other equipment located throughout the plant include first aid kits, Emergency Medical Technician (EMT) kits, personnel carriers, a wheelchair, and contaminated/injured personnel response kit. The Industrial Safety Coordinator inspects and maintains this equipment.

## MEDICAL AND PUBLIC HEALTH SUPPORT

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### 1.6 Medical Response

#### 1.6.1 Minor Injury, No Contamination

- A. The Shift Manager or other evaluators will determine the extent of medical response required. This could include:
  - 1. On the spot treatment by the individual or first aid qualified responders.
  - 2. On the spot treatment by EMT qualified personnel (if available).
  - 3. Movement of the injured party to the first aid room by medical responders for access to additional equipment.
  - 4. Other response determined necessary by responding personnel.

#### 1.6.2 Minor Injury, Contaminated

- A. Personnel that are injured and are potentially contaminated will be treated as explained above, and will also be monitored for contamination by Radiation Protection personnel. Monitoring and decontamination will be performed in accordance with Radiation Protection procedures.

#### 1.6.3 Major Injury, No Contamination

- A. Medical responders will be dispatched to the scene to perform first aid as required. The Shift Manager or designee will notify offsite authorities to provide victim transport to an available medical facility. Both air and ground transportation are available.

#### 1.6.4 Major Injury, Contaminated

- A. Personnel that are severely injured and are potentially contaminated will be treated as explained above, and will also be monitored for contamination by Radiation Protection personnel. If feasible, monitoring and decontamination will be performed in accordance with Radiation Protection Procedures. If decontamination is successful, the victim may be transported to any available medical facility for treatment.
- B. If decontamination is not successful or not feasible, the victim will be transported to the UNMC Regional Radiation Health Center, unless the responding Emergency Medical Services (EMS) personnel deem it medically necessary to proceed to a closer facility. If another facility other than UNMC is used, additional Radiation Protection personnel should be sent to the facility to assist in monitoring, decontamination and clean up.

## MEDICAL AND PUBLIC HEALTH SUPPORT

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### **2.0 MEDICAL TRANSPORTATION**

#### 2.1 Blair Fire Department and Rescue Squad

The Blair Fire Department and Rescue Squad Station is located less than four miles from the Fort Calhoun Station. The Rescue squad furnishes transportation for the injured and administers first aid enroute to the hospital.

#### 2.2 Fort Calhoun Fire and Rescue Squad

The Fort Calhoun Fire and Rescue Squad headquarters is located approximately 3-1/2 miles from the Fort Calhoun Station. This rescue squad serves as backup to the Blair Fire Department and Rescue Squad.

#### 2.3 Missouri Valley Fire and Rescue Squad

The Missouri Valley Fire and Rescue Squad is located approximately fifteen miles from the plant.

#### 2.4 Additional support is available to both the Blair Fire Department and Rescue Squad and the Fort Calhoun Fire and Rescue Squad by request through the Tri-Mutual Aid Association (Douglas, Sarpy, and Washington Counties).

#### 2.5 Other Modes of Transportation

If necessary, there are other modes of transportation for delivering injured personnel to appropriate medical facilities.

2.5.1 Medical Ambulance helicopter

2.5.2 Onsite company vehicles

2.5.3 Private autos of company personnel

### **3.0 OFFSITE MEDICAL SUPPORT**

#### 3.1 Non-Contaminated Personnel

The nearest medical facility is the Blair Memorial Community Hospital which is located five miles from the plant. A physician is readily available as a general medical consultant. Other facilities may be used as determined necessary by medical response personnel.

## MEDICAL AND PUBLIC HEALTH SUPPORT

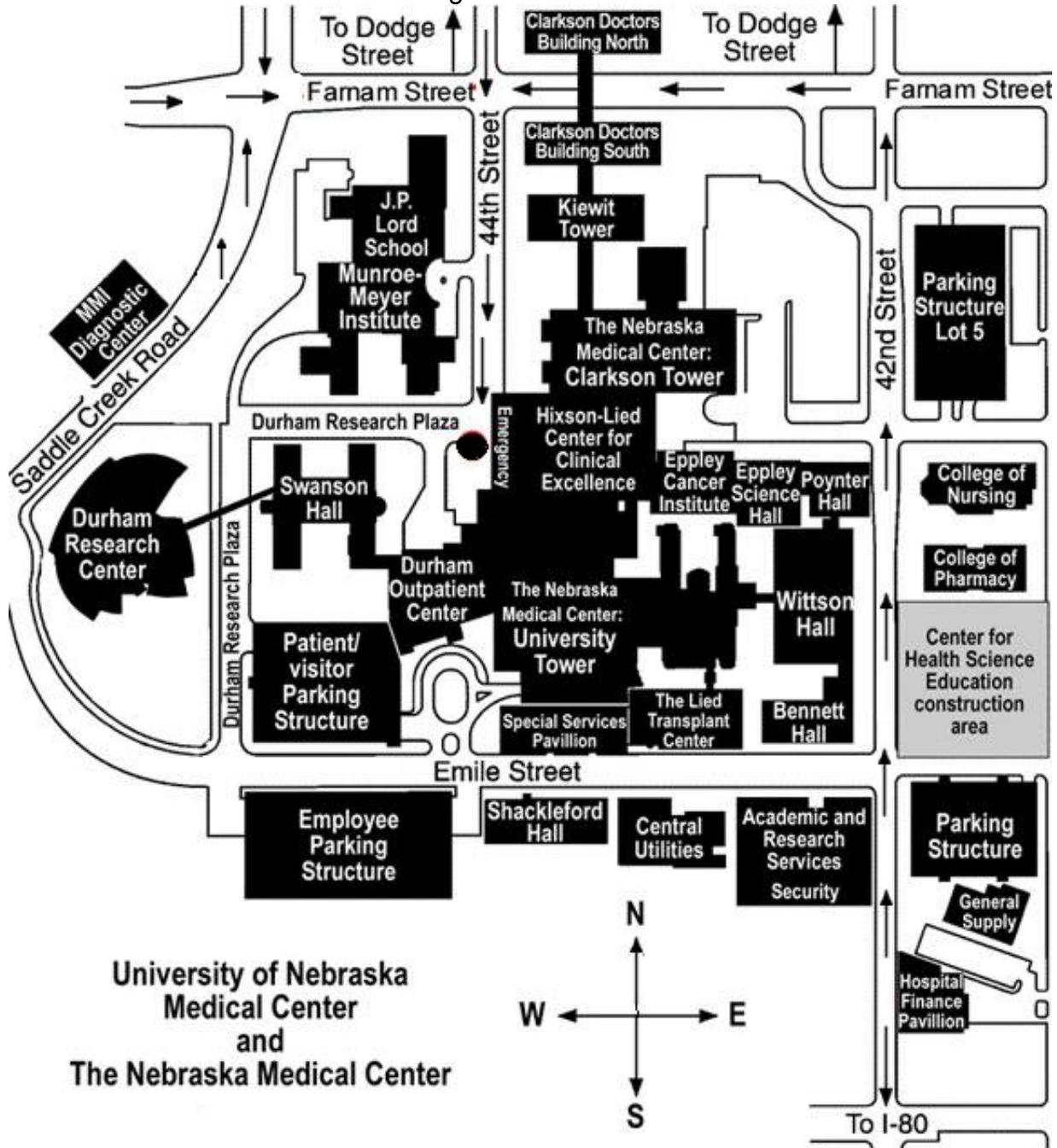
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### 3.2 Contaminated Personnel

- 3.2.1 Omaha Public Power District maintains an agreement with the UNMC Regional Radiation Health Center to supply 24-hour treatment for all injuries involving contamination and/or personnel radiation exposure. The Regional Radiation Health Center is located approximately 25 miles from the plant in Omaha, Nebraska. The facility is part of the UNMC complex, and was established specifically for the treatment of injuries occurring from nuclear and radiation related incidents. An entrance (Figure L1) is available for the ingress and egress of contaminated victims to a special assessment and decontamination facility. Patients can also be transported to the facility via medical ambulance helicopters.
- 3.2.2 The UNMC Regional Radiation Health Center staff administers medical, decontamination, internal bioassay, and other nuclear medicine capabilities. The staff maintains an appropriate "Standard Operating Procedures Manual" which describes their responsibilities and roles. If additional hospital beds should be required during a major incident, the hospital maintains a mutual agreement with several other Omaha area hospitals to assist with decontaminated patients.
- 3.2.3 Due to the large, highly qualified staff, the distance from the plant, the specialized capabilities, and the overall size of the UNMC complex, the Fort Calhoun Station was granted an exemption from requiring a backup medical facility by the Federal Emergency Management Agency.

## MEDICAL AND PUBLIC HEALTH SUPPORT

Figure L-1 - Entrance to Treatment Area  
UNMC Regional Radiation Health Center



## MEDICAL AND PUBLIC HEALTH SUPPORT

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### **1.0 RECOVERY ORGANIZATION (RO)**

#### 1.1 Responsibilities

The Recovery Organization (RO) responsibilities include the overall coordination and management of the recovery effort and has provisions for technical and administrative services, design work, scheduling, planning, quality control/assurance, construction and vendor support.

#### 1.2 Staffing

The Recovery Organization would be composed of all the necessary technical, administrative, managerial, and support personnel required for the recovery phase of emergency response. This organization would be capable of 24 hour a day sustained operation.

The lead position in the Recovery Organization would be the Recovery Operations Manager. This individual would be appointed by the Command and Control Position of the Emergency Response Organization. The staffing positions of the rest of the Recovery Organization would be dependent upon the needs based on accident type and magnitude.

The responsibilities of the Recovery Operations Manager and the functions of possible staff members are detailed in the Emergency Plan Implementing Procedures.

#### 1.3 Activation

The activation of the Recovery Organization is through the directions given in the Emergency Plan Implementing Procedures governing the downgrading and termination of the emergency response phase. Downgrading and termination is achieved through a checklist format of considering not only the current and past conditions but also those conditions which have the potential to occur.

The ultimate decision for activation of the Recovery Organization rests with the Emergency Command and Control Position.

## MEDICAL AND PUBLIC HEALTH SUPPORT

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### 1.4 Transition

The transition from Emergency Response Organization to Recovery Organization would consist of turning over functions that would continue while terminating other functions that would not be necessary. The extent of the turnover would be based upon the size of the Recovery Operations which would be dependent upon the type and magnitude of the emergency.

As a minimum, the facility directors at each of the Emergency Response Facilities will make an announcement concerning the shift to the Recovery Organization and direct all Emergency Response Organization Members to turn in all pertinent logs and forms to the administrative manager in each facility. A critique would follow at each facility while recovery operations were commencing.

## 2.0 **REENTRY**

### 2.1 Purpose

The purpose for a reentry plan is to provide a means to regain access to an onsite or offsite area that was previously made inaccessible due to an emergency.

### 2.2 Responsibility

The Command and Control Position has the responsibility for authorizing reentry into a previously evacuated area. This could be the Shift Manager, Site Director, or Emergency Director depending on the stage that emergency response has reached.

### 2.3 Implementation

The implementation of the reentry plan is carried out by the Emergency Response Organization. Reentry is normally expected to be accomplished by teams dispatched from the Operations Support Center.

### 2.4 Emergency Radiation Exposure

OPPD is committed to keeping exposure "as low as reasonably achievable" (ALARA). It is understood that there are emergency situations which transcend the normal requirements for limiting exposure. When such situations exist, the Command and Control Position will make the determination as to the amount of radiation exposure that will be permitted based on the guidelines set forth in Section K of this Plan.

## EXERCISES AND DRILLS

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### 1.0 EXERCISES

An emergency preparedness exercise is an event that tests the integrated capability and a major portion of the basic elements existing within the Radiological Emergency Response Plan (RERP), associated Emergency Plan Implementing Procedures (EPIPs) and the various organizations associated with the implementation of the RERP. Typically, an emergency preparedness exercise shall simulate an emergency that results in offsite radiological releases which would require response by offsite authorities. However, whenever the State of Nebraska and the State of Iowa are not participating in a particular exercise, the scenario should concentrate on realistic in-plant emergencies with less emphasis on offsite response.

Periodic emergency preparedness exercises can be conducted to evaluate major portions of emergency response capabilities. Also, exercises provide the opportunity to identify further improvements to the emergency preparedness program. Areas of improvement, weaknesses and deficiencies noted as a result of an exercise will be evaluated and corrected, as appropriate.

Normally, an exercise is not considered a "training function", as the participants are not guided, nor "coached", during an exercise. Interaction between controller/observers and participants is not allowed during an exercise, except for delivery and explanation of scenario information and data.

Exercises are conducted biennially, as a minimum. The states of Iowa and Nebraska, along with associated local governmental agencies, are invited to participate in all training drills and exercises, and are required to participate in the biennial exercise under evaluation by the Federal Emergency Management Agency. The Nuclear Regulatory Commission also performs routine inspections to evaluate licensee emergency response performance. The Resident Inspector(s) or other NRC personnel may observe licensee performance during training drills or non-evaluated exercises.

Drill and Exercise procedures are used to verify the following criteria:

- 1.1 State and local personnel and resources capability to respond to a radiological emergency response scenario.
- 1.2 Scenario variance from year to year in order to provide optimum training for radiological emergency response personnel.
- 1.3 Variance of hours in which the radiological emergency exercise is performed.
- 1.4 Joint radiological emergency exercise involving plant and Federal, State and local support groups, including any that involve a time variance.

## EXERCISES AND DRILLS

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### 2.0 DRILLS

A drill is a supervised instruction period aimed at testing, developing and maintaining skills in a particular ERO position, function, center, or operation. A drill can be used as a specific training component of an exercise, if the exercise objectives identify and authorize such component. Drills will be supervised and evaluated by appropriate emergency planning personnel or other personnel with specific expertise pertaining to the drill or function being observed.

Periodic emergency preparedness drills are conducted to develop and maintain key skills within the ERO. Also, drills provide the opportunity to identify further improvements to the emergency preparedness program. Areas for improvement, weaknesses and deficiencies noted as a result of a drill will be evaluated and corrected, as appropriate.

At least one drill between biennial exercises will involve a combination of some of the principal functional areas of the onsite Emergency Response Organization, such as; command and control, accident assessment and classification, protective action recommendation decision making, and plant system and component repair and corrective actions. Simultaneous activation of all of the licensee's emergency response facilities during training drills is not necessary. Special functional drills can be developed and used to; focus on accident management strategies; supervised instruction periods for special or newly developed activities and/or procedures; allow resolution of problems (success paths) by ERO members, and; focus on identified onsite training objectives.

Normally, a drill is considered a "training function", as the participants are guided or "coached" during the actual drill. Interaction between controller/observers and participants is encouraged during a drill, except for instances where specific knowledge and memory are being tested.

## EXERCISES AND DRILLS

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### 2.1 Communication Drills

Emergency Planning procedures provide for communication checks with appropriate agencies to ensure availability and operability of all channels of communication necessary for adequate response to a radiological emergency requiring off-site support. These tests outline those agencies to be contacted, the person (by name or title) who is responsible for verifying that adequate communication exists, the required frequency for which communication is to be checked, and a procedure for accomplishing the test. Below is the communication schedule for these checks or drills to be performed:

- 2.1.1 Communications are checked monthly from the EOF at the North Omaha Power Station with the States of Nebraska and Iowa and the local governments of the Counties of Harrison, Pottawattamie, and Washington and the NRC using dedicated communications equipment and backup systems. A functional check of the ERFCS is also performed on a monthly basis.
- 2.1.2 Communications are checked monthly from the Fort Calhoun Station Technical Support Center with the State of Nebraska and Iowa EOCs.
- 2.1.3 Communications are checked quarterly with Federal response agencies and the States of Nebraska and Iowa within the ingestion exposure pathway EPZ. Also verified are communications with the JIC and functional checks of the FAX Network, radio system, and the ERF paging systems. Quarterly communications checks are performed from the Control Room with the NRC using both the FTS-ENS phone line and the Emergency Response Data System.
- 2.1.4 Communications are checked annually between the Fort Calhoun Station, the States of Nebraska and Iowa and local Emergency Operations Centers and field teams.

### 2.2 Fire Drills

Fire drills are conducted by plant personnel on a quarterly basis. The drills are held to test the plant's firefighting capability. The drills are varied in order to test all phases of firefighting techniques.

The Blair Fire Department is annually invited to conduct a drill onsite. Onsite drills assist in familiarizing the fire department members with the types and locations of equipment available to mitigate plant fires.

## EXERCISES AND DRILLS

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### 2.3 Medical Emergency Drills

The Nebraska Health Center, University Hospital Radiation Health Center is invited to participate in an annual exercise and/or scheduled drill(s) to demonstrate and practice the receipt and treatment of contaminated patients. The extent of the Center's participation depends on their work load and schedule for hospital patients at the time the exercise or drill is declared.

### 2.4 Health Physics and Radiological Monitoring Drills

Emergency Planning procedures develop guides for the preparation, execution, and documentation of health physics and radiological monitoring drills. Execution of these procedures is shared by Emergency Planning and Radiation Protection.

There are two (2) types of drills performed by Chemistry and Radiation Protection Departments:

2.4.1 Semi-annually, a health physics drill is conducted to monitor the response to and analysis of simulated elevated airborne releases, and direct radiation measurements in the environment. Normally, this drill is conducted in conjunction with a quarterly training drill.

2.4.2 Annually a drill is held which involves the collection of a type of environmental sampling media by the Chemistry Departments Environmental Group.

The NRC waived the requirement for a Reactor Coolant liquid sample drill in the SER related to Technical Specification (T.S.) Amendment 200. Amendment 200 deleted the Post Accident Sampling System (PASS).

### 2.5 Augmentation Call Out Drill

Notification and/or Augmentation Drills will be conducted at least every 12 months. The drills shall evaluate the licensee's capability to notify the minimum staffing positions in the Technical Support Center, Operations Support Center and the Emergency Operations Facility, in addition to meeting the staffing requirements of Table B-1 in RERP, Section B.

## EXERCISES AND DRILLS

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### 3.0 SCENARIOS

Scenarios for a drill are developed by either Emergency Planning or the group responsible for conducting the specific drill. Each drill should include a basic objective and appropriate evaluation criteria.

A special group is assigned the scenario development for the biennial exercise. An Emergency Planning procedure develops the plan for the preparation, execution, and documentation of the biennial exercise. This procedure requires input from major Federal, State, and local agencies, as well as OPPD staff, in order to define the objectives to be accomplished in the exercise. The scenario is then prepared to describe the following features:

- Objectives of the exercise.
- Date, time period, location, and participants.
- Simulated events.
- Time schedule of real and simulated events.
- Summary describing conduct of exercise.

Preparation of the scenario may include such items as identifying Control Room alarms, sequence of alarms, and instrument readings required to initiate the planned emergency exercises essential components.

A strong attempt is made to allow only key officials of Federal, State, and local support agencies to share scenario information in advance of exercises, in order that their participation in the exercise can be developed properly to demonstrate their maximum capabilities without losing confidentiality of exercise information.

### 4.0 CRITIQUES

In addition to the OPPD observers, offsite support agencies may provide observers for the biennial exercise. Observers are given information of the accident scenario prior to the exercise so that they may evaluate participants effectively.

Observers, evaluators, controllers and participants submit their comments and recommendations during a critique that is held after all drills and exercises. An Emergency Planning procedure is used to document and classify all significant comments and issues. Significant observations are incorporated into the plants Corrective Action Program for resolution.

## EXERCISES AND DRILLS

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### 5.0 ACTUAL EMERGENCIES

In the event of an actual emergency, credit for the response may be substituted for a drill or exercise if the event is properly documented according to the guidelines set forth in 10 CFR 50.47 and NUREG-0654, Rev.1/FEMA-REP-1.

## RADIOLOGICAL EMERGENCY RESPONSE TRAINING

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### 1.0 **FIRST AID TRAINING**

Personnel assigned the responsibility for responding to a medical emergency at the Fort Calhoun Station receive the American Red Cross Standard First Aid Training Program, or equivalent. Normally, these are members of the Fort Calhoun Station Fire Brigade which consists of Operations personnel assigned to shift crews. To maintain qualifications in accordance with the American Red Cross, CPR is conducted annually and First Aid Training is given biannually. The training is conducted by the American Red Cross and the associated training records are maintained in accordance with Training Department procedures.

### 2.0 **FIRE BRIGADE TRAINING**

Fire Brigade training is outlined in the TQ-AA-173, Emergency Services Training Programs.

### 3.0 **GENERAL EMPLOYEE TRAINING**

An overview of the Emergency Plan is given to all personnel allowed unescorted access into the protected area at Fort Calhoun Station. Personnel receive this information during initial training and are requalified on an annual basis. This training includes identification of the emergency alarm, the fire alarm and the steps to follow for a plant and site evacuation.

### 4.0 **EMERGENCY PREPAREDNESS TRAINING PROGRAM**

TQ-FC-113, ERO Training and Qualification identifies the initial and continuing training requirements for emergency response personnel.

As appropriate, members of the onsite emergency response organization are qualified to wear respiratory equipment, including self-contained breathing apparatus (SCBA) through the General Employee Training, Level III, Respiratory Protection Training Program.

### 5.0 **EMERGENCY RESPONSE ORGANIZATION TRAINING**

Requirements for initial training and continuing training of personnel assigned to the Emergency Response Organization is accomplished in accordance with TQ-FC-113, ERO Training and Qualification.

Requirements for initial training and continuing training of security personnel are outlined in the Security Training and Qualification Plan.

FCS Management is responsible to ensure all members of the Emergency Response Organization receive the required initial training and continuing training.

## RADIOLOGICAL EMERGENCY RESPONSE TRAINING

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### **6.0 LOCAL SUPPORT SERVICES PERSONNEL TRAINING**

#### 6.1 Fire and Rescue Squads

The Blair Fire Department and Rescue Squad and the Fort Calhoun Fire/Rescue are offered annual training by the Nebraska Emergency Management Agency. The Missouri Valley Fire and Rescue Squad and the Council Bluffs Fire and Ambulance Squad are offered annual training from the Iowa Homeland Security and Emergency Management Division. OPPD will provide assistance with training as requested.

This training normally includes an overview of the plant facility in order to familiarize them with the general area where their assistance may be requested, a review of the basic emergency classification levels, and a review of proper contamination control procedures.

#### 6.2 Offsite Organizations

Lead representatives and selected responders falling under the jurisdiction of the following offsite response organizations shall be offered annual training/retraining.

- Washington County Emergency Management
- Harrison County Emergency Management
- Pottawattamie County Emergency Management
- Douglas County Emergency Management
- Nebraska Region 5/6 Emergency Management

Members of the Fort Calhoun Station may assist with the state of Nebraska Emergency Management Agency and the state of Iowa Homeland Security and Emergency Management Division in preparing and presenting, on an annual basis, training to their Emergency Management agencies in radiological emergency response. Both states have outlined in their respective emergency plans the type of training to be given. Their training is not limited to Emergency Management agencies, but may also include key public officials and emergency services management as well as the state and police agencies and hospitals.

State and local Emergency Management groups are invited to participate in the biennial exercise conducted by the plant. Their participation in the biennial exercise supplements the annual training.

#### 6.3 Law Enforcement Agencies

Training for law enforcement agencies is typically conducted by the states of Iowa and Nebraska.

## RADIOLOGICAL EMERGENCY RESPONSE TRAINING

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### 7.0 DOCUMENTATION OF TRAINING

FCS training procedures outline the process to document training of the Fort Calhoun Station Emergency Response Organization. An Emergency Planning procedure is used to verify training received by offsite organizations.

## RESPONSIBILITY FOR THE PLANNING EFFORT: DEVELOPMENT, PERIODIC REVIEW AND DISTRIBUTION

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### **1.0 RESPONSIBILITY FOR RADIOLOGICAL EMERGENCY RESPONSE PLANNING**

- 1.1 The Plant Manager and Nuclear Division Managers are responsible for the implementation of actions required to periodically exercise the Radiological Emergency Response Plan (RERP), and the Implementing Procedures and for maintaining an effective Emergency Response Organization (ERO) staff.
- 1.2 The Plant Operations Review Committee is responsible for the review and approval of revisions to the RERP and the Implementing Procedure used for emergency classification in accordance with EP-FC-120 Attachment 2, EP Document Structure and Revision Process.
- 1.3 The Plant Manager is responsible for the final approval of RERP and the Implementing Procedure used for emergency classification, and for maintaining an effective emergency response capability at Fort Calhoun Station.
- 1.4 Nuclear Organization Responsible Management Contacts are responsible for selecting and proposing personnel to fill ERO positions and for ensuring support of the Radiological Emergency Response Plan.
- 1.5 The Manager- Site Emergency Planning is responsible for the development, administration and maintenance of the RERP, Implementing Procedures, and EP-FC procedures, review and approval of all Implementing Procedure changes (with the exception of the Implementing Procedure used for emergency classification), planner training, the overall development and implementation of the FCS ERO Training and Qualification Program and coordination of off-site emergency preparedness activities in the states of Iowa and Nebraska.
- 1.6 The Manager-Nuclear Training is responsible for the independent review and approval of the FCS ERO Training and Qualification Program.
- 1.7 The Emergency Planning Department is responsible for the preparation of all revisions to the RERP, Implementing Procedures and for coordinating the review processes necessary prior to the implementation of the revisions.

### **2.0 MAINTENANCE OF THE RERP AND IMPLEMENTING PROCEDURES**

- 2.1 Emergency Planning personnel shall review the RERP and Implementing Procedures annually. Any changes found to be necessary as a result of the review shall be submitted using the established procedure change process.
- 2.2 Comments and recommendations made as a result of drills/exercises may require procedure changes to be initiated. These processes are detailed in the drill and exercise program.

## RESPONSIBILITY FOR THE PLANNING EFFORT: DEVELOPMENT, PERIODIC REVIEW AND DISTRIBUTION

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- 2.3 Recurring tasks ensure that copies of the annual review and annual audit reports are reviewed by the Manager-EP and any changes incorporated as necessary.
- 2.4 Changes to the plan will be submitted to the NRC within 30 days in accordance with 10CFR50.54(q). The Radiological Emergency Response Plan and approved changes to the plan will also be forwarded to appropriate organizations and individuals with responsibility for implementation of the plan. A new edition of the Radiological Emergency Response Plan will be issued when major technical and significant philosophical changes are required.
- 2.5 All emergency telephone numbers are updated quarterly.

### **3.0 AUDITS**

- 3.1 The Nuclear Oversight Department will coordinate an independent audit of the Emergency Preparedness Program at intervals not to exceed 24 months or more frequently as required by 10CFR50.54(t)(1). The audit shall include the Radiological Emergency Response Plan, implementing procedures, practices, drills, exercises, training, readiness testing, equipment and interfaces with state and local governments. The results of this audit along with the recommendations for improvement must be documented and reported to the licensee's corporate and plant management. Copies of pertinent sections of the audit will be forwarded to appropriate state and local governments. This audit shall fulfill the requirements of 10CFR50.54(t). The results of this audit shall be retained for a minimum of five years.

## RESPONSIBILITY FOR THE PLANNING EFFORT: DEVELOPMENT, PERIODIC REVIEW AND DISTRIBUTION

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### 1.0 LETTERS OF AGREEMENT REVIEW

- 1.1 Written agreements establishing the concept of operations developed between Fort Calhoun Station and other support organizations having an emergency response role within the EPZs have been developed. These agreements identify the emergency measures to be provided, the mutually accepted criteria for implementation, and the arrangements for exchange of information. Agreement letters are not necessary with Federal Agencies who are legally required to respond based on Federal law; however, agreements are necessary if the agency was expected to provide assistance not required by law. Letters of Agreement with private contractors and others who provide services in support of Fort Calhoun Station shall be maintained on file. Letters of Agreement, as a minimum, state that the cooperating organization will provide their normal services in support of an emergency at the affected station. A contract/purchase order with a private contractor is considered acceptable in lieu of a Letter of Agreement for the specified duration of the contract.

Organizations deemed to be First Responders, who are identified as Local Law Enforcement Agency (LLEA), Volunteer Fire Fighting Organizations, Emergency Medical Services (EMS), and the University of Nebraska Medical Center (UNMC), will contain wording to ensure they will respond to a Radiological event to include a Hostile Action Based event.

**LLEA** will support Fort Calhoun Nuclear Station during a Radiological or Hostile Action Based event, in conjunction with the National Incident Management System upon notification by the station in accordance with established communications protocol.

**Fire Fighting** Organizations will respond to a Radiological Event, including a Hostile Action Based Event, in conjunction with the National Incident Management System in accordance with established response and communication protocol. Fire Fighting Organizations may be requested to obtain and provide fire response, fire apparatus, and fire personnel.

**EMS** Support will provide Emergency Medical Services in response to a Radiological Event including a Hostile Action Based Event. This includes transportation of patients from the Fort Calhoun Nuclear Station, including those who may have been exposed to radiation or may have injuries complicated by radioactive contamination, to the University of Nebraska Medical Center by use of established communication protocol.

**UNMC** agrees in the event of a Radiological event, including a Hostile Action Based Event, to ensure the capability for the evaluation of radiation exposure and uptake, including assurance that persons providing these services are

## RESPONSIBILITY FOR THE PLANNING EFFORT: DEVELOPMENT, PERIODIC REVIEW AND DISTRIBUTION

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adequately prepared to handle contaminated individuals and capable of providing medical support for any contaminated individual.

A contract/purchase order with a private contractor is considered acceptable in lieu of a Letter of Agreement for the specified duration of the contract.

<b>i</b>	<b><u>NOTE</u></b>	<b>i</b>
	Copies of Current Letters of Agreement are on file in the Emergency Planning Department.	

### 1.2 Law Enforcement Support Organizations

- Nebraska State Patrol
- Iowa State Patrol
- Harrison County Sheriff's Department
- Washington County Sheriff's Department
- Pottawattamie County Sheriff's Department
- Douglas County Sheriff's Department

### 1.3 Fire and Rescue Support Organizations

- Blair Fire Department
- Fort Calhoun Fire and Rescue
- Missouri Valley Fire Department

### 1.4 Medical Support Organizations

- UNMC Regional Radiation Health Center

### 1.5 Nebraska's Governmental Support Organizations

- State of Nebraska Emergency Management
- State of Nebraska-Department of Health and Human Services, Regulation and Licensure
- Washington County Board of Supervisors
- Nebraska Game and Parks Commission
- Douglas County Emergency Management Agency

### 1.6 Iowa's Governmental Support Organizations

- Iowa Homeland Security and Emergency Management Division

## RESPONSIBILITY FOR THE PLANNING EFFORT: DEVELOPMENT, PERIODIC REVIEW AND DISTRIBUTION

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- Harrison County Board of Supervisors
- Pottawattamie County Board of Supervisors
- Pottawattamie County Division of Telecommunications

### 1.7 Industrial Support Organizations

- Union Pacific Railroad
- Westinghouse Electric
- Electric Power Research Institute/Nuclear Energy Institute
- Institute of Nuclear Power Operations (INPO)

### 1.8 Other Support Organizations

- Nebraska Public Power District
- Metropolitan Utilities District
- National Weather Service
- Tierney-Blair LLC

### 1.9 Monitoring and Decontamination Support Organizations

- Omaha Fire Department Emergency Worker Decon

## RESPONSIBILITY FOR THE PLANNING EFFORT: DEVELOPMENT, PERIODIC REVIEW AND DISTRIBUTION

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The following is a list of plans for organizations that support or supplement emergency response to the Fort Calhoun Station. These are maintained in the EOF.

### State

Iowa Radiological Emergency Response Plan, Part 2, Nuclear Power Plant Accident/Incident, Annex P of the Iowa Emergency Response Plan.

State of Nebraska - "Radiological Emergency Response Plan for Nuclear Power Plant Incidents"

### Local

Crawford County (Iowa) - "Radiological Emergency Response Plan"

Dodge County (Nebraska) - "Radiological Emergency Reception Plan for Nuclear Power Plant Incidents"

Douglas County (Nebraska) - "Douglas County Supplement to Washington County Radiological Emergency Response Plan for Nuclear Power Plant Incidents"

Harrison County (Iowa) - "Radiological Emergency Response Plan for Nuclear Power Plant Incidents"

Pottawattamie County (Iowa) - "Radiological Emergency Response Plan"

Sarpy County (Nebraska) - "Radiological Emergency Response Plan for Nuclear Power Plant Incidents"

Washington County (Nebraska) - "Radiological Emergency Response Plan for Nuclear Power Plant Incidents"

## NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

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PSRERP Appendix C provides a cross reference to track OPPD's implementation of the guidance provided by NUREG 0654, FEMA REP 1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Rev. 1.

OPPD generally conforms to the guidance of NUREG-0654 in its Post Shutdown Radiological Emergency Response Plan (PSRERP), Emergency Plan Implementing Procedures (EPIP) and other supporting documents. However, OPPD has and may make exceptions to NUREG-0654 guidance providing it does not reduce the effectiveness or intent of the PSRERP or EIPs.

For Section D, Emergency Classification System, OPPD uses the guidance of NEI-99-01, Development of Emergency Action Levels for Non-Passive Reactors. This variance from NUREG-0654 has been approved by the NRC.

All changes to the PSRERP are subject to a 10 CFR 50.54(q) screening, 10 CFR 50.47(b) and 10 CFR 50 Appendix E reviews. If the reviews determine that the change does not reduce the effectiveness or intent of the plan, the Plant Operating Review Committee (PORC) must then approve the change before it is implemented and sent to the NRC for review. If the screening process finds that the change does reduce the effectiveness or intent of the plan the change must be submitted to NRC for pre-approval prior to implementation.

All changes to EIPs and other documents governed by the PSRERP are also subject to 10 CFR 50.54(q) screening. If it is determined that the proposed EPIP or other plant document change requires a PSRERP change a full 10 CFR 50.47(b), 10 CFR 50 Appendix E review and PORC approval is required prior to implementation and submittal to the NRC for review. NRC pre-approval must be obtained if a change is determined to reduce the effectiveness or the intent of the plan.

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>A. Assignment of Responsibility</b>			
A.1.a	Identify the State, Local, Federal and private sector organizations (including utilities) intended to be a part of the ERO.	A 1.1-1.8	N/A
A.1.b	Each organization shall specify its concept of operations and its relationship to the total effort.	A 2.0, C 1.0, 2.0, 3.0, 4.0 Appendix A	EP-FC-112, Crisis Communication Plan
A.1.c	Block diagram of organizational interrelationships.	FIG. A-1	N/A
A.1.d	Identify a specific individual (by title) who shall be in charge of the emergency response.	A 2.0	EP-FC-112
A.1.e	Provide for 24-hr per day response, including communications links.	A 1.0	EP-FC-112
A.2.a	State/Local applicability	N/A	N/A
A.2.b	State/Local applicability	N/A	N/A
A.3	Letters of Agreement	Appen. A	EP-FC-120 (Verification of RERP-Appendix A)
A.4	Capability of continuous 24-hour operations. Identify, by title, the individual in the principal organization responsible for continuity of resources.	A 1.0, 2.0	EP-FC-112

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>B. Onsite Emergency Organization</b>			
B.1	Specify the onsite emergency organization of plant staff personnel for all shifts and its relation to the responsibilities and duties of the normal staff complement.	B 2.1, Table B-1	EP-FC-112-100, EP-FC-112-200, EP-FC-112-300, EP-FC-112-400, EP-FC-112-500
B.2	Designate an individual as emergency coordinator who is on shift at all times.	B 7.1, 7.2	EP-FC-112-100
B.3	Identify a line of succession for the emergency coordinator position and identify the specific conditions for higher level utility officials assuming this function.	B 7.0	EP-FC-112
B.4	Specification of responsibilities, and designation of which may not be delegated.	B 6.2	EP-FC-112
B.5	Positions or titles and major tasks to be performed by the persons assigned to the functional areas of emergency activity.	B 8/9/10/11/12, Table B-1	EP-FC-112-100, EP-FC-112-200, EP-FC-112-300, EP-FC-112-400, EP-FC-112-500, Crisis Communication Plan
B.6	Interfaces between and among the onsite, offsite, corporate, state and local government response organizations.	B-13, Table B-3	N/A
B.7	Each licensee shall specify the corporate, management, admin., and technical personnel who will augment plant staff in Table B-1 and in the following areas:	Table B-1 B 4.0	EP-FC-112-100, EP-FC-112-200, EP-FC-112-300, EP-FC-112-400, EP-FC-112-500
B.7.a	Logistics support, e.g., trans, comm, quarters, food, water, special equipment and supplies purchase;	B 9.0, 11.0 Table B-2	EP-FC-112-200-F-03, EP-FC-112-400-F-07
B.7.b	Technical support for planning reentry and recovery operations;	B 6.0	EP-FC-115
B.7.c	Management level interface with government authorities; and	B 13	EP-FC-112
B.7.d	Release of information to news media during an emergency (coordinated with governmental authorities).	B 12,13	EP-FC-112 Crisis Comm. Plan
B.8	Specification of contractor and private organizations to provide assistance.	A 1.0, B-13, B-15, Fig. B-3, Appen A	EP-FC-112-200-F-03, EP-FC-112-400-F-07, EP-FC-120 (Verification of RERP-Appendix A)
B.9	Expected services from local agencies e.g., police, fire, ambulance, medical, hospital.	A 1.0 Appen A B 15, Table B-1, Fig B-3 RERP Sec L	EP-FC-120 (Verification of RERP-Appendix A)

Refer to Attachment 1 – PSRERP Titles, for names of PSRERP Sections  
Refer to Attachment 2 – EPIP Titles, for names of EPIP's

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>C. Emergency Response Support and Resources</b>			
C.1	Incorporation of Federal response into the operational plan:	C1	
C.1.a	Specific persons to request Federal assistance (See A.1.d and A.2.a)	C1.1, B 6.3.1	EP-FC-112
C.1.b	Specific Federal resources expected and expected times of arrival, and	C 1.2-1.3	N/A
C.1.c	Specific licensee, state, local resources to support Federal response, air fields, command posts, tel lines, radio frequencies, and telecommunications centers.	C 2.0	N/A
C.2.a	State/Local Applicability	N/A	N/A
C.2.b	Licensee representative to offsite EOC's	C 3.0	EP-FC-112-400
C.3	Radiological laboratories, general capabilities and expected availability to provide radiological monitoring and analyses services which can be used in an emergency.	C 2.2 4.0	N/A
C.4	Identify Nuclear and other facilities, organizations or individuals which can be relied upon in an emergency to provide assistance. Such assistance shall be identified and supported by appropriate letters of agreement.	C 4.0, Appen A	EP-FC-112-200-F-03, EP-FC-112-400-F-07, EP-FC-120 (Verification of RERP Appendix A)

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>D. Emergency Classification System</b>			
D.1 *	Establish an Emergency Action Level Scheme and Emergency Classification scheme.	D 2.0	EP-FC-1001 Addendum 3
D.2 *	Initiating conditions shall include NUREG-0654, Appendix 1 conditions and all FSAR postulated accidents.	D 1.0	EP-FC-1001 Addendum 3
D.3	State/Local applicability	N/A	N/A
D.4	State/Local applicability	N/A	N/A
* NEI-99-01 Guidance has replaced NUREG-0654 Appendix 1 guidance.			

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>E. Notification Methods and Procedures</b>			
E.1	Notification procedures consistent with EALs including a means for verification of messages.	E 2.0	EP-FC-114
E.2	Procedures for alerting, notifying and mobilizing emergency response personnel.	E 2.0	EP-FC-112-100-F-06
E.3	Licensee and state/local establish content of the initial messages, and shall contain: class, release, potentially affected population, and if PARs are needed.	E 3.1	EP-FC-114
E.4	Provisions for follow-up messages, and shall contain the following:	E 3.2	EP-FC-114
E.4.a	Location of incident, and name and telephone number (or communications channel identification) of caller;	E 3.2	EP-FC-114
E.4.b	Date/time of incident;	E 3.2	EP-FC-114
E.4.c	Class of emergency;	E 3.2	EP-FC-114
E.4.d	Type of actual/projected release, and estimated duration/impact times;	E 3.2	EP-FC-114
E.4.e	Estimate of radioactive material released or being released and the points and height of releases.	E 3.0	EP-FC-110-200
E.4.f	Chemical and physical form of material, estimates of quantities/concentration of noble gases, iodines, and particulates;	E 3.0	EP-FC-110-200
E.4.g	Met conditions at appropriate levels: wind speed, direction (to and from) stability, precip, if any;	E 3.0	EP-FC-114
E.4.h	Type of actual projected does rates at site boundary, projected integrated dose at site boundary:	E 3.0	EP-FC-110-200
E.4.i	Projected dose rates and integrated dose at 2, 5, and 10 miles, include the sector(s) affected;	E 3.0	EP-FC-110-200
E.4.j	Estimate of any surface contamination inplant, onsite, offsite;	E 3.0	EP-FC-110-200
E.4.k	Licensee emergency response actions underway;	E 3.0	EP-FC-114
E.4.l	Recommended emergency actions, including protective measures;	E 3.2	EP-FC-114
E.4.m	Request for any needed onsite support by offsite organizations, and;	E 3.0	EP-FC-114
E.4.n	Prognosis for worsening/termination based on plant information.	E 3.2	EP-FC-114
E.5	State/Local applicability	N/A	N/A
E.6	Notification/prompt instructions to the public. (ANS)	E 4.0	EP-FC-112, EP-FC-121
E.7	Written messages for the public, consistent with the EALs, to include ad hoc PARs.	E 5.0	EP-FC-112

Refer to Attachment 1 – PSRERP Titles, for names of PSRERP Sections  
Refer to Attachment 2 – EPIP Titles, for names of EPIP's

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>F. Emergency Communications</b>			
F.1.a	Provision for 24 hour notification to and activation of the State/local ER network, with telephone link and backup, and 24-hour manning of communication links that initiate emergency response actions;	E 2.0 F 1.0 F 2.0 F 2.3 F 2.4	EP-FC-114
F.1.b	Communications with contiguous states/locals;	F 2.0, 2.3, 2.4, Fig F-1, F-2	EP-FC-114
F.1.c	Communications with Federal EROs;	F 2.3, 2.9, 2.10, F 2.12, F 2.13, Fig. F-1	EP-FC-114
F.1.d	Communication between the plant, EOF, state and local EOCs, and rad monitor teams;	F 2.4, 2.5, 2.8, 2.11, 2.17, Fig. F-1, Fig. F-2	EP-FC-112
F.1.e	Provision for alerting or activating emergency personnel in each response organization, and	E 2.0	EP-FC-112-100-F-06
F.1.f	Communication (by licensee) with NRC HQ and Regional Office EOC and the EOF and Rad Mon Team Assembly area.	F 2.3, 2.8, 2.9, 2.10, F-2.12, 2.22	EP-FC-112-400
F.2	Each organization shall ensure that a coordinated comm link for fixed and mobile medical support facilities exists.	F 3.0	EP-FC-112-300-AD-F-04,FCSG-15
F.3	Each organization shall conduct periodic testing of the entire emergency communications system. (See also H.10, N.2.a and Appendix 3).	N 2.1	EP-FC-124

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>G. Public Education and Information</b>			
G.1	Each organization shall provide a coordinated periodic (at least annually) dissemination of information to the public re: how they will be notified, and what their actions should be.	G 1.0	Corporate Crisis Communication Plan; EP-FC-120
G.2	The public information program shall provide permanent and transient adult population within the EPZ an adequate opportunity to become aware of the information annually. This section also makes reference to: Signs, decals, posted notices, for hotel, motels, gas stations, and phone booths).	G 1.0	Corporate Crisis Communication Plan; EP-FC-120
G.3.a	Media contact point during an emergency (i.e., JIC, etc).	G 2.0	Corporate Crisis Communication Plan
G.3.b	Space for limited number of news media at the EOF.	G 2.0	Corporate Crisis Communication Plan
G.4.a	Each organization shall have a spokesperson.	G 3.0	Corporate Crisis Communication Plan
G.4.b	Each organization shall establish arrangements for timely exchange of information among designated spokes persons.	G 3.0	Corporate Crisis Communication Plan
G.4.c	Each organization shall establish coordinated arrangements for dealing with rumors.	G 2.1	Corporate Crisis Communication Plan
G.5	Each organization shall conduct coordinated programs at least annually to acquaint news media with the emergency plans, information concerning radiation, and points of contact for release of public information in an emergency.	G 4.0	EP-FC-120

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>H. Emergency Facilities and Equipment</b>			
H.1	Each licensee shall establish a TSC and an OSC.	H 1.0, 3.0	EP-FC-112
H.2	Establish an EOF.	H 2.0	EP-FC-112
H.3	State/Local applicability	N/A	N/A
H.4	Timely activation of the facilities and centers described in the Plan.	H 1.3, 2.3, 3.3, 4.3	EP-FC-112
H.5	Each licensee shall identify and establish onsite monitoring systems that are to be used to initiate emergency measures, in accordance with Appendix 1, as well as those used to conduct assessment. The equipment shall include:		
H.5.a	Geophysical phenomena monitors, (e.g., met, hydrological, seismic);	I 2.0, I 2.1.2, I 2.1.3, I 2.2.3, I 2.3.2(c)	EP-FC-1001 Addendum 3
H.5.b	Rad monitors, (e.g., process, area, emergency, effluent, wound and portable monitors and sampling equipment);	H.1.2, 2.2, 3.2, 4.2, 5.0 I 2.2.1 I 2.2.2	EP-FC-1001 Addendum 3 EP-FC-110 EP-FC-112-500 EP-FC-113 RP-AA-350
H.5.c	Process monitors (e.g., reactor coolant system pressure and temp, containment pressure and temp, liquid levels, flow rates, status or lineup of equipment components); and	I 2.2	EP-FC-1001 Addendum 3 EP-FC-121
H.5.d	Fire and combustion products detectors.	I 2.1.1	EP-FC-1001 Addendum 3 SO-G-28, Station Fire Plan
H.6	Each licensee shall make provision to acquire data from or for emergency access to offsite monitoring and analysis equipment, including:		
H.6.a	Geophysical phenomena monitors (e.g., met, hydrologic, seismic):	I 2.1.2 2.1.3 2.2.3	EP-FC-1001 Addendum 3
H.6.b	Radiological monitors including ratemeters and sampling devices. Dosimetry shall be provided and shall meet, as a minimum, the NRC Rad Assessment Branch Tech Position for the Environmental Rad Monitoring program; and	H 2.2 5.2 5.3 5.6	EP-FC-112-500 EP-FC-113 RP-AA-700
H.6.c	Laboratory facilities, fixed or mobile.	C 2.0, C 4.0	EP-FC-112-500
H.7	Each organization, where appropriate, shall provide for offsite rad monitoring equipment in the vicinity of the plant.	I 2.3.3 J 2.5	EP-FC-112-500

Refer to Attachment 1 – PSRERP Titles, for names of PSRERP Sections  
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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
H.8	Each licensee shall provide met instrumentation and procedures which satisfy the criteria in Appendix 2, and provisions to obtain representative current met data from other sources.	I 2.2.3	EP-FC-110-200 EP-FC-110-201
H.9	Each licensee shall provide for an onsite OSC which shall have adequate capacity and supplies, including, for example, respiratory protection, protective clothing, portable lighting, portable radiation monitoring equipment, cameras and communications equipment for personnel present in the OSC.	H 3.0	EP-FC-112-300
H.10	Inspect/inventory/operationally check equipment at least quarterly and after each use. There shall be sufficient reserves of instruments/equipment to replace those which are removed from emergency kits for calibration or repair.	H 5.0	EP-FC-124 RP-AA-700
H.11	Identify emergency kits, by general category (i.e., protective equipment, comm equipment, rad monitoring equipment).	H 5.0	EP-FC-124
H.12	Each organization will establish a central point for receipt and analysis of all field monitoring data and coordination of sample media.	H 2.1	EP-FC-112-500

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>I. Accident Assessment</b>			
I.1	Identify plant system and effluent parameter values characteristic of a spectrum of off-normal conditions and accidents, and shall identify the plant parameter values or other information which correspond to the example initiating conditions of Appendix 1.	Sec D I 1.0 2.0	EP-FC-1001 Addendum 3
I.2	Onsite capability and resources to provide initial values and continuing assessment throughout the course of an accident shall include post accident sampling capability, radiation and effluent monitors, in-plant iodine instrumentation and containment radiation monitoring.	I 1.0 2.0	EP-FC-1001 Addendum 3 EP-FC-110-200 EP-FC-110-201
I.3	Each licensee shall establish methods and techniques to be used for determining:		
I.3.a	The source term of releases of radioactive material within plant systems.	D 1.0 Table D-1	EP-FC-110-200 EP-FC-110-201
I.3.b	The magnitude of the release of radioactive materials based on plant system parameters and effluent monitors.	D 2.0	EP-FC-111-AD-F-02 EP-FC-110-200 EP-FC-110-201
I.4	Each licensee shall establish the relationship between effluent monitor readings and onsite and offsite exposures and contamination for various met conditions.	D 2.0	EP-FC-111-AD-F-02 EP-FC-110-200 EP-FC-110-201
I.5	Each licensee shall have the capability of acquiring and evaluating met information sufficient to meet the criteria of Appendix 2.	I 2.2.3	EP-FC-111-AD-F-02 EP-FC-110-200 EP-FC-110-201
I.6	Each licensee shall establish the methodology for determining the release rate/projected doses of the instrumentation used are offscale or inoperable.	I 3.1	EP-FC-111-AD-F-02 EP-FC-110-200 EP-FC-110-201
I.7	Field monitoring plans.	I 2.3	EP-FC-112-500
I.8	Provide methods, equipment and expertise to make rapid assessment of the actual or potential magnitude of any rad hazard through liquid or gaseous release pathways.	I 3.0	EP-FC-111-AD-F-02 EP-FC-110-200 EP-FC-110-201
I.9	Each organization shall have a capability to detect and measure radioiodine concentrations in air in the plume exposure EPZ as low as $10^{-7}$ $\Phi$ Ci/cc under field conditions.	I 3.0	EP-FC-112-500

Refer to Attachment 1 – PSRERP Titles, for names of PSRERP Sections  
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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

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NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
I.10	Each organization shall establish means for relating the various measured parameters (e.g. contamination levels, water and air activity levels) to dose rates for key isotopes and gross radioactivity measurements.	I 3.0	EP-FC-110-200 EP-FC-110-201
I.11	Arrangements to locate and track the plume.	I 2.3	EP-FC-112-500 EP-FC-110-200 EP-FC-110-201

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>J. Protective Response</b>			
J.1	Each licensee shall establish the means and time required to warn or advise individuals within the owner-controlled area, including:	J 1.3.2 J 1.1	
J.1.a	Employees not having emergency assignments;	J 1.1 J 1.3.2	EP-FC-113
J.1.b	Visitors;	J 1.1 J 1.3.2	EP-FC-113
J 1.c	Contractor and construction personnel, and	J 1.1 J 1.3.2	EP-FC-113
J 1.d	Other persons who may be in the public access areas or passing through the site or within the owner-controlled area.	J 1.1 J 1.3.2	EP-FC-113
J.2	Make provisions for evacuation routes and transportation for onsite individuals to some suitable offsite location, including alternatives for inclement weather, high traffic density and specific rad conditions.	J 1.2 Table J-9	EP-FC-113
J.3	Each licensee shall provide for radiological monitoring of people evacuated from the site.	J 1.2	EP-FC-113
J.4	Each licensee shall provide for the evacuation of onsite non-essential personnel in the event of a Site Area or General Emergency and shall provide a decon capability at or near the monitoring point specified in J.3, above.	J 1.2	EP-FC-113
J.5	Each licensee shall provide for a capability to account for all individuals onsite at the time of the emergency and ascertain the names or missing individuals within 30 minutes of the start of the emergency and account for all onsite individuals continuously thereafter.	J 1.3.2	EP-FC-113 SY-AA-101-121
J.6	Each licensee shall, for people remaining onsite, make provisions for:		
J.6.a	Individual respiratory protection;	J 1.4.4	EP-FC-113 RP Manual
J.6.b	Use of protective clothing;	J 1.4.3	EP-FC-113 RP Manual
J.6.c	Use of KI.	J 1.4.5	EP-FC-113
J.7	Each licensee shall establish a mechanism for recommending PAs to State and locals.	J 2.1.1	EP-FC-114

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
J.8	Each licensees plan shall contain an ETE. These shall be in accordance with Appendix 4.	J 2.3	EP-FC-1001 Addendum 2
J.9	State/local applicability	N/A Table J-9 J-10	N/A
J.10	The organizations plans to implement protective measures for the EPZ shall include:		
J.10.a	Maps showing evacuation routes, evacuation areas, preselected radiological sampling and monitoring points, relocation centers in host areas, and shelter areas;	J 2.3.2 Fig J-1 J-2	EP-FC-113 ANS Map 10-Mile EPZ Map
J.10.b	Maps showing pop distribution around the Nuclear facility. This shall also be by evacuation areas;	J 2.3.3 Fig J-4 J-7 J-8	EP-FC-1001 Addendum 2
J.10.c	Means for notifying all segments of the transient and resident population;	J 2.2	EP-FC-121
J.10.d	State/local applicability	N/A	N/A
J.10.e	State/local applicability	N/A	N/A
J.10.f	State/local applicability	N/A	N/A
J.10.g	State/local applicability	N/A	N/A
J.10.h	State/local applicability	N/A	N/A
J.10.i	State/local applicability	N/A	N/A
J.10.j	State/local applicability	N/A	N/A
J.10.k	State/local applicability	N/A	N/A
J.10.l	State/local applicability	N/A	N/A
J.10.m	The basis for the choice of recommended protective actions from the EPZ during emergency conditions.	J 2.1 Table J-2 J-3 J-4	EP-FC-111
J.11	State applicability	N/A	N/A
J.12	State/local applicability	N/A	N/A

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NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>K. Radiological Exposure Control</b>			
K.1	Each licensee shall establish onsite exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity PAGs for:		
K.1.a	Removal of injured persons;	K 1.0	EP-FC-113, RP Manual
K.1.b	Undertaking corrective actions;	K 1.0	EP-FC-113, RP Manual
K.1.c	Performing assessment actions;	K 1.0	EP-FC-113, RP Manual
K.1.d	Providing first aid;	K 1.0	EPIP-EOF-11, FCSG-15-7 RP Manual
K.1.e	Performing personnel decon;	K 1.0	EP-FC-113, RP Manual
K.1.f	Providing ambulance service; and	K 1.0	EP-FC-113, FCSG-15-7 RP Manual
K 1.g	Providing medical treatment services.	K 1.0	EP-FC-113, FCSG-15-7 RP Manual
K.2	Each licensee shall provide an onsite rad protection program to be implemented during emergencies, including methods to implement exposure guidelines.	K 1.0	EP-FC-113 RP Manual
K.3.a	24 hour capability to determine the doses received by emergency personnel involved in any nuclear accident, including volunteers.	K 1.2	RP Manual EP-FC-113
K.3.b	Each organization shall ensure that dosimeters are read at appropriate frequencies.	J 1.4.2 K 1.2	RP Manual
K.4	State/local applicability	N/A	N/A
K.5.a	Action levels for determining the need for decon.	K 2.1	RP-AA-350
K.5.b	Decon of personnel wounds, supplies, instruments and equipment and for waste disposal.	K 2.0, 3.0	RP-AA-350
K.6	Each licensee shall provide onsite contamination control measure including:		
K.6.a	Area access control;	K 2.0	RP-AA-350
K.6.b	Drinking water and food supplies;	K 2.4	EP-FC-112-200-F-14
K.6.c	Criteria for permitting return of areas and items to normal use (see ANSI 12.13).	K 2.5	RP-AA-350
K.7	Each licensee shall provide the capability for decon of relocated onsite personnel, including provisions for extra clothing and decontaminants suitable for the type of contamination given to radioiodine contamination of the skin.	K 2.1, 2.2, 2.3 L 3.2	EP-FC-113

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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>L. Medical and Public Health Support</b>			
L.1	Each organization shall arrange for local and backup hospital and medical services having the capability for evaluation of radiation exposure and uptake, including assurances that persons providing these services are adequately prepared to handle contaminated persons.	L 3.0	RP-AA-220 FCSG-15-7
L.2	Each licensee shall provide for onsite first aid capability.	L 1.0	FCSG-15-7
L.3	State applicability	N/A	N/A
L.4	Each organization shall arrange for transportation of rad victims to medical support facilities.	L 2.0	FCSG-15-7

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>M. Recovery and Reentry Planning and post Accident Operations</b>			
M.1	Each organization shall develop plans and procedures for reentry and recovery and describe the means by which decisions to relax protective measures are reached.	M 1.3 2.0	EP-FC-115
M.2	Each licensee plan shall contain the position/title, authority and responsibilities of individuals who will fill key positions in the recovery organization.	M 1.2	EP-FC-115
M.3	Each licensee and state plan shall specify the means for informing members of the response organizations that a recovery operation is to be initiated, and of any changes in the organizational structure that may occur.	M 1.2	EP-FC-115
M.4	Each plan shall establish a method for periodically estimating total population exposure.	I 3.0	EP-FC-200

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>N. Exercises and Drills</b>			
N.1.a	Exercises shall be conducted as set forth in NRC and FEMA rules.	N	EP-FC-122
N.1.b	An exercise shall include mobilization of State and local personnel and resources...shall provide for a critique by federal and state observers/evaluators...scenario varied from year to year....6:00 PM and Midnite/Midnite and 6:00 AM exercises....under various weather conditions....some unannounced.	N 1.0	EP-FC-122
N.2.a	Communications drills:		
	Comm with State and Locals (monthly)	N 2.1	EP-FC-122
	Comm with Federal EROs and states within the IPZ (quarterly)	N 2.1	EP-FC-122
	Comm between the plant, state and local EOCs, and field assessment teams (annually)	N 2.1	EP-FC-122
N.2.b	Fire Drills	N 2.2	OP-AA-201-005
N.2.c	Medical Emergency Drills	N 2.3	EP-FC-122
N.2.d	Rad Monitoring Drills	N 2.4	EP-FC-122
N.2.e	HP Drills		
	Shall be conducted semi-annually which involve response to and analysis of simulated elevated airborne and liquid samples and direct rad measurements. The state drills need not be at each site.	N 2.4	EP-FC-122
	Analysis of inplant liquid samples with actual elevated rad levels including use of the PASS shall be included in HP drills by licensees annually.	N 2.4	EP-FC-122
N.3	Each organization shall describe how exercises and drills are to be carried out to allow free play for decision making and to meet the following objectives. ....The scenarios shall include, but not be limited to, the following:		
N.3.a	Basic objectives and appropriate evaluation criteria;	N 1.0, 2.0, 3.0	EP-FC-122
N.3.b	Dates, time periods, places, and participating organizations;	N 1.0, 2.0, 3.0	EP-FC-122
N.3.c	The simulated events;	N 1.0, 2.0, 3.0	EP-FC-122
N.3.d	Time schedule of real and simulated initiating events;	N 1.0, 2.0, 3.0	EP-FC-122
N.3.e	A narrative summary;	N 1.0, 2.0, 3.0	EP-FC-122

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Refer to Attachment 2 – EPIP Titles, for names of EPIP's

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<b>NUREG Section</b>	<b>NUREG Criteria</b>	<b>RERP Section</b>	<b>Implementing Procedure(s)</b>
N.3.f	A description of arrangements and advance materials for official observers.	N 1.0, 4.0	EP-FC-122
N.4	An exercise critique.	N 4.0	EP-FC-122
N.5	Evaluating the comments from observers and participants.	N 4.0	EP-FC-122

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NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>O. Radiological Emergency Response Training</b>			
O.1	Each organization shall assure training of appropriate individuals.	O 4.0 5.0	TQ-FC-113
O.1.a	Each facility shall train members of the ERO.	O 5.0	TQ-FC-113
O.1.b	State/local applicability	O 6.0	N/A
O.2	Training shall include drills.	N 2.0	TQ-FC-113
O.3	Licensee training for First Aid teams to include ARC Multi-Media or equivalent.	O 1.0	TQ-AA-174
O.4	Each organization shall establish a training program for ERO. Training shall be in the following categories:		
O.4.a	Directors or coordinators of EROs;	O 5.0	TQ-FC-113
O.4.b	Accident assessment personnel;	O 5.0	TQ-FC-113
O.4.c	Rad Mon Teams and rad analysis personnel;	O 5.0	TQ-FC-113
O.4.d	Police, security and fire fighting personnel;	O 6.0	EP-FC-10 SY-AA-150
O.4.e	Repair and damage control/correctional action teams (onsite);	O 5.0	TQ-FC-113
O.4.f	First aid and rescue personnel;	O 1.0 6.0	TQ-AA-173
O.4.g	Local support services personnel, including CD/Emergency Services personnel;	O 6.0	EP-FC-10
O.4.h	Medical Support Personnel;	L 3.2 O 6.0	TQ-AA-173
O.4.i	Licensee Headquarters support personnel;	O 4.0	TQ-FC-113 Crisis Communication Plan
O.4.j	Personnel responsible for transmission of emergency information and instructions.	O 4.0	TQ-FC-113
O.5	Initial and annual retraining.	O 5.0	TQ-FC-113

Refer to Attachment 1 – PSRERP Titles, for names of PSRERP Sections  
Refer to Attachment 2 – EPIP Titles, for names of EPIP's

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

NUREG Section	NUREG Criteria	RERP Section	Implementing Procedure(s)
<b>P. Responsibility for the Planning Effort; Development, Periodic Review and Distribution of Emergency Plans</b>			
P.1	Each organization shall provide for the training of individuals responsible for the planning effort.	P 1.0	EP-FC-11
P.2	Each organization shall identify by title the individual with overall planning authority;	P 1.0	EP-FC-11
P.3	Each organization will designate an Emergency Planning Coordinator.	P 1.0	EP-FC-11
P.4	Each organization shall update its plan and agreements as needed, review and certify it to be current on an annual basis. Changes will take into consideration items from drills and exercises.	P 2.0	EP-FC-120
P.5	Plans and plan changes shall be forwarded to all organizations and appropriate persons with EP responsibility. Revised pages dated and marked to show changes.	P 2.0	EP-FC-120
P.6	List supporting plans and source.	APPEN B	N/A
P.7	Each plan shall contain an appendix listing procedures required to implement the plan. The listing shall include the sections of the plan to be implemented by each procedure.	APPEN C	N/A
P.8	Each plan shall contain a table of contents. Plans submitted for review should be cross-referenced to these criteria.	APPEN C	N/A
P.9	Independent review of the plans.	P 3.0	EP-FC-120
P.10	Quarterly update of plan telephone numbers.	P 4.0	EP-FC-124

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

Attachment 1 – PSRERP Titles

Document	Document Title
<a href="#">PSRERP</a>	Radiological Response Plan For Fort Calhoun Station
<a href="#">PSRERP-SECTION A</a>	Assignment of Organizational Responsibility (Organizational Control)
<a href="#">PSRERP-SECTION B</a>	Organizational Control of Emergencies
<a href="#">PSRERP-SECTION C</a>	Emergency Response Support and Resources
<a href="#">PSRERP-SECTION D</a>	Emergency Classification System
<a href="#">PSRERP-SECTION E</a>	Notification Methods and Procedures
<a href="#">PSRERP-SECTION F</a>	Emergency Communications
<a href="#">PSRERP-SECTION G</a>	Public Education and Information
<a href="#">PSRERP-SECTION H</a>	Emergency Facilities and Equipment
<a href="#">PSRERP-SECTION I</a>	Accident Assessment
<a href="#">PSRERP-SECTION J</a>	Protective Response
<a href="#">PSRERP-SECTION K</a>	Radiological Exposure Control
<a href="#">PSRERP-SECTION L</a>	Medical and Public Health Support
<a href="#">PSRERP-SECTION M</a>	Recovery and Reentry Planning and Post Accident Operations
<a href="#">PSRERP-SECTION N</a>	Exercises and Drills
<a href="#">PSRERP-SECTION O</a>	Radiological Emergency Response Training
<a href="#">PSRERP-SECTION P</a>	Responsibility for the Planning Effort: Development, Periodic Review and Distribution
<a href="#">PSRERP-APPENDIX A</a>	Letters of Agreement
<a href="#">PSRERP-APPENDIX B</a>	Supporting Emergency Plans
<a href="#">PSRERP-APPENDIX C</a>	NUREG/RERP/Implementing Procedure Cross Reference List
<a href="#">PSRERP-APPENDIX D</a>	OPPD Resolution #4731, Radiological Emergency Response Plan Authority

NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

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PSRERP-APPENDIX E	Definitions and Abbreviations
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NUREG/PSRERP/IMPLEMENTING PROCEDURE CROSS REFERENCE LIST

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Attachment 2 – EPIP Titles

<b>Document</b>	<b>Document Title</b>
EP-FC-1001 Addendum 3	EMERGENCY ACTION LEVELS FORT CALHOUN STATION
EP-FC-110	ASSESSMENT OF EMERGENCIES
EP-FC-111	EMERGENCY CLASSIFICATION AND PROTECTIVE ACTION RECOMMENDATIONS
EP-FC-112	EMERGENCY RESPONSE ORGANIZATION (ERO) EMERGENCY RESPONSE FACILITY (ERF) ACTIVATION AND OPERATION
EP-FC-112-100	CONTROL ROOM OPERATIONS
EP-FC-112-200	TSC ACTIVATION AND OPERATION
EP-FC-112-300	OPERATIONS SUPPORT CENTER ACTIVATION AND OPERATION
EP-FC-112-400	EMERGENCY OPERATIONS FACILITY ACTIVATION AND OPERATION
EP-FC-112-500	EMERGENCY ENVIRONMENTAL MONITORING
EP-FC-112-700	ALTERNATE FACILITY OPERATION
EP-FC-113	PERSONNEL PROTECTIVE ACTIONS
EP-FC-114	NOTIFICATIONS
EP-FC-115	TERMINATION AND RECOVERY

OPPD RESOLUTION # 4731, RADIOLOGICAL EMERGENCY RESPONSE PLAN  
AUTHORITY

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BOARD OF DIRECTORS

## Board Action

January 13, 1997

### ITEM

Renewal and Update of Board Resolution No. 3083 for the Fort Calhoun Station (FCS) Radiological Emergency Response Plan (RERP).

### PURPOSE

Update the current Board Resolution which is Appendix D to the FCS RERP to reflect the development of several guidance documents for radiological emergency preparedness that has been implemented since the initial issuance of NUREG-0654/FEMA-REP-1, Revision 1, dated November 1980. Nuclear power facilities are no longer required to maintain strict adherence to the specific criteria in NUREG-0654/FEMA-REP-1.

### FACTS

- a. Requirements for strict adherence to NUREG-0654/FEMA-REP-1 were removed from Section 10 of the Code of Federal Regulations, Part 50, in the late 1980's.
- b. The Fort Calhoun Station has adopted several response concepts from other emergency preparedness documents, including; the Nuclear Regulatory Commission's (NRC) Response Technical Manual, the Nuclear Energy Institute's Alternative Emergency Action Levels as approved by the NRC, various radiological emergency preparedness guidance documents issued by the Federal Emergency Management Agency, and other alternative guidance which has been approved by the NRC.
- c. 10CFR50, Appendix E, Section IV.A.2.a. requires a "detail discussion" of; "Authorities, responsibilities, and duties of the individual(s) who will take charge during an emergency." The positions identified within the FCS RERP that must have full authority to take all necessary initial emergency response actions are classified as "Command and Control" positions.

### ACTION

Board approval of the Resolution.

RECOMMENDED:

Handwritten signature of W. G. Gates in cursive.

W. G. Gates

APPROVED FOR BOARD CONSIDERATION:

Handwritten signature of F. M. Petersen in cursive.

F. M. Petersen

WGG:llz

Attachment: Resolution

OPPD RESOLUTION # 4731, RADIOLOGICAL EMERGENCY RESPONSE PLAN  
AUTHORITY

---



**OMAHA PUBLIC POWER DISTRICT**

**CERTIFIED COPY OF  
RESOLUTION NO. 4731**

**WHEREAS**, the United States nuclear industry has refined activities, personnel training, equipment and facilities required for immediate response to a nuclear incident since the March 28, 1979 accident at the Three Mile Island nuclear electric generating facility, and

**WHEREAS**, Title 10, Code of Federal Regulations, Part 50, entitled "Energy," contains the minimum requirements for a Radiological Emergency Preparedness (REP) program at any U.S. nuclear power reactor site, and

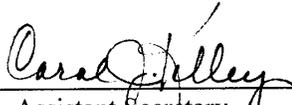
**WHEREAS**, additional guidance documents, such as, NUREG-0654, FEMA-REP-1, Revision 1, Nuclear Regulatory Commission's (NRC) Response Technical Manual, Federal Emergency Management Agency's various REP documents, and others, also contain activities which may be incorporated into a nuclear power reactor's radiological emergency preparedness (REP) program, and

**WHEREAS**, minimum REP acceptance criteria requires that each licensee shall designate personnel who shall have the authority and responsibility to immediately and unilaterally initiate any emergency actions, without prior Board approval, including awards of emergency related contracts and expenditures of District funds, as deemed absolutely necessary.

**NOW, THEREFORE, BE IT RESOLVED** that the Board of Directors of Omaha Public Power District authorizes and directs the President and Chief Executive Officer of Omaha Public Power District, or designee, to appoint and train emergency "Command and Control" positions to take immediate and decisive actions following any occurrence at the Fort Calhoun Station, which results in an emergency classification per the station's NRC approved Radiological Emergency Response Plan, to mitigate the consequences of the occurrence as to protect the health and safety of the public and plant personnel and minimize any impact to the environment.

I HEREBY CERTIFY THAT THE FOREGOING IS A TRUE AND CORRECT COPY OF RESOLUTION NO. 4731 ADOPTED BY THE BOARD OF DIRECTORS OF THE OMAHA PUBLIC POWER DISTRICT AT A MEETING HELD ON JANUARY 15, 1998.



  
Assistant Secretary

## DEFINITIONS AND ABBREVIATIONS

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### 1.0 DEFINITIONS AND ABBREVIATIONS

- 1.1 ALARA - As Low As is Reasonably Achievable - Means making every reasonable effort to maintain exposures to radiation as far below the dose limits as is practical consistent with the purpose for which the licensed activity is undertaken, taking into account the state of technology, the economics of improvements in relation to state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy and licensed materials in the public interest
- 1.2 ANS - Alert Notification System - Described in Section E
- 1.3 AR - Action Request
- 1.4 Assessment Actions - The appropriate actions taken during or following an accident evaluation before implementing the specific corrective and/or protective actions
- 1.5 CDE - Committed Dose Equivalent - ( $H_{T50}$ ) The dose equivalent to organs or tissues of reference (T) that will be received from an intake of radioactive material by an individual during the 50 year period following the intake
- 1.6 CFR - Code of Federal Regulations
- 1.7 CHP - Conference Health Physics Network - Described in Section E
- 1.8 Committed Effective Dose Equivalent - ( $H_{E50}$ ) Sum of the products of the weighing factors applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to these organs or tissues
- 1.9 Control Room - Functions described in Section H
- 1.10 COP - Conference Operations (Phone) Network- Described in Section E
- 1.11 Corrective Actions - Measures taken to correct or mitigate an emergency condition at its origin in order to prevent an uncontrolled release of radioactive material or reduce the magnitude of the release.
- 1.12 CR - Control Room - Functions described in Section H
- 1.13 Deep Dose Equivalent - (DDE or  $H_d$ ) applies to external whole-body exposure, is the dose equivalent at a tissue depth of 1 cm ( $1000 \text{ mg/cm}^2$ )
- 1.14  $\Delta T$  - Delta Temperature - The difference in temperature between points 10 meters and 60 meters above the ground in units of centigrade. The value displayed on the ERFCs equates to;  $100\text{m } \Delta T = [(T @ 60\text{m} - T @ 10\text{m}) \times 2]$

## DEFINITIONS AND ABBREVIATIONS

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- 1.15 DOE - Department Of Energy - Role is discussed in Section C
- 1.16 Drill - Described in Section N
- 1.17 DSC – Dry Shielded Canister
- 1.18 DSO - Director of Site Operation (NRC)
- 1.19 EAD Electronic Alarming Dosimeter
- 1.20 URI/RASCAL - Emergency Assessment of Gaseous and Liquid Effluent-Section E
- 1.21 EAL - Emergency Action Level - Described in Section D
- 1.22 EAS - (Emergency Alerting System) - Described in Section E
- 1.23 ECCS - Emergency Core Cooling System
- 1.24 ENS - (FTS-ENS) Federal Telephone System Emergency Notification System - Described in Section F
- 1.25 EOC - Emergency Operations Center - Discussed in Sections C and F
- 1.26 EOF - Emergency Operations Facility - Functions described in Section H
- 1.27 EPA - Environmental Protection Agency - Role Discussed in Section C
- 1.28 EPIP - Emergency Plan Implementing Procedures
- 1.29 EPT - Emergency Plan Test - Described in Section P
- 1.30 EPZ - Emergency Planning Zone - Described in Section J
- 1.31 ERDS - Emergency Response Data System - Described in Section F
- 1.32 ERFCS - Emergency Response Facilities Computer System - Described in Section H
- 1.33 ERO - Emergency Response Organization - Duties Described in Section B
- 1.34 Exercise - Described in Section N
- 1.35 FAA - Federal Aviation Administration - Role discussed in Section C
- 1.36 FEMA - Federal Emergency Management Agency - Role described in Section C
- 1.37 FTS - Federal Telecommunications Systems (NRC Phone Circuits) - Discussed in Section F

## DEFINITIONS AND ABBREVIATIONS

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- 1.38 GAR - Governor's Authorized Representative - Authorized by letters in Appendix A
- 1.39 HPN - Health Physics Network - Described in Section F
- 1.40 HSM – Horizontal Storage Module
- 1.41 ISFSI – Independent Spent Fuel Storage Installation
- 1.42 IPZ - Ingestion Pathway Zone - Discussed in Section J
- 1.43 JIC – Joint Information Center - Functions discussed in Section B
- 1.44 NAWAS - National Warning System - Functions described in Section F
- 1.45 NRC - Nuclear Regulatory Commission - Role discussed in Section C
- 1.46 NWS - National Weather Service - Role discussed in Section C
- 1.47 Operation Liaison Network- Described in Section F
- 1.48 OSC - Operation Support Center - Functions described in Section H
- 1.49 PABX - Private Automatic Branch Exchanges - Function described in Section H
- 1.50 PAG - Protective Action Guideline - Discussed in Section J
- 1.51 PAR - Protective Action Recommendation - Discussed in Section J
- 1.52 Protective Actions - Discussed in Section J
- 1.53 REM - The special unit of any of the quantities expressed as dose equivalent. The dose equivalent in rems is equal to the absorbed dose in rads multiplied by the quality factor (1 rem = .01 sievert).
- 1.54 SDE - Shallow Dose Equivalent - Is the dose equivalent at a tissue depth of 0.007 cm or 7 mg/cm<sup>2</sup> averaged over an area of 10 cm<sup>2</sup>. It applies to the external exposure of the skin or an extremity.
- 1.55 TEDE - Total Effective Dose Equivalent - The sum of the deep-dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures). This represents the combined dose (DDE+CEDE) to a worker.
- 1.56 TLD - Thermoluminescent Dosimeter - A device worn by plant personnel to measure the amount of radiation received.
- 1.57 TSC - Technical Support Center - Functions described in Section H

## DEFINITIONS AND ABBREVIATIONS

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- 1.58 UNMC Regional Radiation Health Center - Role discussed in Section L
- 1.59 USAR - Updated Safety Analysis Report

***FCS***

**FORT CALHOUN STATION  
ANALYSIS OF PROPOSED POST-SHUTDOWN  
ON-SHIFT STAFF**

August 18, 2016

Rev. 0

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## I. INTRODUCTION

On June 24, 2016, Omaha Public Power District (OPPD) informed the Nuclear Regulatory Commission (NRC) that the Fort Calhoun Station (FCS) will permanently cease operations no later than December 31, 2016. OPPD will supplement the June 24, 2016 letter certifying the cessation date in accordance with 10 CFR 50.82(a)(1)(i) and 10 CFR 50.4(b)(9). Once fuel has been permanently removed from the reactor vessel, OPPD will submit a written certification to the NRC, in accordance with 10 CFR 50.82(a)(1)(ii) that meets the requirements of 10 CFR 50.4(b)(9). Upon docketing of these certifications, the 10 CFR Part 50 license for FCS will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel, as specified in 10 CFR 50.82(a)(2). In the permanently defueled condition, the Updated Safety Analysis Report (USAR) credible accidents (postulated accidents) are reduced via the 50.59 process. In order to address the transition from an operating facility to a permanently defueled facility, changes are required to maintain the effectiveness of the Emergency Plan and to properly reflect the conditions of the facility.

This report details the analysis of the proposed post-shutdown on-shift staffing for FCS, incorporating anticipated changes to the on-shift staffing to address post-shutdown and permanently defueled conditions. Specifically, it reassigns some on-shift tasks to align with proposed changes to on-shift staffing and the resulting changes to FCS Emergency Plan Implementing Procedures. This analysis will be updated and formal Time Motion Studies (TMSs) will be conducted, as necessary, following development and validation of procedures that address FCS permanently shut down and defueled conditions.

This analysis evaluates the ability of the proposed post-shutdown minimum on-shift staff to implement all emergency tasks, evaluated in accordance with NEI 10-05, Rev. 0, *Assessment of On-shift Emergency Response Organization Staffing and Capabilities*, as applicable to the post-shutdown and permanently defueled conditions.

This analysis satisfies the requirements of 10 CFR Part 50, Appendix E Section IV.A.9, which states that nuclear power licensees shall perform “*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.*” To support reduced staffing following permanent cessation of operations and permanent removal of fuel from the reactor vessel, the proposed post-shutdown on-shift staffing was evaluated in conjunction with the postulated accidents that will be applicable in the permanently defueled condition and assumed corresponding changes to procedures. This analysis examined the anticipated capability of the proposed post-shutdown minimum on-shift staff to perform the actions for the key functional areas of events described in NSIR/DPR-ISG-01, *Interim Staff Guidance – Emergency Planning for Nuclear Power Plants*, until augmenting Emergency Response Organization (ERO) staff arrives in accordance with the Emergency Plan.

## II. ANALYSIS SUMMARY

This analysis determined that a proposed post-shutdown on-shift staff of eight (8) is able to cope with the spectrum of analyzed events, as described in Section IV of this report, until augmenting ERO staff arrives. The on-shift staff consists of individuals necessary to support each of the following emergency plan functional areas or tasks:

- Emergency Direction and Control
- Plant Operations and SFP Cooling
- Fire Fighting (Fire Brigade)
- Accident/Dose Assessment
- Radiation Protection
- Notification/Communication
- Access Control and Accountability

FCS intends to enter the post-shutdown and permanently defueled condition with a 5-person Fire Brigade. However, 10 CFR 50.48(f) states, "Licensees that have submitted the certifications required under § 50.82(a)(1) shall maintain a fire protection program to address the potential for fires that could cause the release or spread of radioactive materials (i.e., that could result in a radiological hazard)." 10 CFR 50.48(f)(1)(ii) requires the plant to "rapidly detect, control, and extinguish fires that do occur." The NRC has provided guidance in Regulatory Guide 1.191, *Fire protection Program for Nuclear Plants During Decommissioning and Permanent Shutdown*. Subsection 4.3.4 Onsite Fire Brigade and Offsite Fire Emergency Response, provides guidance with regards to maintenance of a fire brigade during the post-shutdown period. The following factors should be considered in determining the manual firefighting capability:

- The magnitude and complexity of potential fires in and around plant areas where radioactive materials or contamination are present
- The availability of onsite staffing for a fire brigade at any time.
- The availability of offsite emergency services, the capability of their staff and equipment, the response time, the staff's training, and access to the plant.
- The compatibility of the plant's fire system connections and fittings with the fire apparatus and equipment of the offsite responders.

Considering the guidance in RG 1.191, FCS could elect to evaluate the possibility of making changes to the fire protection program, considering system abandonments and the reduction of hazards. This analysis could potentially include an evaluation of the feasibility of a smaller fire brigade. However, this analysis of proposed post-shutdown on-shift staffing considers the current 5-person fire brigade.

NEI 10-05 states it is acceptable for certain functions to be assigned to personnel already assigned other functions/tasks. These include Repair and Corrective Action, Rescue Operations, and First Aid.

## A. Emergency Plan Minimum Staffing

Per 10 CFR 50.54(q)(1)(iii), *Emergency planning function* means a capability or resource necessary to prepare for and respond to a radiological emergency, as set forth in the elements of section IV of Appendix E and, for nuclear power reactor licensees, the planning standards of § 50.47(b).

Only personnel proposed to be on-shift are credited in this analysis. This proposed staffing consists of a Shift Manager (SM)/Certified Fuel Handler (CFH); a Control Room Operator (CRO); three Equipment Operators; and a Radiation Protection Technician. Additionally, two additional Fire Brigade positions and shift Security personnel are assigned. The on-shift staffing utilized for this analysis was defined with the following considerations:

- The Shift Manager performs as Emergency Director until properly relieved by a qualified position. After being relieved by another Command and Control position, the Shift Manager will provide assistance and direction to the Control Room staff as necessary.
- Control Room Operator duties include providing technical support for plant systems, providing input on repair and corrective actions, and notifications as directed by the Shift Manager. These notifications include the following: 1) required notifications to the states and counties; 2) required notifications to the NRC; and 3) notifications to the Emergency Response Organization. A CRO will also serve as the Fire Brigade Leader in compliance with National Fire Protection Association (NFPA) 805 implementation at FCS with requisite plant knowledge to fill this role.
- Equipment Operators duties include making repairs and corrective actions on plant equipment until augmented plant maintenance staff arrives, participating as an active member of the Fire Brigade, or as Fire Brigade Leader when assigned by the Shift Manager.
- Shift Radiation Protection (RP) Technician duties include conducting radiological accident assessment and support, offsite dose assessment, onsite in plant surveys, offsite dose assessment, and chemistry and radiochemistry analysis.
- The proposed Fire Brigade minimum complement is 5, consisting of a CRO (Fire Brigade Leader), 2 assigned Equipment Operators, and two (2) other Fire Brigade qualified staff members assigned other functions.

The following table contains the proposed post-shutdown on-shift positions expected to be in place following shutdown and permanent removal of fuel from the reactor vessel.

This analysis will be updated and formal TMSs will be conducted, as necessary, following development and validation of procedures that address FCSs permanently shut down and defueled conditions to verify the proposed post-shutdown on-shift staffing is appropriate.

Position	Licensing Basis Requirement	E-Plan Functional Area	On-Shift Staffing Analysis Results
Shift Manager (SM)/Certified Fuel Handler (CFH) <sup>1</sup>	E-Plan Table B-1	Emergency Direction and Control	1
Control Room Operator (CRO #1)	E-Plan Table B-1	Notifications/Communications / Fire Brigade Leader	1
Equipment Operator/Non-Certified Operator (NCO) #1 <sup>1</sup>	E-Plan Table B-1	Notifications/Communications / Dose Assessment	1
Equipment Operator/NCO #2 <sup>1</sup> (FB #2)	E-Plan Table B-1	Fire Brigade	1(a)
NCO #3 <sup>1</sup> (FB #3)	E-Plan Table B-1	Fire Brigade	1(a)
Fire Brigade #4 (FB #4)	E-Plan Table B-1	Fire Brigade	1(a) (b)
Fire Brigade #5 (FB #5)	E-Plan Table B-1	Fire Brigade	1(a) (b)
Radiation Protection (RP) Technician	E-Plan Table B-1	Radiation Protection Accident/Dose Assessment <sup>2</sup>	1
Security	Security Contingency Plan/E-Plan Table B-1	Access Control and Accountability	Per Security Contingency Plan
<b>TOTAL</b>			<b>8</b>

<sup>1</sup> Titles are dependent upon NRC approval of future changes to Technical Specifications. CFHs will supervise fuel handling operations in the permanently defueled condition. NCOs will perform duties typically associated with those performed by Equipment Operators, such as manipulation and monitoring of plant equipment.

<sup>2</sup> The RP Technician or an NCO is assigned Accident/Dose Assessment responsibilities in the Fuel Handling Accident analyses (Analyses #2 and #5), as directed by the Shift Manager. There are no Accident/Dose Assessment tasks identified as being required during the remaining analyses.

- (a) Per SO-G-28, Station Fire Plan, the Fire Brigade consists of a minimum of 5 responders, the Fire Brigade Leader and a minimum of four (4) trained and qualified Fire Brigade Members with no less than two members who have completed Equipment Operator non-license classroom training. These positions do not have any emergency plan actions or tasks that would conflict with Fire Brigade responsibilities in the events analyzed. The Fire Brigade qualified staff is available to support the Shift Manager, where qualified, in non-fire events.
- (b) Provided by Fire Brigade qualified staff assigned other functions.

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B. Other Commitments to Shift Staffing

None

C. Staffing Exceptions and Time Motion Studies (TMS)

1. No chemistry job tasks were noted as being required within the first 90 minutes of any of the analyzed events. Because the Chemistry Technician was not identified as having any specific Chemistry/Radio-Chemistry related emergency tasks during the scenarios evaluated for this analysis, the Chemistry Technician position is not included in the proposed post-shutdown on-shift staffing complement.
2. During fuel movement, Operations and Radiation Protection personnel that are not part of the on-shift staff are assigned to conduct and monitor that activity. Consequently, there are an adequate number of qualified personnel to perform plant surveys and dose assessment in the event of a fuel handling accident as discussed in Events 2 and 5. It is acceptable to assign the RP Technician the emergency plan function of dose assessment. No further analysis or TMS is required.
3. Because FCS will no longer be authorized to operate the reactor or place fuel into the reactor vessel, the Shift Technical Advisor (STA) position is unnecessary and is not included in the proposed post-shutdown on-shift staffing complement.
4. Because FCS will no longer be authorized to operate the reactor or place fuel into the reactor vessel, the Safe Shutdown (SSD) task is not necessary and is not considered in this analysis.
5. Because of the reduced actions necessary to mitigate an emergency in the permanently defueled condition and the minimal actions of the Control Room positions in a permanently defueled condition, no Licensed Nuclear Operator (RO) job tasks were noted as being required for any of the analyzed events. Because the ROs were not identified as having any specific emergency tasks during the scenarios evaluated for this analysis, the RO position is not included in the proposed post-shutdown on-shift staffing complement.
6. Guidance provided in Table 3.1 of NEI 10-05 indicates the need to perform a TMS to verify the capability of the CRO to perform the Notification/Communication responsibilities assigned in each analysis. The FCS process for completing state and local emergency notifications and performing the off-site notifications requires minimal manual actions. A TMS was conducted and demonstrated that these tasks could be performed by the on-shift CRO without impacting the ability of the CRO to remain in role providing support and oversight during the emergency. The TMS demonstrated the Notification/Communication responsibilities could be performed individually or in series without impacting the CRO function. The results are documented in Section VIII of this analysis.

7. Plant staff are required to maintain continuous communications with the notification source during an aircraft threat in accordance with 10 CFR 50.54(hh) and Reg. Guide 1.214. There are no specific qualifications required to perform this task and the function is not required to be assigned in advance. A TMS of CRO activities during an aircraft threat confirmed that the proposed plant staffing is adequate to perform this task.
8. The Emergency Response Data System (ERDS) requirement in Appendix E to 10 CFR Part 50 exempts “all nuclear power facilities that are shut down permanently” from the need to provide an ERDS interface with the NRC. Therefore, the FCS ERDS link to the NRC is not required to be operational in a permanently shut down and defueled condition. Although use of ERDS may be continued, the task of ERDS verification is not included as an on-shift task requiring evaluation as part of this staffing analysis.
9. NRC event notifications required due to the declaration of an Emergency Classification in accordance with 10 CFR 50.72 are made in accordance with EP-FC-114, *Notifications*.

D. Emergency Plan Tasks Not Analyzed

1. Repair and Corrective Action - Per the guidance of NUREG-0654, Table B-1, repair and corrective action tasks may be performed by shift personnel assigned other functions. Repair and corrective action is defined as:
  - An action that can be performed promptly to restore a non-functional component to functional status (e.g., resetting a breaker), or to place a component in a desired configuration (e.g., open a valve), and which does not require work planning or implementation of lockout/tagout controls to complete.

In accordance with NEI 10-05 section 2.5, the analysis included a review of repair and corrective action tasks. For the purpose of this analysis, the tasks were considered to fall into two broad categories:

- Unplanned/unexpected actions that address equipment failures. These actions are contingent in nature and cannot be specified in advance.
- Planned/expected actions performed in support of operating procedure implementation, including severe accident management guidelines.

At FCS the NCOs are trained to perform the actions associated with this functional area. Actions (e.g., reset breakers, valve manipulation) directed by the CRO to mitigate the event per procedures were performed by the NCOs in this analysis. Repair and Corrective Action is an acceptable collateral duty per the guidance of NEI 10-05 and was not analyzed.

2. Rescue Operations and First Aid: In accordance with NEI 10-05 section 2.6, the analysis also included a review of rescue operations and first aid response although neither task was required during the evaluated scenarios. Per the guidance of NUREG-0654, Table B-1, rescue operations and first aid may be performed by shift personnel assigned other functions. An on-shift RP Technician will provide radiation protection oversight. The station fire brigade staff is trained in rescue operations and is available to perform these tasks if required. First aid and rescue operations are acceptable collateral duties per the guidance of NEI 10-05.

### III. ANALYSIS PROCESS

This analysis was developed by reviewing each scenario from EP-FC-1001, Addendum 1, *Fort Calhoun Station On-Shift Technical Basis*, to determine its applicability in a permanently shut down and defueled condition and to evaluate the plant actions and emergency plan implementation actions that would be required based on plant procedures prior to staff augmentation. These actions were then compared to the proposed post-shutdown on-shift positions expected to be in place following permanent shutdown and permanent removal of fuel from the reactor vessel, ensuring that no actions were assigned to staff members that conflicted with either their proposed emergency plan role or operational role as appropriate. In cases where multiple tasks were assigned to an individual in their role, an evaluation of the timing of the tasks was conducted to ensure that they could be performed by the individual in series within any specified time requirements.

The results of the analysis for each of the scenarios are included in Section VII, APPENDIX B – ON-SHIFT STAFFING ANALYSIS. Note that NSIR/DPR-ISG-01 states that only Design Basis Accidents (DBA) “which would result in an emergency declaration” should be evaluated in the staffing assessment. In a permanently shut down and defueled condition, USAR Chapter 14 will be revised to eliminate the DBAs that will not be applicable in the permanently defueled condition. These DBAs include the loss of coolant accident and main steam line break.

### IV. ACCIDENT SCENARIOS

#### A. Accident Selection

1. The scenarios were chosen using the guidance of NEI 10-05 and NSIR/DPR-ISG-01, based on the applicability in a permanently shut down and defueled condition. The evaluation considered the plant DBAs described in the USAR along with additional scenarios specified by the guidance documents. The following scenarios were considered for inclusion in this analysis:
  1. Design Basis Threat (DBT) ground assault as described in NEI 10-05
  2. Fuel Handling Accident (FHA) with General Emergency and Protective Action Recommendation (PAR)
  3. Aircraft Potential Threat as described in 10 CFR 50.54(hh)
  4. Event requiring evacuation of the Control Room

5. Control Room habitability during toxic chemical release accidents
6. Station Blackout (SBO) as described in NEI 10-05.

B. Accident Scenarios included in this Analysis

1. Design Basis Threat

The event consists of notification to the Shift Manager from the Security Shift Supervisor that a hostile action is occurring at or inside the Protected Area. A hostile force will breach the Protected Area fence but is not sufficient to interrupt SFP cooling or cause a radiological release and is neutralized with no adverse consequences to plant safety. Damage inflicted on plant systems, structures and components is not sufficient to cause a radiological release. There is no fire significant enough to warrant firefighting efforts prior to the arrival of offsite resources and/or the augmented ERO.

The event must account for the expected constraints on the movement of personnel (e.g., movement not allowed, limited movement using the 2-person rule, etc.). Specifically, individuals must usually be in, or readily able to respond to, assigned response locations before being credited with performing a function/task that implements the emergency plan.

An analysis objective is to confirm that sufficient staff is available to simultaneously implement both the emergency plan and the security plan.

2. Fuel Handling Accident (FHA) with General Emergency and PAR

The postulated design basis accident that will remain applicable to FCS in its permanently shut down and defueled condition is the FHA in the Auxiliary Building where the SFP is located. The activity associated with a FHA in the spent fuel pool is collected by the fuel pool area ventilation system and released, unfiltered, to the environment, via the auxiliary building vent stack. Since there is no means of isolating, the spent fuel pool area, all of the airborne activity resulting from the FHA is exhausted out of the auxiliary building in a period of two hours.

This event assumes a dose that exceeds the Environmental Protection Agency's (EPA) Protective Action Guides (PAGs) beyond the site boundary, and thus necessitates promulgation of a PAR.

3. Aircraft Potential Threat (50.54(hh))

This event includes all emergency response actions taken prior to an aircraft impact in accordance with RG 1.214 for an aircraft threat that is greater than 5 minutes, but less than 30 minutes, from the site, including the dispersal of the fire brigade away from target areas. These actions should generally reflect those listed in 10 CFR 50.54(hh)(1), as expanded upon in Regulatory Guide 1.214, and others required by the emergency plan.

The event consists of notification to the Shift Manager from the NRC Headquarters Operations Officer that an Aircraft Potential Threat has been declared for Fort Calhoun Station.

4. Event Requiring Evacuation of the Control Room

An event occurs requiring the evacuation of the Control Room and procedures implemented to control auxiliary cooling water pumps from a remote location.

C. Accident Scenarios not included in the Analysis

1. Control Room Habitability during Toxic Chemical Release Accidents

A control room habitability study was prepared which determined the effect of accidental release of toxic gases on the Fort Calhoun Control Room. The onsite spill analysis postulates that either hydrazine ethanolamine or morpholine spills outside during container movement. The analysis demonstrates that the Control Room toxic gas concentration resulting from such a spill will not exceed the toxicity limit, thus Control Room habitability will not be affected. The analysis also demonstrates that the outside spill scenario is the limiting case.

The ammonia toxic chemical accident caused by the failure of two 25,000 ton offsite refrigerated tanks required detectors at the fresh air intake of the Control Room to provide for operator warning and automatic isolation of the Control Room. The toxic limit for ammonia given in RG 1.78 is 100 ppm. For FCS toxic gas analysis, the limit chosen for ammonia is 300 ppm based on evaluation of exposure data to determine a suitable short term toxic limit. FCS conservatively assumes incapacitation if the instantaneous concentration exceeds the toxic limit of 300 ppm for ammonia. Control Room Personnel are adequately protected against the effects of accidental release of toxic gas by the use of monitors, which automatically isolate the Control Room during a toxic gas accident.

On-shift staff duties and responsibilities to mitigate the consequences of this incident are bounded by those performed in response to Design or License Basis Accidents. Therefore, this scenario is not considered in this analysis.

2. Station Blackout

ISG-01 provides guidance associated with the staffing analysis for a Station Blackout (SBO). ISG-01 states, in part:

*Station blackouts are beyond the plant's design basis and may not need to be addressed in the staffing analysis. The blackout coping analyses performed by licensees pursuant to 10 CFR 50.63 establish blackout coping times that exceed the required on-shift staff augmentation time.*

10 CFR 50.63(a)(1) states, in part:

*Each light-water-cooled nuclear power plant licensed to operate under this part, each light-water-cooled nuclear power plant licensed under subpart C of 10 CFR part 52 after the Commission makes the finding under § 52.103(g) of this chapter, and each design for a light-water-cooled nuclear power plant approved under a standard design approval, standard design certification, and manufacturing license under part 52 of this chapter must be able to withstand for a specified duration and recover from a station blackout as defined in § 50.2.*

Upon docketing of the certification of permanent removal of fuel in accordance with 10 CFR 50.82(a)(1)(ii), per 10 CFR 50.82(a)(2) the Part 50 license will no longer authorize operation of the reactor or emplacement of fuel in the reactor vessel. FCS will no longer be a nuclear power plant licensed to operate under 10 CFR Part 50, therefore the provisions of 10 CFR 50.63 will no longer be applicable. The SBO scenario is no longer considered an appropriate gauge by which to measure whether an event presents on-shift staff with responsibilities that would prevent the timely performance of assigned functions in the E-Plan. Therefore, this scenario is not considered in this analysis.

## V. GENERAL ASSUMPTIONS AND LIMITATIONS

### A. Notes and Assumptions applicable to all accidents in FCS Staffing Analysis:

1. The RP and Chemistry tasks reviewed were those directed by the Shift Manager to support actions in Operations procedures for Off-Normal and Emergency conditions, and Emergency Plan procedures and checklists. Any additional tasks directed by the Technical Support Center (TSC), Operations Support Center (OSC), or Emergency Operations Facility (EOF) procedures were not reviewed.
2. This analysis was conducted assuming a 60 minute response of the augmented ERO . Tasks for event response were reviewed for 60 minutes following the declaration. No specific emergency response tasks requiring the augmented ERO were identified during the 60 minutes following the emergency declaration.
3. There are no time critical RP or Chemistry tasks and task performance is directed and prioritized by the Shift Manager. The time RP is directed to perform a task and the amount of time taken to complete tasks are estimated. No Chemistry samples are required by Tech Specs within the 90 minute period after a declaration.

## B. NEI 10-05 Rev 0 Assumptions:

1. Response time used for this analysis was the maximum acceptable number of minutes elapsed between emergency declaration and the augmented ERO position holder at a location necessary to relieve an on-shift position of the emergency response task.
2. On-shift personnel complement was based on the proposed post-shutdown on-shift positions expected to be in place following shutdown and permanent removal of fuel from the reactor vessel.
3. Although the temporary absence of a position may be allowed by Technical Specifications, the analysis was performed assuming that all required on-shift positions are filled.
4. Each analyzed event occurred during off-normal work hours where the ERO was offsite and all required minimum on-shift positions were filled.
5. On-shift personnel reported to their assigned response locations within timeframes sufficient to allow for performance of assigned actions.
6. On-shift staff had necessary Radiation Worker qualification to obtain normal dosimetry and enter the radiological control area (RCA) (but not locked high or very high radiation areas) without the aid of an RP Technician.
7. Personnel assigned plant operations met the requirements and guidance (analyzed through other programs such as Operator training) and were not evaluated as part of this assessment unless a role/function/task from another major response area was assigned as a collateral duty.
8. In-plant (manual) operator actions to manipulate components and equipment from locations outside the Control Room to achieve and maintain SFP cooling was done by a member of the on-shift staff as defined in Technical Specifications.
9. Fire Brigade staff performance is analyzed through other plant programs (e.g., fire drills) and was not evaluated as part of this assessment unless a role/function/task from another major response area was assigned as a collateral duty.
10. Individuals holding the position of RP Technician are qualified to perform the range of tasks expected of their position.
11. Security was not evaluated unless a role or function from another major response area was assigned as a collateral duty.
12. Communications, briefings, and peer checks are acceptable collateral duties.
13. All on-shift staff positions were evaluated, even if they had no known collateral duties, to ensure they can perform the tasks assigned to them. [Ref NSIR/DPR-ISG-01]

14. The analysis specified the resources available to perform “Repair and Corrective Actions” and “Rescue Operations and First Aid” but these may be assigned as collateral duty to a designated on-shift responder.
15. For assessment purposes, NRC notifications were treated as a continuous action per 10CFR50.72(c)(3) and 73.71(b)(1). This means once the initial NRC communications are established, the NRC will request an open line be maintained with the NRC Operations Center.
16. DBA (postulated accident, Condition IV event, or limiting fault) is considered as “Unanticipated occurrences that are postulated for accident analysis purposes but not expected to occur during the life of the plant. A postulated accident could result in sufficient damage to preclude resumption of plant operation. As a result, a greater number and variety of actions would need to be implemented by plant personnel.”
17. DBT assumed a hostile force breached the Protected Area fence but was neutralized with no adverse consequences to plant safety. Damage inflicted on plant systems, structures and components was not sufficient to interrupt SFP cooling or cause a radiological release. There was no fire significant enough to warrant firefighting efforts prior to arrival of offsite resources and/or the augmented ERO.
18. The analysis used DBA analysis assumptions, inputs, timing of events, plant protective response, and specified manual operator actions and their timing, as documented in the USAR.
19. In cases where a DBA analysis included a radiological release, and the starting point of the release was not clearly defined, the staffing analysis assumed that the release began 15-minutes after the initiating event.

## VI. APPENDIX A - ANALYZED EVENTS AND ACCIDENTS

Event #	Event Type	Summary Description of Event	Plant Mode <sup>1</sup>	Reference Document(s)	Event ECL	Analysis Required?
1	DBT	Land and/or waterborne HOSTILE ACTION directed against the Protected Area by a HOSTILE FORCE. Assume adversary characteristics defined by the Design Basis Threat (DBT).	Permanently Defueled	NEI 10-05	Site Area Emergency	Yes
2	DBA (General Emergency with PAR assumed for Analysis Purposes)	Fuel Handling Accident with General Emergency and PAR	Permanently Defueled	USAR Chapter 14 (as revised to address permanently defueled conditions)	General Emergency	Yes
3	Assumed for Analysis Purposes	Aircraft Potential Threat	Permanently Defueled	10 CFR 50.54hh(1) RG 1.214	Alert	Yes
4	Assumed for Analysis Purposes	Event requiring Control Room evacuation	Permanently Defueled	10 CFR Part 50.48	Alert	Yes
5	Assumed for Analysis Purposes	Control Room habitability during a toxic chemical release accident	Permanently Defueled	USAR Chapter 14	Alert	No <sup>2</sup>
6	Assumed for Analysis Purposes	Station Blackout	Permanently Defueled	10 CFR 50.63	Site Area Emergency	No <sup>3</sup>

<sup>1</sup> Once FCS submits the certification of permanent removal of fuel in accordance with 10 CFR 50.82(a)(1)(ii), per 10 CFR 50.82(a)(2) the 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement of fuel in the reactor vessel. FCS will no longer be a nuclear power plant licensed to operate under Part 50.

<sup>2</sup> On-shift staff duties and responsibilities to mitigate the consequences of this incident are bounded by those performed in response to Design or License Basis Accidents. Therefore, this scenario is not considered in this analysis.

<sup>3</sup> Once FCS submits the certification of permanent removal of fuel in accordance with 10 CFR 50.82(a)(1)(ii), per 10 CFR 50.82(a)(2) the 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement of fuel in the reactor vessel, therefore the provisions of 10 CFR 50.63 will no longer be applicable.

VII. **APPENDIX B – ON-SHIFT STAFFING ANALYSIS**

**A. Accident Analysis #1 – Design Basis Threat**

1. Accident Summary
  - Land and/or waterborne HOSTILE ACTION directed against the Protected Area by a HOSTILE FORCE. Assume adversary characteristics defined by the DBT.
2. Accident Specific Assumptions Made
  - This event assumes the threat is neutralized immediately when inside the Protected Area fence, no significant damage to equipment or systems that require corrective actions before the ERO is staffed, no radiological release, and no fire that requires firefighting response before the ERO is staffed.
  - Assume Spent Fuel Pool Temperature of 125°F.
  - Security notifies the Shift Manager of condition of hostile action occurring within the Protected Area.
  - Assume all non-security staff is located inside the Protected Area at their normal work station when the event occurs.
  - Assume all systems function and the spent fuel remains covered. No fuel damage and no release.
3. Procedures for Accident Response
  - AOP 37, Security Events
  - EP-FC-112, Emergency Classification and Protective Action Recommendations
  - EP-FC-1001, Addendum 3, Emergency Action Levels for Fort Calhoun Station

FCS TABLE 1 – ON-SHIFT POSITIONS Analysis # 1 DBT Security Threat						
Line #	On-shift Position	E-Plan Reference	Augmentation Elapsed Time (min)*	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1	Shift Manager	Emergency Plan Table B-1		T2/L1 T5/L1 T5/L3 T5/L5 T5/L7 T5/L8	No	No
2	Control Room Operator #1	Emergency Plan Table B-1		T2/L2 T5/L6 T5/L9 T5/L10 T5/L13 T5/L14	No	Yes <sup>1</sup>
3	NCO #1	Emergency Plan Table B-1		N/A	No	No
4	NCO #2 (FB #2)	Emergency Plan Table B-1		N/A	No	No
5	NCO #3 (FB #3)	Emergency Plan Table B-1		N/A	No	No
6	FB #4	Emergency Plan Table B-1		N/A	No	No
7	FB #5	Emergency Plan Table B-1		N/A	No	No
8	RP Technician	Emergency Plan Table B-1	60	N/A	No	No
9	Security	Emergency Plan Table B-1		T2/L8 T5/L15	No	No

<sup>1</sup> See Section VIII.A

Minimum Operations Crew Necessary to Implement AOPs if Applicable

<b>FCS TABLE 2 – PLANT OPERATIONS One Unit – One Control Room Analysis # 1 – DBT Security Threat</b>				
<b>Line #</b>	<b>Generic Title/Role</b>	<b>On-Shift Position</b>	<b>Task Description</b>	<b>Task Analysis Controlling Method</b>
1	Shift Manager	Shift Manager	Crew direction and oversight	Ops Training Program
2	CRO #1	Control Room Operator	Perform CR Ops tasks/Communications	Ops Training Program
3	NCO #2	N/A	N/A	N/A
4	NCO #3	N/A	N/A	N/A

Other (non-Operations) Personnel Necessary to Implement AOPs if Applicable

<b>Line #</b>	<b>Generic Title/Role</b>	<b>On-Shift Position</b>	<b>Task Description</b>	<b>Task Analysis Controlling Method</b>
N/A	Mechanic	N/A	N/A	N/A
N/A	Electrician	N/A	N/A	N/A
N/A	I&C Technician	N/A	N/A	N/A
8	Security	Security Force	N/A	Security Training Program

Fire Brigade

<b>FCS TABLE 3 – FIREFIGHTING Analysis # 1 – DBT Security Threat</b>		
<b>Line #</b>	<b>Performed by</b>	<b>Task Analysis Controlling Method</b>
1	N/A	N/A
2	N/A	N/A
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A

This accident does not include the need for firefighting, first aid, or search & rescue.

FCS TABLE 4 – RADIATION PROTECTION AND CHEMISTRY Analysis # 1 – DBT Security Threat																				
LINE	Position Performing Function / Task	Performance Time Period After Emergency Declaration (minutes)																		
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	
1	In-Plant Survey: RP Technician	N/A																		
2	On-site Survey:																			
3	Personnel Monitoring:																			
4	Job Coverage:																			
5	Offsite Rad Assessment:																			
6	Other site specific RP (describe):																			
7	Chemistry Function task #1 (describe)																			
8	Chemistry Function task #2 (describe)																			

No Chemistry or RP job function tasks for the conditions described in the DBT assumptions. RP takes cover as directed.

<b>FCS TABLE 5 – EMERGENCY PLAN IMPLEMENTATION Analysis # 1 – DBT Security Threat</b>			
<b>Line#</b>	<b>Function / Task</b>	<b>On-Shift Position</b>	<b>Task Analysis Controlling Method</b>
1	Declare the emergency classification level (ECL)	Shift Manager	Ops Training Program EP Drill & Exercise Program
2	Approve Offsite Protective Action Recommendations	N/A	N/A
3	Approve content of State/local notifications	Shift Manager	Ops Training Program EP Drill & Exercise Program
4	Approve extension to allowable dose	N/A	N/A
5	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	Ops Training Program EP Drill & Exercise Program
6	ERO notification	CRO #1	Ops Training Program EP Drill & Exercise Program
7	Abbreviated NRC notification for DBT event	Shift Manager	AOP-37 Security Events, Section 1
8	Complete State/local notification form	Shift Manager	Ops Training Program EP Drill & Exercise Program
9	Perform State/local notifications	CRO #1	Ops Training Program EP Drill & Exercise Program
10	Complete NRC event notification form	CRO #1	Ops Training Program EP Drill & Exercise Program
11	Activate ERDS*	N/A	N/A
12	Offsite radiological assessment	N/A	EP Drill & Exercise Program
13	Perform NRC notifications	CRO #1	Ops Training Program EP Drill & Exercise Program
14	Perform other site-specific event notifications (e.g., Duty Plant Manager, INPO, ANI, etc.)	CRO #1	Ops Training Program EP Drill & Exercise Program
15	Personnel Accountability	Security	Security Emergency Response Training EP Drill & Exercise Program

\* The ERDS requirement in Appendix E to 10 CFR Part 50 exempts “all nuclear power facilities that are shut down permanently” from the need to provide an ERDS interface with the NRC. Therefore, the FCS ERDS link to the NRC is not required to be operational in a permanently shut down and defueled condition. Although use of ERDS may be continued, the task of ERDS verification is not included as an on-shift task requiring evaluation as part of this staffing analysis. Refer to Section C.8.

**B. Accident Analysis #2 – Fuel Handling Accident with General Emergency and PAR**

1. Accident Summary
  - The FHA assumes the drop of a spent fuel assembly onto the spent fuel racks within the SFP resulting in breaking the fuel rods.
  - A General Emergency is declared when the Shift Manager is given a dose assessment update that projects >1 Rem TEDE dose at the site boundary.
2. Accident Specific Assumptions Made
  - This analysis assumes a General Emergency declaration based on area radiation monitors reaching levels to prompt an emergency declaration.
  - Additional plant personnel, including Operations, Chemistry, and RP Technician, would be on-site during fuel assembly movement. The presence of additional plant personnel would free the on-shift RP Technician to perform dose assessment.
3. Procedures for Accident Response
  - AOP-08, Fuel Handling Accident
  - EP-FC-112, Emergency Classification and Protective Action Recommendations
  - EP-FC-1001, Addendum 3, Emergency Action Levels for Fort Calhoun Station
  - EP-FC-110-200, Dose Assessment

FCS TABLE 1 – ON-SHIFT POSITIONS Analysis # 2 – Fuel Handling Accident with General Emergency and PAR						
Line #	On-shift Position	E-Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1	Shift Manager	Emergency Plan Table B-1		T2/L1 T5/L1 T5/L2 T5/L3 T5/L5 T5/L8	No	No
2	Control Room Operator #1	Emergency Plan Table B-1		T2/L2 T5/L6 T5/L9 T5/L10 T5/L13 T5/L14	No	Yes <sup>1</sup>
3	NCO #1	Emergency Plan Table B-1		N/A	No	No
4	NCO #2 (FB #2)	Emergency Plan Table B-1		N/A	No	No
5	NCO #3 (FB #3)	Emergency Plan Table B-1		N/A	No	No
6	FB #4	Emergency Plan Table B-1		N/A	No	No
7	FB #5	Emergency Plan Table B-1		N/A	No	No
8	RP Technician	Emergency Plan Table B-1	60	T4/L1 T4/L5 T5/L12	No	Yes <sup>2</sup>
9	Security	Emergency Plan Table B-1		T5/L15	No	No

<sup>1</sup> See Section VIII.B

<sup>2</sup> See Section II.C.2 for the exception taken for the RP Technician to perform dose assessment. No Time Motion Study or corrective action required.

Minimum Operations Crew Necessary to Implement AOPs if Applicable

<b>FCS TABLE 2 – PLANT OPERATIONS</b> <b>One Unit – One Control Room</b> <b>Analysis # 2 – Fuel Handling Accident with General Emergency and PAR</b>				
Line #	Generic Title/Role	On-Shift Position	Task Description	Task Analysis Controlling Method
1	Shift Manager	Shift Manager	Crew direction and oversight	Ops Training Program
2	CRO #1	Control Room Operator	Perform CR Ops tasks/Communications	Ops Training Program
3	NCO #2	N/A	N/A	N/A
4	NCO #3	N/A	N/A	N/A

Other (non-Operations) Personnel Necessary to Implement AOPs if Applicable

Line #	Generic Title/Role	On-Shift Position	Task Description	Task Analysis Controlling Method
N/A	Mechanic	N/A	N/A	N/A
N/A	Electrician	N/A	N/A	N/A
N/A	I&C Technician	N/A	N/A	N/A
8	Security	Security Force	N/A	Security Training Program

Fire Brigade

<b>FCS TABLE 3 – FIREFIGHTING</b> <b>Analysis # 2 – Fuel Handling Accident with General Emergency and PAR</b>		
Line #	Performed by	Task Analysis Controlling Method
1	N/A	N/A
2	N/A	N/A
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A

This accident does not include the need for firefighting, first aid, or search & rescue.

FCS TABLE 4 – RADIATION PROTECTION AND CHEMISTRY Analysis # 2 – Fuel Handling Accident with General Emergency and PAR																			
LINE	Position Performing Function / Task	Performance Time Period After Emergency Declaration (minutes)																	
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90
1	In-Plant Survey: RP Technician			X	X											X	X		
2	On-site Survey:																		
3	Personnel Monitoring:																		
4	Job Coverage:																		
5	Offsite Rad Assessment: RP Technician			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	Other site specific RP (describe):																		
7	Chemistry Function task #1 (describe)																		
8	Chemistry Function task #2 (describe)																		

The on-shift RP Technician will perform the above task as directed by the Shift Manager. Tasks are not time critical. The on-shift RP Technician is available for dose assessment if a release occurs.

<b>FCS TABLE 5 – EMERGENCY PLAN IMPLEMENTATION</b>			
<b>Analysis # 2 – Fuel Handling Accident with General Emergency and PAR</b>			
<b>Line #</b>	<b>Function / Task</b>	<b>On-Shift Position</b>	<b>Task Analysis Controlling Method</b>
1	Declare the emergency classification level (ECL)	Shift Manager	Ops Training Program EP Drill & Exercise Program
2	Approve Offsite Protective Action Recommendations	Shift Manager	Ops Training Program EP Drill & Exercise Program
3	Approve content of State/local notifications	Shift Manager	Ops Training Program EP Drill & Exercise Program
4	Approve extension to allowable dose	N/A	N/A
5	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	Ops Training Program EP Drill & Exercise Program
6	ERO notification	CRO #1	Ops Training Program EP Drill & Exercise Program
7	Abbreviated NRC notification for DBT event	N/A	N/A
8	Complete State/local notification form	Shift Manager	Ops Training Program EP Drill & Exercise Program
9	Perform State/local notifications	CRO #1	Ops Training Program EP Drill & Exercise Program
10	Complete NRC event notification form	CRO #1	Ops Training Program EP Drill & Exercise Program
11	Activate ERDS*	N/A	N/A
12	Offsite radiological assessment	RP Technician (or NCO)	EP Drill & Exercise Program
13	Perform NRC notifications	CRO #1	Ops Training Program EP Drill & Exercise Program
14	Perform other site-specific event notifications (e.g., Duty Plant Manager, INPO, ANI, etc.)	CRO #1	Ops Training Program EP Drill & Exercise Program
15	Personnel Accountability	Security	Security Emergency Response Training EP Drill & Exercise Program

\* The ERDS requirement in Appendix E to 10 CFR Part 50 exempts “all nuclear power facilities that are shut down permanently” from the need to provide an ERDS interface with the NRC. Therefore, the FCS ERDS link to the NRC is not required to be operational in a permanently shut down and defueled condition. Although use of ERDS may be continued, the task of ERDS verification is not included as an on-shift task requiring evaluation as part of this staffing analysis. Refer to Section C.8.

**C. Accident Analysis #3 – Aircraft Potential Threat**

1. Accident Summary
  - The analysis includes all emergency response actions taken prior to an aircraft impact in accordance with RG 1.214.
  - The analysis does not include a scenario or response actions taken during or after a crash.
2. Accident Specific Assumptions Made
  - The Shift Manager receives the call from the NRC of potential aircraft threat.
  - All non-security on-shift personnel are inside the Protected Area fence at their normal workstation.
3. Procedures for Accident Response
  - AOP 37, Security Events
  - EP-FC-112, Emergency Classification and Protective Action Recommendations
  - EP-FC-1001, Addendum 3, Emergency Action Levels for Fort Calhoun Station

FCS TABLE 1 – ON-SHIFT POSITIONS Analysis # 3 – Aircraft Potential Threat						
Line #	On-shift Position	E-Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1	Shift Manager	Emergency Plan Table B-1		T2/L1 T5/L1 T5/L3 T5/L5 T5/L8	No	No
2	Control Room Operator #1	Emergency Plan Table B-1		N/A	No	No
3	NCO #1	Emergency Plan Table B-1		T2/L2 T5/L6 T5/L9 T5/L10 T5/L13 T5/L14	No	Yes <sup>1</sup>
4	NCO #2 (FB #2)	Emergency Plan Table B-1		N/A	No	No
5	NCO #3 (FB #3)	Emergency Plan Table B-1		N/A	No	No
6	FB #4	Emergency Plan Table B-1		N/A	No	No
7	FB #5	Emergency Plan Table B-1		N/A	No	No
8	RP Technician	Emergency Plan Table B-1	60	N/A	No	No
9	Security	Emergency Plan Table B-1		T2/L8 T5/L15	No	No

<sup>1</sup> See Section VIII.C.

Minimum Operations Crew Necessary to Implement AOPs if Applicable

<b>FCS TABLE 2 – PLANT OPERATIONS</b> <b>One Unit – One Control Room</b> <b>Analysis # 3 – Aircraft Potential Threat</b>				
<b>Line #</b>	<b>Generic Title/Role</b>	<b>On-Shift Position</b>	<b>Task Description</b>	<b>Task Analysis Controlling Method</b>
1	Shift Manager	Shift Manager	Crew direction and oversight from Admin Building	Ops Training Program
2	CRO #1	Control Room Operator	N/A	N/A
3	NCO #2	N/A	Perform Ops tasks/ Communications	Ops Training Program
4	NCO #3	N/A	N/A	N/A

Other (non-Operations) Personnel Necessary to Implement AOPs if Applicable

<b>Line #</b>	<b>Generic Title/Role</b>	<b>On-Shift Position</b>	<b>Task Description</b>	<b>Task Analysis Controlling Method</b>
N/A	Mechanic	N/A	N/A	N/A
N/A	Electrician	N/A	N/A	N/A
N/A	I&C Technician	N/A	N/A	N/A
8	Security	Security Force	N/A	Security Training Program

Fire Brigade

<b>FCS TABLE 3 – FIREFIGHTING</b> <b>Analysis # 3 – Aircraft Potential Threat</b>		
<b>Line #</b>	<b>Performed by</b>	<b>Task Analysis Controlling Method</b>
1	N/A	N/A
2	N/A	N/A
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A

This accident does not include the need for firefighting, first aid, or search & rescue. The Fire Brigade relocates outside the PA and stands by.

FCS TABLE 4 – RADIATION PROTECTION AND CHEMISTRY Analysis # 3 – Aircraft Potential Threat																		
LINE	Position Performing Function / Task	Performance Time Period After Emergency Declaration (minutes)																
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85
1	In-Plant Survey: RP Technician	NA																
2	On-site Survey:																	
3	Personnel Monitoring:																	
4	Job Coverage:																	
5	Offsite Rad Assessment:																	
6	Other site specific RP (describe):																	
7	Chemistry Function task #1 (describe)																	
8	Chemistry Function task #2 (describe)																	

<b>FCS TABLE 5 – EMERGENCY PLAN IMPLEMENTATION Analysis # 3 – Aircraft Potential Threat</b>			
<b>Line #</b>	<b>Function / Task</b>	<b>On-Shift Position</b>	<b>Task Analysis Controlling Method</b>
1	Declare the emergency classification level (ECL)	Shift Manager	Ops Training Program EP Drill & Exercise Program
2	Approve Offsite Protective Action Recommendations	N/A	N/A
3	Approve content of State/local notifications	Shift Manager	Ops Training Program EP Drill & Exercise Program
4	Approve extension to allowable dose	N/A	N/A
5	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	Ops Training Program EP Drill & Exercise Program
6	ERO notification	NCO #1	Ops Training Program EP Drill & Exercise Program
7	Abbreviated NRC notification for DBT event	N/A	N/A
8	Complete State/local notification form	Shift Manager	Ops Training Program EP Drill & Exercise Program
9	Perform State/local notifications	NCO #1	Ops Training Program EP Drill & Exercise Program
10	Complete NRC event notification form	NCO #1	Ops Training Program EP Drill & Exercise Program
11	Activate ERDS*	N/A	N/A
12	Offsite radiological assessment	N/A	N/A
13	Perform NRC notifications	NCO #1	Ops Training Program EP Drill & Exercise Program
14	Perform other site-specific event notifications (e.g., Duty Plant Manager, INPO, ANI, etc.)	NCO #1	Ops Training Program EP Drill & Exercise Program
15	Personnel Accountability	Security	Security Emergency Response Training EP Drill & Exercise Program

\* The ERDS requirement in Appendix E to 10 CFR Part 50 exempts “all nuclear power facilities that are shut down permanently” from the need to provide an ERDS interface with the NRC. Therefore, the FCS ERDS link to the NRC is not required to be operational in a permanently shut down and defueled condition. Although use of ERDS may be continued, the task of ERDS verification is not included as an on-shift task requiring evaluation as part of this staffing analysis. Refer to Section C.8.

**D. Accident Analysis #4 – Event Requiring Control Room Evacuation and Maintain SFP Cooling**

1. Accident Summary

- This event involves evacuation of the Control Room. The event has the potential to include shorts and/or spurious signals producing potential to lose SFP cooling capabilities.

2. Accident Specific Assumptions Made

- Assumed Control Room staff does not have time to perform any procedural actions other than declare the Alert and make the plant announcement before leaving the control room.

3. Procedures for Accident Response

- AOP-06, Fire Emergency
- AOP-07, Control Room Evacuation
- EP-FC-112, Emergency Classification and Protective Action Recommendations
- EP-FC-1001, Addendum 3, Emergency Action Levels for Fort Calhoun Station

FCS TABLE 1 – ON-SHIFT POSITIONS						
Analysis # 4 – Event Requiring Control Room Evacuation and Maintain SFP Cooling						
Line #	On-shift Position	E-Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1	Shift Manager	Emergency Plan Table B-1		T2/L1 T5/L1 T5/L3 T5/L5 T5/L8	No	No
2	Control Room Operator #1	Emergency Plan Table B-1		T2/L2 T5/L6 T5/L9 T5/L10 T5/L13 T5/L14	No	Yes <sup>1</sup>
3	NCO #1	Emergency Plan Table B-1		N/A	No	No
4	NCO #2 (FB #2)	Emergency Plan Table B-1		N/A	No	No
5	NCO #3 (FB #3)	Emergency Plan Table B-1		N/A	No	No
6	FB #4	Emergency Plan Table B-1		T3/L4	No	No
7	FB #5	Emergency Plan Table B-1		T3/L5	No	No
8	RP Technician	Emergency Plan Table B-1	60	T4/L4	No	No
9	Security	Emergency Plan Table B-1		T5/L15	No	No

<sup>1</sup> See Section VIII.D.

Minimum Operations Crew Necessary to Implement AOPs if Applicable

<b>FCS TABLE 2 – PLANT OPERATIONS</b> <b>One Unit – One Control Room</b> <b>Analysis # 4 – Event Requiring Control Room Evacuation and Maintain SFP Cooling</b>				
Line #	Generic Title/Role	On-Shift Position	Task Description	Task Analysis Controlling Method
1	Shift Manager	Shift Manager	Crew direction and oversight	Ops Training Program
2	CRO #1	Control Room Operator	Perform CR Ops tasks/Communications	Ops Training Program
3	NCO #2	N/A	N/A	N/A
4	NCO #3	N/A	N/A	N/A

Other (non-Operations) Personnel Necessary to Implement AOPs if Applicable

Line #	Generic Title/Role	On-Shift Position	Task Description	Task Analysis Controlling Method
N/A	Mechanic	N/A	N/A	N/A
N/A	Electrician	N/A	N/A	N/A
N/A	I&C Technician	N/A	N/A	N/A
8	Security	Security Force	N/A	Security Training Program

Fire Brigade

<b>FCS TABLE 3 – FIREFIGHTING</b> <b>Analysis # 4 – Event Requiring Control Room Evacuation and Maintain SFP Cooling</b>		
Line #	Performed by	Task Analysis Controlling Method
1	N/A	N/A
2	N/A	N/A
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A

This event does not include the need for firefighting, first aid, or search & rescue.

FCS TABLE 4 – RADIATION PROTECTION AND CHEMISTRY Analysis # 4 – Event Requiring Control Room Evacuation and Maintain SFP Cooling																			
L I N E	Position Performing Function / Task	Performance Time Period After Emergency Declaration (minutes)																	
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90
1	In-Plant Survey:																		
2	On-site Survey:																		
3	Personnel Monitoring:																		
4	Job Coverage: <u>RP Technician</u>					X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	Offsite Rad Assessment:																		
6	Other site specific RP (describe):																		
7	Chemistry Function task #1 (describe)																		
8	Chemistry Function task #2 (describe)																		

<b>FCS TABLE 5 – EMERGENCY PLAN IMPLEMENTATION</b>			
<b>Analysis # 4 – Event Requiring Control Room Evacuation and Maintain SFP Cooling</b>			
<b>Line #</b>	<b>Function / Task</b>	<b>On-Shift Position</b>	<b>Task Analysis Controlling Method</b>
1	Declare the emergency classification level (ECL)	Shift Manager	Ops Training Program EP Drill & Exercise Program
2	Approve Offsite Protective Action Recommendations	N/A	N/A
3	Approve content of State/local notifications	Shift Manager	Ops Training Program EP Drill & Exercise Program
4	Approve extension to allowable dose	N/A	N/A
5	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	Ops Training Program EP Drill & Exercise Program
6	ERO notification	CRO #1	Ops Training Program EP Drill & Exercise Program
7	Abbreviated NRC notification for DBT event	N/A	N/A
8	Complete State/local notification form	Shift Manager	Ops Training Program EP Drill & Exercise Program
9	Perform State/local notifications	CRO #1	Ops Training Program EP Drill & Exercise Program
10	Complete NRC event notification form	CRO #1	Ops Training Program EP Drill & Exercise Program
11	Activate ERDS*	N/A	N/A
12	Offsite radiological assessment	N/A	N/A
13	Perform NRC notifications	CRO #1	Ops Training Program EP Drill & Exercise Program
14	Perform other site-specific event notifications (e.g., Duty Plant Manager, INPO, ANI, etc.)	CRO #1	Ops Training Program EP Drill & Exercise Program
15	Personnel Accountability	Security	Security Emergency Response Training EP Drill & Exercise Program

\* The ERDS requirement in Appendix E to 10 CFR Part 50 exempts “all nuclear power facilities that are shut down permanently” from the need to provide an ERDS interface with the NRC. Therefore, the FCS ERDS link to the NRC is not required to be operational in a permanently shut down and defueled condition. Although use of ERDS may be continued, the task of ERDS verification is not included as an on-shift task requiring evaluation as part of this staffing analysis. Refer to Section C.8.

VIII. **APPENDIX C – TIME MOTION STUDIES SUPPORTING THE STAFFING ANALYSIS**

A. Analysis #1 – Design Basis Threat

**TIME MOTION STUDY OF OVERLAPPING TASKS**

**Analysis #1  
Design Basis Threat**

**TASK 1: Complete the State Notification  
JOB: Control Room Operator**

**TASK 2: Perform NRC Notification  
JOB: Control Room Operator**

**TASK 3: Perform Event Mitigation  
JOB: Control Room Operator**

**PURPOSE:**

Perform a Time Motion Study to evaluate whether the performance of notification actions assigned to the Control Room Operator is an acceptable task overlap to the Control Room Operator's primary emergency plan function of event mitigation.

**NOTE:**

The Time Motion Study should be completed in a manner that demonstrates notification actions while the Shift Manager is demonstrating the Emergency Director function.

Times for the activities performed are based on operating experience (e.g., drills, real events, etc.) and/or informed judgment with consideration given to the limited Operator actions in a permanently shutdown and defueled condition. Validation of actual times will be performed with updated procedures.

**CONCLUSION:**

The Time Motion Study demonstrated the Control Room Operator could perform the tasks of completing State, local and NRC notifications successfully, individually or in series, without impacting the ability of the CRO to remain in role providing support and oversight during the emergency.

**LOCATION:**

The response to this event was determined by conducting a tabletop of the event using the emergency plan and procedures and the applicable department procedures such as Operations emergency and abnormal operating procedures.

**REQUIRED TOOLS/EQUIPMENT:**

- AOP 37, Security Events
- EP-FC-112, Emergency Classification and Protective Action Recommendations
- EP-FC-1001, Addendum 3, Emergency Action Levels for Fort Calhoun Station
- EP-FC-112-100-F-06, ERO Notification or Augmentation
- EP-FC-114-100, Off-Site Notifications

**Function / Responsibility (Task) Analysis Template**

Event: # 1

Site: FCS

Position: Control Room Operator

Line #: 6, 9-10, 13, 14

Function	Responsibility (Task)	Action Step	Duration
1. ERO notification	1.1 Complete the ERO notification.	Retrieve procedure EP-FC-112-100-F-06, <i>ERO Notification or Augmentation.</i>	5
		Perform ERO notification	3
		<b>Task duration</b>	<b>8</b>
2. State/local notification	2.1 Perform state/local notification.	Retrieve and complete procedure EP-FC-114-100, <i>Offsite Notifications.</i>	Performed by Shift Manager
		Approve content of state/local notification.	Performed by Shift Manager
		Perform state/local notification.	4
		<b>Task duration</b>	<b>4</b>
3. NRC Notification	3.1 Perform NRC notification.	Retrieve and complete procedure EP-FC-114-100, <i>Offsite Notifications.</i>	10
		Perform NRC notification.	2
		<b>Task duration</b>	<b>12</b>
4. Site-specific notifications	4.1 Perform site-specific notifications, including plant announcements.	Perform site-specific notifications.	2
		<b>Task duration</b>	<b>2</b>
5. Event Mitigation	5.1 Assess and respond to plant conditions	Provide assistance to the Shift Manager in mitigating the event as directed.	5
		<b>Task duration</b>	<b>5</b>
		<b>TOTAL DURATION</b>	<b>31</b>

Task Performer: Chris Hayes

Position: Control Room Operator

Date: 8/3/16

Evaluator: Jason Fickbohm

Position: EP Coordinator

Date: 8/3/16

- B. Analysis #2 – Fuel Handling Accident with General Emergency and PAR

## **TIME MOTION STUDY OF OVERLAPPING TASKS**

### **Analysis #2**

### **Fuel Handling Accident with General Emergency and PAR**

**TASK 1: Complete the Off-Site Notification**

**JOB: Control Room Operator**

**TASK 2: Perform NRC Notification**

**JOB: Control Room Operator**

**TASK 3: Perform Event Mitigation**

**JOB: Control Room Operator**

PURPOSE:

Perform a Time Motion Study to evaluate whether the performance of notification actions assigned to the Control Room Operator are acceptable task overlaps to the Control Room Operator's primary emergency plan function of event mitigation.

NOTE:

Times for the activities performed are based on operating experience (e.g., drills, real events, etc.) and/or informed judgment with consideration given to the limited Operator actions in a permanently shutdown and defueled condition. Validation of actual times will be performed with updated procedures.

CONCLUSION:

The Time Motion Study demonstrated the Control Room Operator could perform the tasks of completing State, local and NRC notifications successfully, individually or in series, without impacting the ability of the CRO to remain in role providing support and oversight during the emergency.

LOCATION:

The response to this event was determined by conducting a tabletop of the event using the emergency plan and procedures and the applicable department procedures.

REQUIRED TOOLS/EQUIPMENT:

- AOP-08, Fuel Handling Accident
- EP-FC-112, Emergency Classification and Protective Action Recommendations
- EP-FC-1001, Addendum 3, Emergency Action Levels for Fort Calhoun Station
- EP-FC-112-100-F-06, ERO Notification or Augmentation
- EP-FC-114-100, Off-Site Notifications

**Function / Responsibility (Task) Analysis Template**

Event: #2

Site: FCS

Position: Control Room Operator

Line #: 6, 9-10, 13, 14

Function	Responsibility (Task)	Action Step	Duration
1. ERO notification	1.1 Complete the ERO notification.	Retrieve procedure EP-FC-112-100-F-06, <i>ERO Notification or Augmentation.</i>	5
		Perform ERO notification	3
		<b>Task duration</b>	<b>8</b>
2. State/local notification	2.1 Perform state/local notification.	Retrieve and complete procedure EP-FC-114-100-, <i>Offsite Notifications.</i>	Performed by Shift Manager
		Approve content of state/local notification.	Performed by Shift Manager
		Perform state/local notification.	5
		<b>Task duration</b>	<b>5</b>
3. NRC Notification	3.1 Perform NRC notification.	Retrieve and complete procedure EP-FC-114-100-, <i>Offsite Notifications.</i>	10
		Perform NRC notification.	2
		<b>Task duration</b>	<b>12</b>
4. Site-specific notifications	4.1 Perform site-specific notifications, including plant announcements.	Perform site-specific notifications.	2
		<b>Task duration</b>	<b>2</b>
5. Event Mitigation	5.1 Assess and respond to plant conditions	Provide assistance to the Shift Manager in mitigating the event as directed.	5
		<b>Task duration</b>	<b>5</b>
		<b>TOTAL DURATION</b>	<b>32</b>

Task Performer: Chris Hayes

Position: Control Room Operator

Date: 8/3/16

Evaluator: Jason Fickbohm

Position: EP Coordinator

Date: 8/3/16

C. Analysis #3 – Aircraft Potential Threat

## **TIME MOTION STUDY OF OVERLAPPING TASKS**

### **Analysis #3 Aircraft Potential Threat**

**TASK 1: Complete the State Notification  
JOB: Non-Certified Operator**

**TASK 2: Perform NRC Notification  
JOB: Non-Certified Operator**

**TASK 3: Perform Event Mitigation  
JOB: Non-Certified Operator**

**PURPOSE:**

Perform a Time Motion Study to evaluate whether the performance of NRC notification actions assigned to the NCO is an acceptable task overlap to the NCO's primary emergency plan function.

**NOTE:**

The Time Motion Study should be completed in a manner that demonstrates notification actions while the Shift Manager is demonstrating the Emergency Director function.

Times for the activities performed are based on operating experience (e.g., drills, real events, etc.) and/or informed judgment with consideration given to the limited Operator actions in a permanently shutdown and defueled condition. Validation of actual times will be performed with updated procedures.

**CONCLUSION:**

The Time Motion Study demonstrated the NCO could perform the tasks of completing State, local and NRC notifications successfully, individually or in series, without impacting the ability of the NCO to remain in role providing support and oversight during the emergency.

**LOCATION:**

The response to this event was determined by conducting a tabletop of the event using the emergency plan and procedures and the applicable department procedures such as Operations emergency and abnormal operating procedures.

**REQUIRED TOOLS/EQUIPMENT:**

- AOP 37, Security Events
- EP-FC-112, Emergency Classification and Protective Action Recommendations
- EP-FC-1001, Addendum 3, Emergency Action Levels for Fort Calhoun Station
- EP-FC-112-100-F-06, ERO Notification or Augmentation
- EP-FC-114-100, Off-Site Notifications

**Function / Responsibility (Task) Analysis Template**

Event: #3

Site: FCS

Position: Non-Certified Operator

Line #: 6, 9-10, 13, 14

Function	Responsibility (Task)	Action Step	Duration
1. ERO notification	1.1 Complete the ERO notification.	Retrieve procedure EP-FC-112-100-F-06, <i>ERO Notification or Augmentation.</i>	5
		Perform ERO notification	3
		<b>Task duration</b>	<b>8</b>
2. State/local notification	2.1 Perform state/local notification.	Retrieve and complete procedure EP-FC-114-100, <i>Offsite Notifications.</i>	Performed by Shift Manager
		Approve content of state/local notification.	Performed by Shift Manager
		Perform state/local notification.	4
		<b>Task duration</b>	<b>4</b>
3. NRC Notification	3.1 Perform NRC notification.	Retrieve and complete procedure EP-FC-114-100, <i>Offsite Notifications.</i>	10
		Perform NRC notification.	2
		<b>Task duration</b>	<b>12</b>
4. Site-specific notifications	4.1 Perform site-specific notifications, including plant announcements.	Perform site-specific notifications.	2
		<b>Task duration</b>	<b>2</b>
5. Event Mitigation	5.1 Assess and respond to plant conditions	Provide assistance to the Shift Manager in mitigating the event as directed.	5
		<b>Task duration</b>	<b>5</b>
		<b>TOTAL DURATION</b>	<b>31</b>

Task Performer: Chris Hayes

Position: Control Room Operator

Date: 8/3/16

Evaluator: Jason Fickbohm

Position: EP Coordinator

Date: 8/3/16

D. Analysis #4 – Control Room Fire Requiring Evacuation and Maintain SFP Cooling

## **TIME MOTION STUDY OF OVERLAPPING TASKS**

### **Analysis #4**

### **Event Requiring Control Room Evacuation and Maintain SFP Cooling**

**TASK 1: Complete the State Notification**

**JOB: Control Room Operator**

**TASK 2: Perform NRC Notification**

**JOB: Control Room Operator**

**TASK 3: Perform Event Mitigation**

**JOB: Control Room Operator**

**PURPOSE:**

Perform a Time Motion Study to evaluate whether the performance of notification actions assigned to the Control Room Operator is an acceptable task overlap to the Control Room Operator's primary emergency plan function of event mitigation.

**NOTE:**

The Time Motion Study should be completed in a manner that demonstrates notification actions while the Shift Manager is demonstrating the Emergency Director function.

Times for the activities performed are based on operating experience (e.g., drills, real events, etc.) and/or informed judgment with consideration given to the limited Operator actions in a permanently shutdown and defueled condition. Validation of actual times will be performed with updated procedures.

**CONCLUSION:**

The Time Motion Study demonstrated the Control Room Operator could perform the tasks of completing State, local and NRC notifications successfully, individually or in series, without impacting the ability of the CRO to remain in role providing support and oversight during the emergency.

**LOCATION:**

The response to this event was determined by conducting a tabletop of the event using the emergency plan and procedures and the applicable department procedures such as Operations emergency and abnormal operating procedures.

**REQUIRED TOOLS/EQUIPMENT:**

- AOP-06, Fire Emergency
- AOP-07, Control Room Evacuation
- EP-FC-112, Emergency Classification and Protective Action Recommendations
- EP-FC-1001, Addendum 3, Emergency Action Levels for Fort Calhoun Station
- EP-FC-112-100-F-06, ERO Notification or Augmentation
- EP-FC-114-100, Off-Site Notifications

**Function / Responsibility (Task) Analysis Template**

Event: #4

Site: FCS

Position: Control Room Operator

Line #: 6, 9-10, 13, 14

Function	Responsibility (Task)	Action Step	Duration
1. ERO notification	1.1 Complete the ERO notification.	Retrieve procedure EP-FC-112-100-F-06, <i>ERO Notification or Augmentation.</i>	5
		Perform ERO notification	3
		<b>Task duration</b>	<b>8</b>
2. State/local notification	2.1 Perform state/local notification.	Retrieve and complete procedure EP-FC-114-100, <i>Offsite Notifications.</i>	Performed by Shift Manager
		Approve content of state/local notification.	Performed by Shift Manager
		Perform state/local notification.	4
		<b>Task duration</b>	<b>4</b>
3. NRC Notification	3.1 Perform NRC notification.	Retrieve and complete procedure EP-FC-114-100, <i>Offsite Notifications.</i>	10
		Perform NRC notification.	2
		<b>Task duration</b>	<b>12</b>
4. Site-specific notifications	4.1 Perform site-specific notifications, including plant announcements.	Perform site-specific notifications.	2
		<b>Task duration</b>	<b>2</b>
5. Event Mitigation	5.1 Assess and respond to plant conditions	Provide assistance to the Shift Manager in mitigating the event as directed.	5
		<b>Task duration</b>	<b>5</b>
		<b>TOTAL DURATION</b>	<b>31</b>

Task Performer: Chris Hayes

Position: Control Room Operator

Date: 8/3/16

Evaluator: Jason Fickbohm

Position: EP Coordinator

Date: 8/3/16

IX. **OVERLAP OF TASKS ACTIVITIES OR OTHER CONFLICTS IDENTIFIED**

- A. Overlap Requiring Compensatory Measures  
None

X. **REFERENCES**

- Omaha Public Power District to USNRC, "Certification of Permanent Cessation of Power Operations," Letter LIC-16-0043, dated June 24, 2016
- NEI 10-05, Rev 0, *Assessment of On-Shift Emergency Response Organization Staffing and Capabilities*
- NSIR DPR-ISG-01, *Interim Staff Guidance – Emergency Planning for Nuclear Power Plants*
- NUREG-0654, *Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants.*
- EP-FC-1001, Rev. 0, *Radiological Emergency Response Plan for Fort Calhoun Station*
- EP-FC-1001, Addendum 1, Revision 0, *Fort Calhoun Station On-Shift Staffing Technical Basis*

**OMAHA PUBLIC POWER DISTRICT**

**FORT CALHOUN STATION**

**DOCKET NUMBER 50-285 / LICENSE NUMBER DPR-40**

**ATTACHMENT 5**

**EMERGENCY RESPONSE ORGANIZATION TASK ANALYSIS**

## ERO POSITION MATRIX

Current ERO Position	Tasks (T#)	Implementing Actions	Position eliminated?	Task Assigned to?	Min Staffing?	Key NRC PI?	Procedure(s) E-Plan (Rev. 0) section	Regulatory Requirement
<b>EMERGENCY OPERATIONS FACILITY</b>								
<b>Emergency Director</b>	<p>T1. Receive turnover and assume command/control of EOF and activities outside the area controlled by the TSC</p> <p>T2. Direct the activation, operation and deactivation of the EOF</p> <p>T3. Coordinate all OPPD activities involved with the emergency response</p> <p>T4. Upgrade the emergency classification level (cannot delegate)</p> <p>T5. Make protective action recommendations (PAR) to offsite agencies (cannot delegate)</p> <p>T6. Direct and approve offsite notification to State and local agencies (cannot delegate)</p> <p>T7. Ensure off-site agency updates are periodically communicated as required/requested</p> <p>T8. Coordinate OPPD press releases with the Public Affairs</p> <p>T9. Request assistance from the OPPD organization, as necessary</p> <p>T10. Ensure that Federal, State and local authorities and industry support agencies remain cognizant of the status of the emergency situation</p> <p>T11. If requested, dispatch informed individuals to offsite governmental Emergency Operation Center (EOCs)</p> <p>T12. Approve the technical content of OPPD Nuclear press release prior to their being released to the media</p> <p>T13. Evaluate the need to augment EOF staff based in events in progress</p> <p>T14. Assess the effectiveness of ongoing EOF working relationships</p> <p>T15. Monitor information flow within the EOF to ensure that facility activities remain coordinated</p> <p>T16. Prepare state/local notification forms with the assistance of the Protective Measures Manager</p> <p>T17. Coordinate services as necessary to support EOF operations</p> <p>T18. Coordinate with the Administrative Logistics Manager for continual shift staffing requirements</p> <p>T19. Act as the designated alternate for approval of the technical content of OPPD Press Releases and information released to the News Media</p> <p>T20. Act as purchasing agent in support contract negotiation/administration</p> <p>T21. Direct implementation of accountability actions</p> <p>T22. Review and update station priorities</p> <p>T23. Conduct facility briefings</p> <p>T24. Review and approve emergency exposure controls</p> <p>T25. Coordinate facility relocation as needed</p>	N/A	No	N/A	Yes	Yes	<p>EP-FC-112-400</p> <p>EP-FC-1001 Section B, 3.2.2</p> <p>EP-FC-1001 Section B, 3.2.3</p> <p>EP-FC-1001 Section B, 4.3.5</p> <p>EP-FC-1001 Section B, 4.4.5</p> <p>EP-FC-1001 Section B, 4.8.1.A</p> <p>EP-FC-112-400-F-03</p> <p>EP-FC-112-400-F-39</p>	<p>T1/T2 NUREG 0654 II.A.1.d/II.B.3/II.B.5</p> <p>T2 NUREG 0654 II.A.4</p> <p>T4 NUREG 0654 II.B.4</p> <p>T5 NUREG 0654 II.B.4/II.J.7</p> <p>T6 NUREG 0654 II.B.4</p> <p>T10 NUREG 0654 II.B.7.c</p> <p>T17 NUREG 0654 II.B.7.a</p> <p>T24 NUREG 0654 II.K.2</p> <p>T10 NUREG 0654 II.C.1.a</p> <p>T2 NUREG 0654 II.K.6.c/II.M.2</p>
<b>EOF COP Communicator</b>	<p>T1. Communicate and receive information via the COP network or commercial telephone line with appropriate State and County agencies</p> <p>T2. Ensure that the Emergency Director is made aware of issues and questions raised by offsite agencies and then relay the replies to these requests</p> <p>T3. Perform required notifications to States and Counties</p> <p>T4. Perform required notifications to the NRC</p> <p>T5. Perform required notifications to the Emergency Response Organization</p> <p>T6. Assist in maintaining status boards within the EOF</p>	N/A	No	N/A	Yes	No	<p>EP-FC-112-400</p> <p>EP-FC-1001 Section B, 4.3.5</p> <p>EP-FC-1001 Section B, 4.8.1.B</p> <p>EP-FC-112-400-F-05</p> <p>EP-FC-112-400-F-39</p>	<p>T1 NUREG 0654 II.A.1.e</p> <p>T2 NUREG 0654 II.A.1.e</p> <p>T3 NUREG 0654 II.A.1.e</p>
<b>EOF Protective Measures Manager</b>	<p>T1. Recommend changes in event classification and PARs based upon effluent releases, dose projections or measured dose rates in the field</p> <p>T2. Assist the Emergency Director in the evaluation of the significance of an emergency with respect to the public</p> <p>T3. Notify the Emergency Director of meteorological changes that may impact identification of downwind areas</p> <p>T4. Advise the Emergency Director of protective actions taken by the station for plant personnel</p> <p>T5. Assist the TSC in the planning and coordination of activities associated with the evacuation of non-essential personnel</p> <p>T6. Advise the Emergency Director on the need for emergency exposures or for issuance of KI to the Field Monitoring Teams or OPPD personnel required to enter the plume</p> <p>T7. Monitor plant radiological conditions and advise the TSC Protective Measures Coordinator of any adverse trend or potential release pathways that may impact existing event classification</p> <p>T8. Assist in the completion and review of the State/Local notifications form</p> <p>T9. Maintain cognizance of field team sampling activities</p> <p>T10. Ensure State authorities are provided information pertaining to OPPD Field Monitoring Team activities and sample results</p> <p>T11. Assist the station with planning and coordination of activities associated with the evacuation of non-essential personnel</p> <p>T12. Assist the station with acquisition of additional instrumentation, dosimetry, protective equipment and radiological support personnel</p> <p>T13. Assist and interface with station in the development of plans for plant surveys, sampling, shielding, and special tools in support of waste system processing and design modification activities</p> <p>T14. Upon request, provide <b>in-plant health physics data</b> to Emergency Public Information personnel and the CHP Communicator</p> <p>T15. Monitor dose assessment operations performed</p> <p>T16. Keep the Emergency Director informed of projections and field survey results</p> <p>T17. Evaluate site radiological conditions and necessary personnel protective measures</p> <p>T18. Prepare and submit state update information including PARs, to the Emergency Director, state and federal officials</p>	<p>T1 from Dose Assessment Coordinator</p> <p>T6 from Dose Assessment Coordinator</p> <p>T7 from Dose Assessment Coordinator</p> <p>T8 from Dose Assessment Coordinator</p> <p>T9 from Dose Assessment Coordinator</p> <p>T10 from Dose Assessment Coordinator</p> <p>T2 from EOF CHP Communicator</p> <p>T7 from EOF CHP Communicator</p>	No	N/A	Yes or DAC	Yes	<p>EP-FC-112-400</p> <p>EP-FC-1001 Section B, 4.3.5</p> <p>EP-FC-1001 Section B, 4.8.1.C</p> <p>EP-FC-112-400-F-16</p> <p>EP-FC-112-400-F-39</p>	N/A
<b>EOF Dose Assessment Specialist</b>	<p>T1. Perform dose projections using the Dose Assessment computer models as directed by the Dose Assessment Coordinator</p> <p>T2. Monitor meteorological and plant radiological/effluent conditions</p> <p>T3. Notify the Dose Assessment Coordinator of meteorological changes that may impact identification of downwind areas</p> <p>T4. Evaluate the need for administering KI to OPPD workers when requested by the Dose Assessment Coordinator</p> <p>T5. Update status boards</p>	N/A	No	N/A	Yes	No	<p>EP-FC-112-400</p> <p>EP-FC-1001 Section B, 4.3.5</p> <p>EP-FC-1001 Section B, 4.8.1.E</p> <p>EP-FC-112-400-F-18</p> <p>EP-FC-112-400-F-39</p>	N/A

## ERO POSITION MATRIX

Current ERO Position	Tasks (T#)	Implementing Actions	Position eliminated?	Task Assigned to?	Min Staffing?	Key NRC PI?	Procedure(s) E-Plan (Rev. 0) section	Regulatory Requirement
<b>EOF Dose Assessment Coordinator</b>	<p>T1. Interpret radiological data and provide PARs based upon dose projections to the Protective Measures Manager</p> <p>T2. Advise the Protective Measures Manager of changes in event classification based on effluent releases, dose projections or measured dose rates in the field</p> <p>T3. Initiate evaluation of the need for administering KI to OPPD nuclear workers when requested by the Environmental Coordinator</p> <p>T4. Remain cognizant of forecast and meteorological data to ensure the status is updated periodically</p> <p>T5. Notify the Protective Manager of meteorological changes that may impact identification of downwind areas</p> <p>T6. Upon request, provide release and dose assessment data to Emergency Public Information personnel and the CHP Communicator</p> <p>T7. Direct offsite dose assessment</p> <p>T8. Coordinate OPPD Field teams</p> <p>T9. Compare dose projections against field team results</p> <p>T10. Compare dose projections and field team results with state and federal results</p> <p>T11. If Dose Assessment Specialist is not present, perform Dose Assessment Specialist actions until relieved</p> <p>T12. Assist in completing notification forms</p>	N/A	Yes	<p>Eliminate position</p> <p>T1 to Protective Measures Manager</p> <p>T2 Protective Measures Manager has (T1)</p> <p>T3 Dose Assessment Specialist has (T4)</p> <p>T4 Dose Assessment Specialist has (T2)</p> <p>T5 Dose Assessment Specialist has (T3)</p> <p>T6 to Protective Measures Manager</p> <p>T7 to Protective Measures Manager</p> <p>T8 to Protective Measures Manager</p> <p>T9 to Protective Measures Manager</p> <p>T10 to Protective Measures Manager</p> <p>T11 Dose Assessment Specialist has all</p> <p>T12 Protective Measures Manager has (T8)</p>	Yes or PMM	No	<p>EP-FC-112-400</p> <p>EP-FC-1001 Section B, 4.3.5</p> <p>EP-FC-1001 Section B, 4.8.1.D</p> <p>EP-FC-112-400-F-17</p> <p>EP-FC-112-400-F-39</p>	N/A
<b>EOF Admin Logistics Manager</b>	<p>T1. Ensure contact is made and communications are maintained with appropriate Non-OPPD Nuclear personnel whose assistance may be required to terminate the emergency conditions and to expedite recovery</p> <p>T2. Advise the EOF Director concerning the status of activities relating to governmental interfaces</p> <p>T3. Obtain support from Human Resources, the Legal Department, Accounting Department and others as required</p> <p>T4. Maintain communications with ANI, INPO, and SAFER as necessary</p> <p>T5. Ensure that access to the EOF is limited to Emergency Responders and authorize admittance to non-OPPD personnel</p> <p>T6. Ensure that NRC Site Team Representatives are directed to the Ops Liaison upon arrival at the EOF</p> <p>T7. Ensure that updates and information are provided to the EOC Liaisons and to offsite officials present in the EOF</p> <p>T8. Assist in obtaining and coordinating additional technical expertise to support station requests, including Corporate staff, unaffected stations and vendor/contractors</p> <p>T9. Coordinate maintenance of EOF equipment as necessary</p> <p>T10. Ensure shift relief and continual staffing for the EOF</p> <p>T11. Activate the Alert Notification System as requested</p> <p>T12. If Emergency Director is not present, perform initial Emergency Director actions</p> <p>T13. Participate in periodic EOF briefings</p> <p>T14. Assist in obtaining food, water and other supplies as requested</p> <p>T15. Implement SAFER Response Plan as needed</p>	<p>T3 from EOF Clerical Assistant</p> <p>T2 from Emergency Response Coordinator</p> <p>T4 from Emergency Response Coordinator</p>	No	N/A	No	No	<p>EP-FC-112-400</p> <p>EP-FC-1001 Section B, 4.8.2.A</p> <p>EP-FC-112-400-F-04</p> <p>EP-FC-112-400-F-39</p>	<p>T10 NUREG 0654 II.A.1.e</p> <p>T3 NUREG 0654 II.A.4/II.B.7.a</p> <p>T8 NUREG 0654 II.A.4/II.B.7.a</p> <p>T14 NUREG 0654 II.A.4/II.B.7.a</p>
<b>EOF Information Specialist</b>	<p>T1. Prepare information for use in periodic press releases</p> <p>T2. At an Alert or higher emergency classification, submit all press release to the Emergency Director (or designee) for approval prior to forwarding the release to the Joint Information Center</p> <p>T3. Establish communications with the Emergency Director, Corporate Spokesperson and JIC Manager, if available</p> <p>T4. Gather information pertaining to the incident</p> <p>T5. Relay information as it develops to the JIC Manager (or designee)</p> <p>T6. Work with the EOF Technical Liaison to gather plant status information and prepare emergency information messages for approval by the EOF Emergency Director</p> <p>T7. Assist with preparation of close-out postings on the FCS Emergency Information website and/or news release</p> <p>T8. Coordinate activities with state and federal information officers when they arrive at the EOF to ensure they receive prompt and accurate plant information</p> <p>T9. Prepare routine News Media Update messages</p> <p>T10. Service as plant status information source for the JIC</p>	T1 from EOF Clerical Assistant	No	N/A	No	No	<p>EP-FC-112-400-F-39</p> <p>EP-FC-1001 Section B, 4.8.2.C</p> <p>Crisis Communication Plan</p>	N/A

## ERO POSITION MATRIX

Current ERO Position	Tasks (T#)	Implementing Actions	Position eliminated?	Task Assigned to?	Min Staffing?	Key NRC PI?	Procedure(s) E-Plan (Rev. 0) section	Regulatory Requirement
<b>EOF Ops Liaison</b>	T1. Monitor the Ops Liaison Network to keep appraised of Control Room activities including progress on Emergency Operating Procedures T2. Monitor the Ops Liaison Network to keep appraised of significant changes in plant system/equipment status and critical parameters T3. Monitor the Ops Liaison Network to keep appraised of possible changes in event classification T4. Identify and track critical parameters for the identification and trending of current plant status information T5. Assist the station in identifying Operations resources from corporate staff or unaffected stations for direct support of plant shift operations personnel T6. Assist the ENS Communicator in the completion of the NRC Event Notification Worksheet and in responding to NRC inquiries T7. Ensure that the Protective Measures Manager is informed of changes in plant status that impact or potentially impact the offsite environment or PARs T8. Obtain plant status/Control Room information from the Control Room Ops Liaison and transmit this information to the EOF and NRC staff as needed T9. Assist the Emergency Director in the review of classifications and formulating appropriate PARs when necessary T10. Assist in maintaining electronic logs and status boards, as needed	N/A	No	N/A	No	No	EP-FC-112-400 EP-FC-1001 Section B, 4.8.2.D EP-FC-112-400-F-09 EP-FC-112-400-F-39	N/A
<b>EOF Field Team (2)</b>	T1. Provide offsite monitoring in the areas potentially affected by a radiological release	N/A	No	N/A	No	No	EP-FC-1001 Section B, 4.8.2.B EP-FC-112-500-F-01 EP-FC-112-400-F-39	T1 NUREG 0654 II.B.5 (Table B-1)
<b>Field Team Specialist</b>	T1. Ensure communications are established with the TSC to obtain information on the accident conditions, meteorological conditions and estimates of radioactive material releases T2. Maintain cognizance of Field Monitoring Team exposure T3. When warranted, ask the Dose Assessment Coordinator to initiate an evaluation of the need for administering KI to OPPD nuclear workers T4. Determine needs of the Dose Assessment Coordinator, the Dose Assessment Specialist, and the CHP Communicator for updates on Field Monitoring Team data and ensure distribution of new data to them in accordance with those needs T5. Upon request, provide field team data to Emergency Public Information personnel T6. Evaluate and coordinate additional equipment and personnel as necessary T7. Establish and maintain contact with dispatched Field Monitoring Teams T7. Document the Dose Assessment Coordinator's instructions and the relay the information to the Field Monitoring Teams T8. Provide periodic updates to the Field Monitoring Teams on classification, plant conditions, release status, meteorological data, etc. T9. Document environmental data reported by the Field Monitoring Teams T10. Periodically obtain and document information on Field Monitoring Team radiological exposure T11. Promptly report new environmental or Field Monitoring Team exposure data to the Dose Assessment Coordinator T12. Document questions and answers directed to and received from the Field Monitoring Teams. Ensure the Dose Assessment Coordinator is cognizant of these information requests and relay replies to these requests T13. Coordinate the activities of the OPPD and State Field Teams to achieve the most efficient use of teams for plume tracking T14. Develop and coordinate a Recovery Environmental Monitoring Plan and Sampling Plan in conjunction with affected States	N/A	No	N/A	No	No	EP-FC-112-400 EP-FC-1001 Section B, 4.8.2.B.1 EP-FC-112-400-F-21 EP-FC-112-400-F-39	N/A
<b>EOF Technical Liaison</b>	T1. Monitor status of the emergency T2. Assist the EOF Information Specialist in collecting and interpreting event-related information T3. Assist the EOF Information Specialist in providing prompt and accurate plant information to federal, state and local public information personnel T4. Review Emergency Information messages for technical accuracy before they are submitted to the Emergency Director for approval T5. Serve as EOF contact for the JIC Technical Liaison T6. Transmit status board technical information to the JIC Technical Liaison as it becomes available T7. Provide information on how the plant is analyzing technical information for the JIC	T3 from EOF CHP Communicator T4 from EOF CHP Communicator T6 from EOF CHP Communicator	No	N/A	Yes	No	EP-FC-112-400-F-39 Crisis Communication Plan	N/A
<b>EOF Clerical Assistant</b>	T1. Distribute copies of notification forms T2. Assist the Administrative staff T3. Coordinate with the TSC Administrative Logistics Coordinator for special training as required T4. Implement SAFER Response Plan as needed	N/A	Yes	Eliminate position T1 to EOF Information Specialist T2 N/A T3 to Admin Logistics Manager T4 Admin Logistics Manager has (T15)	No	No	EP-FC-112-400-F-07 EP-FC-112-400-F-39	N/A
<b>Emergency Director Secretary</b>	No tasks listed in procedures	N/A	Yes	Eliminate position	No	No	EP-FC-112-400-F-39	N/A
<b>Des Moines Site Representative</b>	T1. Assist with the interface between OPPD and the offsite governmental officials in the Iowa State EOC	N/A	No	N/A	No	No	EP-FC-112-400 EP-FC-112-400-F-39	T1 NUREG 0654 II.C.2.b

## ERO POSITION MATRIX

Current ERO Position	Tasks (T#)	Implementing Actions	Position eliminated?	Task Assigned to?	Min Staffing?	Key NRC PI?	Procedure(s) E-Plan (Rev. 0) section	Regulatory Requirement
<b>IT Specialist</b>	T1. Assist any personnel in logging in, initializing or using a desired computer program T2. Investigate and repair problems encountered with communications equipment and computer equipment/applications	N/A	Yes	Eliminate position T1 to Helpdesk T2 to Helpdesk	No	No	EP-FC-112-400 EP-FC-112-400-F-08 EP-FC-112-400-F-39	N/A
<b>EOF CHP Communicator</b>	T1. Establish contact with states and other CHP stations T2. Update all parties on status of protective measures as directed by the Protective Measures Manager T3. Field and obtain satisfactory answers from appropriate source for any questions or concerns that state officials may have about plant or protective measures issues T4. Provide updates and respond to inquiries from the NRC on offsite environmental data, release status, dose projections and changes to PARs for the general public T5. Obtain release and dose assessment data from the Dose Assessment Coordinator and Field Monitoring Team data from the Environmental Coordinator T6. Maintain continuous communications with the NRC, if requested, via the NRC HPN phone or commercial telephone line T7. Communicate current Health Physics information to NRC representatives, as requested	N/A	Yes	Eliminate position T1 N/A T2 to Protective Measures Manager T3 to EOF Technical Liaison T4 to EOF Technical Liaison T5 N/A T6 to EOF Technical Liaison T7 to Protective Measures Manager	No	No	EP-FC-112-400 EP-FC-112-400-F-19 EP-FC-112-400-F-39	N/A
<b>Communications Specialist</b>	No tasks listed in procedures	N/A	Yes	Eliminate position	No	No	EP-FC-112-400-F-39	N/A
<b>Emergency Response Coordinator</b>	T1. Assist in activation of the EOF T2. Ensure State and Federal representatives are kept informed and given access to all needed resources T3. Ensure notifications are being made to States, Counties, NRC and the Emergency Response Organization T4. Initiate Business Continuity Plan as directed T5. Participate in periodic facility briefings	N/A	Yes	Eliminate position T1 N/A T2 to Admin Logistics Manager T3 N/A T4 to Admin Logistics Manager T5 N/A	No	No	EP-FC-112-400-F-91 EP-FC-112-400-F-39	N/A
<b>EOF Secretary</b>	No tasks listed in procedures	N/A	Yes	Eliminate position	No	No	EP-FC-112-400-F-39	N/A
<b>EOF Dose Assessment Assistant</b>	No tasks listed in procedures	N/A	Yes	Eliminate position	No	No	EP-FC-112-400-F-39	N/A
<b>EOF Status Board Keeper</b>	No tasks listed in procedures	N/A	Yes	Eliminate position	No	No	EP-FC-112-400-F-39	N/A
<b>TECHNICAL SUPPORT CENTER</b>								
<b>Site Director</b>	T1. Receive turnover and assume command/control of TSC and activities for onsite emergency efforts T2. Direct the activation, operation and deactivation of the TSC T3. Direct personnel assembly/accountability and evacuation of non-essential personnel at Site Area Emergency, General Emergency or as conditions warrant T4. Upgrade the emergency classification level (cannot delegate) T5. Make protective action recommendations (PAR) to offsite agencies (cannot delegate) T6. Direct and approve offsite notification to State and local agencies (cannot delegate) T7. If the emergency involves a hazardous substance and/or oil discharge, ensure that appropriate notifications and responses have been made T8. Determine if the OSC is to remain activated at the Alert T9. Approve emergency exposure controls T10. Ensure protective actions for all onsite personnel T11. Supervise the Station ERO T12. Inform the EOF Emergency Director and onsite NRC as to the status of the plant T13. Assist the EOF Emergency Director in the acquisition of information for the State/Local notifications, NRC Event Notification Worksheet and offsite agency updates T14. Provide information and recommendations to the EOF Emergency Director T15. Implement plans, procedures and schedules to meet emergency response objectives as directed by the EOF Emergency Director T16. Request from the EOF any additional material, personnel resources or equipment needed to implement response plans and operations T17. Assume the duties and responsibilities of Decision-Maker when a transition to Severe Accident Management Guidelines (SAMGs) is initiated T18. Perform Command and Control turnover to the EOF T19. Review and update station priorities T20. Perform periodic facility briefings T21. Invoke 10 CFR 50.54(x), if needed T22. Coordinate facility relocation if needed T23. Implement Beyond Design Basis External Event (BDBEE) response if needed	N/A	No	N/A	Yes	Yes	EP-FC-112-200 EP-FC-1001 Section B, 3.2.2 EP-FC-1001 Section B, 3.2.3 EP-FC-1001 Section B, 4.3.4 EP-FC-1001 Section B, 4.4.4 EP-FC-1001 Section B, 4.6.1.A EP-FC-112-200-F-01 EP-FC-112-200-F-24	T1/T2 NUREG 0654 II.A.1.d/II.B.3 T3 NUREG 0654 II.J.5 T9 NUREG 0654 II.K.2
<b>TSC COP Communicator</b>	T1. Communicate and receive information via the COP network or commercial telephone line with appropriate State and County agencies (prior to EOF accepting Command and Control) T2. Monitor State/Local communications until released by the TSC Director T3. Perform required notifications to states and counties T4. Perform required notifications to the NRC T5. Perform notifications to the Emergency Response Organization T6. Assist in maintaining status boards in the TSC	N/A	Yes	Eliminate position T1 EOF COP Communicator has (T1) T2 EOF COP Communicator has (T2) T3 EOF COP Communicator has (T3) T4 EOF COP Communicator has (T4) T5 EOF COP Communicator has (T5) T6 to TSC Ops Liaison	Yes	No	EP-FC-112-200 EP-FC-1001 Section B, 4.3.4 EP-FC-1001 Section B, 4.6.1.D EP-FC-112-200-F-05 EP-FC-112-200-F-24	N/A

# ERO POSITION MATRIX

Current ERO Position	Tasks (T#)	Implementing Actions	Position eliminated?	Task Assigned to?	Min Staffing?	Key NRC PI?	Procedure(s) E-Plan (Rev. 0) section	Regulatory Requirement
<b>TSC Protective Measures Coordinator</b>	<p>T1. Accumulate, tabulate and evaluate data on plant conditions, such as meteorological and radiological monitoring readings, and other pertinent data</p> <p>T2. Act as the TSC liaison with the appropriate NRC Site Team representative</p> <p>T3. Ensure use of protective clothing, respiratory protection, and access control within the plant as deemed appropriate to control personnel exposure</p> <p>T4. Ensure that appropriate bioassay procedures have been implemented for onsite personnel when a radioactivity incident has occurred</p> <p>T5. Ensure that personnel are decontaminated, if necessary</p> <p>T6. Authorize personnel exposures below 5 Rem TEDE (EPA-400 lower limit)</p> <p>T7. Assist the TSC Site Director in determining if exposures in excess of the 5 REM TEDE (EPA-400 lower limit) are necessary</p> <p>T8. Advise the TSC Site Director of situations when the use of KI should be considered</p> <p>T9. Assist the TSC Site Director in evaluating dose-based PARs (prior to EOF accepting command and control) and changes in radiological event classification</p> <p>T10. Advise the TSC Site Director and EOF Protective Measures Manager of changes in radiological release status</p> <p>T11. Assist the TSC Site Director in planning rescue operations and provide monitoring services as required, including the transfer of injured and/or contaminated personnel</p> <p>T12. Coordinate with the Security Coordinator to determine the routes to be used for evacuation of non-essential personnel</p> <p>T13. Assure additional radiation protection personnel and/or equipment is arranged for, as necessary</p> <p>T14. Support the OSC Radiation Protection Coordinator in the dispatching of OSC Teams</p> <p>T15. Assist the TSC Director in planning radiological controls for personnel dispatched from the Control Room</p> <p>T16. Monitor habitability concerns impacting access to plant and site areas</p> <p>T17. In coordination with the OSC Radiation Protection Coordinator, assemble and dispatch the Field Monitoring Teams as required</p> <p>T18. Supervise the activities of the CHP Communicator in the TSC</p> <p>T19. Request additional Radiation Protection personnel and/or equipment, as necessary in support of station activities and staff relief</p> <p>T20. Prior to EOF Protective Measures Group staffing, perform dose assessments and provide appropriate dose-based PARs</p> <p>T21. Prior to EOF Protective Measures Group staffing, coordinate Field Team Monitoring activities</p> <p>T22. Prior to EOF Protective Measures Group staffing, monitor meteorological conditions and remain cognizant of forecast data</p> <p>T23. Transfer control of the Field Monitoring Teams to the EOF Field Team Specialist</p> <p>T24. Transfer responsibility of dose assessment activities to the EOF Dose Assessment Coordinator</p> <p>T25. Assist the EOF Field Team Specialist in the acquisition of information for the off-site agency updates</p> <p>T26. If radiological hazard exists, ensure TSC HVAC system is placed into applicable mode</p> <p>T27. Ensure the COP Communicator properly updates the Radiological Status Board</p> <p>T28. Evaluate and authorize entry into High Radiation Areas</p> <p>T29. Participate in periodic TSC briefings</p> <p>T30. Ensure and RP Technician is assigned to escort transport of contaminated injured personnel to offsite hospital</p>	<p>T1 from TSC CHP Communicator</p> <p>T3 from OSC RP Coordinator</p> <p>T4 from OSC RP Coordinator</p> <p>T6 from OSC RP Coordinator</p> <p>T7 from OSC RP Coordinator</p> <p>T9 from OSC RP Coordinator</p> <p>T12 from OSC RP Coordinator</p> <p>T15 from OSC RP Coordinator</p> <p>T16 from OSC RP Coordinator</p> <p>T1 from Dosimetry Technician</p> <p>T2 from Dosimetry Technician</p> <p>T3 from Dosimetry Technician</p> <p>T5 from OSC Chemistry Coordinator</p>	No	N/A	Yes	Yes	<p>EP-FC-112-200</p> <p>EP-FC-1001 Section B, 4.3.4</p> <p>EP-FC-1001 Section B, 4.6.1.C</p> <p>EP-FC-112-200-F-14</p> <p>EP-FC-112-200-F-24</p>	<p>T11 NUREG 0654 II.K.1.a</p> <p>T5 NUREG 0654 II.K.1.e</p>
<b>TSC Reactor Safety Coordinator (Engineering Coordinator)</b>	<p>T1. Accumulate, tabulate and evaluate data on plant conditions</p> <p>T2. Evaluate plant parameters during an emergency to determine the overall plant condition</p> <p>T3. Coordinate core damage assessment activities</p> <p>T4. Identify data points and control parameters that the Operations staff should monitor</p> <p>T5. Ensure that the current and adequate technical information is depicted on status boards</p> <p>T6. Identify and direct staff in the development of special procedures needed to effect long-term safe shutdown or to mitigate a release</p> <p>T7. Supervise the total onsite technical staff effort</p> <p>T8. Act as the TSC liaison with state and appropriate NRC Site Team representatives</p> <p>T9. Assist the Protective Measures Coordinator for onsite radiological/technical matters</p> <p>T10. Assist the TSC Site Director in evaluating plant based PARs (prior to EOF accepting command and control) and changes in event classification</p> <p>T11. Assume the duties and responsibilities of an Evaluator when transition to Severe Accident Management Guidelines (SAMG) is initiated and supervise the activities of the SAMG Evaluator Team</p> <p>T12. Direct the activities of the engineering staff in the TSC</p> <p>T13. Direct the analysis of plant problems and provide recommendations for plant modifications to mitigate the effects of the accident</p> <p>T14. Direct the evaluation of possible radiological release paths to the environment</p> <p>T15. Assist the OSC in evaluation of emergency repairs and parts evaluation</p> <p>T16. Participate in periodic TSC briefings</p> <p>T17. Ensure tracking of long-term recovery issues</p> <p>T18. Coordinate required engineering support from Exelon Corporate, unaffected stations, industry groups and contractors through the EOF</p>	<p>T1 from Elec/I&amp;C Systems Engineer</p> <p>T2 from Elec/I&amp;C Systems Engineer</p> <p>T3 from Elec/I&amp;C Systems Engineer</p> <p>T1 from Primary Systems Engineer</p> <p>T2 from Primary Systems Engineer</p> <p>T3 from Primary Systems Engineer</p> <p>T4 from Primary Systems Engineer</p> <p>T1 from Reactor Engineer</p> <p>T2 from Reactor Engineer</p> <p>T1 from Secondary Systems Engineer</p> <p>T2 from Secondary Systems Engineer</p>	No (retitle)	N/A	Yes	No	<p>EP-FC-112-200</p> <p>EP-FC-1001 Section B, 4.3.4</p> <p>EP-FC-1001 Section B, 4.6.1.B</p> <p>EP-FC-112-200-F-09</p> <p>EP-FC-112-200-F-24</p>	N/A
<b>TSC Elec/I&amp;C Systems Engineer (2)</b>	<p>T1. Provide support to the TSC staff</p> <p>T2. Aid the assessment and development of repair plans</p> <p>T3. Provide engineering analysis and troubleshooting</p>	N/A	Yes	<p>Eliminate position</p> <p>T1 to TSC Reactor Safety Coordinator (Engineering Coordinator)</p> <p>T2 to TSC Reactor Safety Coordinator (Engineering Coordinator)</p> <p>T3 to TSC Reactor Safety Coordinator (Engineering Coordinator)</p>	No	No	<p>EP-FC-112-200</p> <p>EP-FC-1001 Section B, 4.6.2.B</p> <p>EP-FC-112-200-F-29</p> <p>EP-FC-112-200-F-24</p>	T3 NUREG 0654 II.B.5 (Table B-1)
<b>TSC Primary Systems Engineer</b>	<p>T1. Provide support to the TSC staff</p> <p>T2. Aid the assessment and development of repair plans</p> <p>T3. Provide engineering analysis and troubleshooting</p> <p>T4. Perform SAMG evaluations as directed</p>	N/A	Yes	<p>Eliminate position</p> <p>T1 to TSC Reactor Safety Coordinator (Engineering Coordinator)</p> <p>T2 to TSC Reactor Safety Coordinator (Engineering Coordinator)</p> <p>T3 to TSC Reactor Safety Coordinator (Engineering Coordinator)</p> <p>T4 to TSC Reactor Safety Coordinator (Engineering Coordinator)</p>	No	No	<p>EP-FC-112-200</p> <p>EP-FC-1001 Section B, 4.6.2.D</p> <p>EP-FC-112-200-F-28</p> <p>EP-FC-112-200-F-24</p>	T3 NUREG 0654 II.B.5 (Table B-1)

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Current ERO Position	Tasks (T#)	Implementing Actions	Position eliminated?	Task Assigned to?	Min Staffing?	Key NRC PI?	Procedure(s) E-Plan (Rev. 0) section	Regulatory Requirement
<b>TSC Field Team Technician (2)</b>	T1. Provide off-site monitoring in the areas potentially affected by a radiological release	N/A	No	N/A	No	No	EP-FC-1001 Section B, 4.6.2.A EP-FC-112-500-F-01 EP-FC-112-200-F-24	T1 NUREG 0654 II.B.5 (Table B-1)
<b>TSC Ops Liaison</b>	T1. Appraise the Control Room, TSC, and EOF staff of the overall plant conditions and significant changes to system and equipment status T2. Inform the Control Room, TSC, and EOF of significant changes in event status (e.g., changes in classification, command and control, initiation of station assembly, accountability, evacuation, etc.) T3. Assist the Site Director in formulating appropriate protective action recommendations when necessary T4. Assist the TSC Director in monitoring and tracking proper implementation of EOP actions by the Control Room T5. Assist the TSC Director in maintaining facility status boards, as instructed T6. Assist the ENS Communicator with completion of NRC Emergency Notification Worksheet and in	T6 from TSC COP Communicator T2 from the TSC CHP Communicator T2 from OSC Ops Liaison T4 from OSC Ops Liaison T5 from OSC Ops Liaison	No	N/A	No	Yes	EP-FC-112-200 EP-FC-1001 Section B, 4.6.2.C EP-FC-112-200-F-08 EP-FC-112-200-F-24	N/A
<b>Admin Logistics Coordinator</b>	T1. Coordinate shift relief and continual staffing of the station T2. Assist the Security Coordinator in coordinating ERO and station activities in support of on-going security contingency, accountability or site/area evacuation efforts T3. Support the processing of special procedures and interim reports during an emergency T4. Ensure that event status and priority logs are being maintained in the TSC T5. Coordinate record keeping efforts at the station T6. Arrange for food, sleeping facilities and other necessary accommodations for onsite emergency workers T7. Arrange for specialized training of Emergency Response personnel as needed T8. If TSC Director is not available, perform TSC Director initial actions T9. Perform routine posting, faxing and distribution T10. Assist in maintaining status boards and logs	T1 from TSC Director T3 from TSC Director T4 from TSC Director T5 from TSC Director T6 from TSC Director T7 from TSC Director T8 from TSC Director T9 from TSC Director T10 from TSC Director T11 from TSC Director	No	N/A	No	No	EP-FC-112-200 EP-FC-112-200-F-03 EP-FC-112-200-F-24	N/A
<b>TSC Director</b>	T1. Activate, or verify activation of the Emergency Response Data System (ERDS) T2. Supervise the activities of the Admin Logistics Coordinator and COP Communicator T3. Ensure that communications are established with appropriate parties as directed by the TSC Site Director T4. Ensure that all required notifications to offsite governmental agencies (State/Local and NRC) are timely and accurate T5. Act as the FCS Liaison to any NRC Site Team Representatives T6. Ensure that the NRC Site Team Representatives are directed to their appropriate counterparts T7. Assist the EOF Emergency Director in the acquisition of information for off-site agency updates T8. Record and relay inquiries to the TSC Site Director and record responses to such inquiries prior to transmission T9. Assist the TSC Site Director in maintaining proper records T10. Participate in periodic facility briefings T11. Assist with accountability and evacuation	N/A	Yes	<b>Eliminate position</b> T1 to Admin Logistics Coordinator T2 N/A T3 to Admin Logistics Coordinator T4 to Admin Logistics Coordinator T5 to Admin Logistics Coordinator T6 to Admin Logistics Coordinator T7 to Admin Logistics Coordinator T8 to Admin Logistics Coordinator T9 to Admin Logistics Coordinator T10 to Admin Logistics Coordinator T11 to Admin Logistics Coordinator	No	Yes	EP-FC-112-200 EP-FC-112-200-F-02 EP-FC-112-200-F-24	N/A
<b>Reactor Engineer</b>	T1. Perform core damage assessments T2. Provide engineering support to the TSC and Control Room staffs	N/A	Yes	<b>Eliminate position</b> T1 to TSC Reactor Safety Coordinator (Engineering Coordinator) T2 to TSC Reactor Safety Coordinator (Engineering Coordinator)	No	No	EP-FC-112-200 EP-FC-112-200-F-11 EP-FC-112-200-F-24	T1 NUREG 0654 II.B.5 (Table B-1)
<b>TSC Secondary Systems Engineer</b>	T1. Provide support to the TSC staff T2. Aid the assessment and development of repair plans	N/A	Yes	<b>Eliminate position</b> T1 to TSC Reactor Safety Coordinator (Engineering Coordinator) T2 to TSC Reactor Safety Coordinator (Engineering Coordinator)	No	No	EP-FC-112-200 EP-FC-112-200-F-30 EP-FC-112-200-F-24	N/A
<b>Security Coordinator</b>	T1. Maintain plant security and account for all personnel within the protected area T2. Assist the TSC Site Director in evaluating changes in security related threats and event classifications T3. Identify any non-routine security procedures and/or contingencies that are in effect or that require a response T4. Expedite ingress and egress of emergency response personnel T5. Coordinate with the Protective Measures Coordinator in controlling ingress and egress to and from the Protected Area if radiological concerns are present T6. Provide for access control to the TSC and OSC, as appropriate T7. Expedite entry into the Protected Area, as necessary, for the NRC Site Team T8. Act as the TSC Liaison with the appropriate NRC Site Team representative T9. Assist the Protective Measures Coordinator in determining personnel evacuation routes as necessary T10. Coordinate the evacuation of station non-essential personnel with the appropriate Local Law Enforcement Agencies (LLEAs) T11. Communicate radiological conditions which may impact Security operations T12. Participate in periodic facility briefings T13. Respond to Hostile Action as needed	N/A	No	N/A	No	No	EP-FC-112-200 EP-FC-112-200-F-04 EP-FC-112-200-F-31 EP-FC-112-200-F-24	N/A

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Current ERO Position	Tasks (T#)	Implementing Actions	Position eliminated?	Task Assigned to?	Min Staffing?	Key NRC PI?	Procedure(s) E-Plan (Rev. 0) section	Regulatory Requirement
<b>TSC CHP Communicator</b>	T1. Maintain continuous communications with the NRC, if requested, via the NRC HPN phone or commercial telephone line T2. Communicate current Health Physics information to NRC representatives, as requested T3. Coordinate the communications of radiological information to the NRC with the EOF HPN Communicator (onsite vs. environmental data) T4. Update status boards, if applicable	N/A	Yes	Eliminate position T1 to Protective Measures Coordinator T2 to TSC Ops Liaison T3 N/A T4 N/A	No	No	EP-FC-112-200 EP-FC-112-200-F-17 EP-FC-112-200-F-24	N/A
<b>Admin Assistant (2)</b>	No tasks listed in procedures	N/A	Yes	Eliminate position	No	No	EP-FC-112-200-F-24	N/A
<b>Site Director Secretary (2)</b>	No tasks listed in procedures	N/A	Yes	Eliminate position	No	No	EP-FC-112-200-F-24	N/A
<b>TSC Status Board Keeper</b>	No tasks listed in procedures	N/A	Yes	Eliminate position	No	No	EP-FC-112-200-F-24	N/A
<b>OPERATIONS SUPPORT CENTER</b>								
<b>OSC Director</b>	T1. Direct the activation, operation and deactivation activities of the OSC T2. Manage and supervise the activities of OSC personnel T3. Assign tasks to designated OSC Coordinators T4. Coordinate with the OSC Coordinators in the dispatch of Operations Personnel to support Control Room and OSC Team activities T5. Notify the Control Room and TSC prior to dispatch of OSC Teams into the plant T6. Maintain OSC resources including personnel, materials and equipment to support emergency response T7. Maintain accountability for all individuals dispatched from the OSC T8. Conduct periodic briefings in the overall plant status, emergency response activities and station priorities T9. Coordinate the development of plans for required maintenance activities T10. Keep the Site Director informed of OSC activities T11. Coordinate emergency team response as requested by the TSC/Control Room to perform search and rescue, damage assessment, damage control, repair and modification, and in-plant radiological monitoring T12. Coordinate facility relocation as needed T13. Activate SAFER Response Plan as needed	T2 from OSC RP Coordinator T8 from OSC RP Coordinator T1 from Chemistry Coordinator T4 from Maintenance Coordinator T5 from Maintenance Coordinator T7 from Maintenance Coordinator T8 from Maintenance Coordinator T10 from Maintenance Coordinator T1 from Medical Response Coordinator T2 from Medical Response Coordinator	No	N/A	Yes	Yes	EP-FC-112-300 EP-FC-1001 Section B, 4.3.3 EP-FC-1001 Section B, 4.7.1.A EP-FC-112-300-F-01 EP-FC-112-300-AD-F-02	N/A
<b>RP Coordinator</b>	T1. Manage OSC manpower needs T2. Brief and dispatch the onsite/offsite radiation monitoring teams T3. Monitor in-plant radiological conditions T4. Ensure habitability is established and maintained for occupied onsite areas T5. Participate with OSC team dispatch and control T6. Coordinate RP support for OSC teams T7. Track OSC team emergency exposure T8. Implement appropriate protective measures for OSC personnel T9. Establish OSC and plant access radiological controls T10. Provide input for facility briefs and updates T11. Form and prepare emergency response teams as directed by the OSC Director T12. Coordinate all RP activities on site T13. Keep the OSC Director and TSC Protective Measures Coordinator informed of the status of all RP activities on site T14. Fulfill minimum staffing position of RP Technician if required T15. Direct personnel decontamination, as needed T16. Maintain accumulated exposure records for all essential on-site personnel	N/A	Yes	Eliminate position T1 OSC Coordinator has (T6) T2 to OSC Director T3 to Protective Measures Coordinator T4 to Protective Measures Coordinator T5 N/A T6 to Protective Measures Coordinator T7 to Protective Measures Coordinator T8 to OSC Director T9 to Protective Measures Coordinator T10 N/A T11 N/A T12 to Protective Measures Coordinator T13 N/A T14 N/A T15 to Protective Measures Coordinator T16 to Protective Measures Coordinator	Yes or RP Tech	No	EP-FC-112-300 EP-FC-1001 Section B, 4.3.3 EP-FC-1001 Section B 4.7.2.H EP-FC-112-300-F-03 EP-FC-112-300-AD-F-02	N/A
<b>Technicians (Electrical, I&amp;C, Mechanical, RP, Chemistry)</b>	T1. Support the OSC as needed T2. Perform initial actions per checklist upon arrival at the OSC T3. Attend pre-job briefing prior to performing work T4. Debrief team activity upon return to the OSC T5. (RP) Coordinate onsite RP activities T6. (RP) Provide radiological surveys and job coverage to repair and corrective action teams as directed T7. (CH) Evaluate and perform all chemistry activities onsite T8. (CH) Act as Chemistry Coordinator until relieved T9. Provide repair and corrective actions as directed	N/A	No	N/A	Yes	No	EP-FC-1001 Section B, 4.3.3 EP-FC-1001 Section B, 4.7.1.B EP-FC-1001 Section B, 4.7.2.A EP-FC-1001 Section B, 4.7.2.C EP-FC-1001 Section B, 4.7.2.D EP-FC-1001 Section B, 4.7.2.E EP-FC-1001 Section B, 4.7.2.G EP-FC-112-300-F-16 EP-FC-112-300-AD-F-02	T1 NUREG 0654 II.B.5 (Table B-1)
<b>Dosimetry Technician</b>	T1. Issue dosimetry T2. Perform dose extensions as needed T3. Establish OSC dosimetry control point for radiological control areas	N/A	Yes	Eliminate position T1 to Protective Measures Coordinator T2 to Protective Measures Coordinator T3 to Protective Measures Coordinator	No	No	EP-FC-1001 Section B, 4.7.2.B EP-FC-112-300-F-07 EP-FC-112-300-AD-F-02	N/A

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<b>Operations Liaison</b>	T1. Monitor plant status T2. Assist with status of AOPs and EOPs T3. Participate with OSC team dispatch and control T4. Provide technical support to OSC teams T5. Obtain plant status/Control Room information from Control Room Ops Liaison and transmit this information to OSC staff as needed T6. Assist in maintaining electronic logs and status boards as directed	N/A	Yes	Eliminate position T1 N/A T2 to TSC Ops Liaison T3 N/A T4 to TSC Ops Liaison T5 to TSC Ops Liaison T6 N/A	No	No	EP-FC-112-300 EP-FC-1001 Section B, 4.7.2.F EP-FC-112-300-F-10 EP-FC-112-300-AD-F-02	N/A
<b>Chemistry Coordinator</b>	T1. Manage OSC manpower needs T2. Assist with formation of OSC teams T3. Participate with OSC team dispatch and control T4. Provide technical support to dispatched OSC teams T5. Direct set-up of Chemistry Lab(s) for emergency sample collection and analysis if available	N/A	Yes	Eliminate position T1 to OSC Director T2 N/A T3 N/A T4 N/A T5 to Protective Measures Coordinator	No	No	EP-FC-112-300 EP-FC-112-300-F-03 EP-FC-112-300-AD-F-02	N/A
<b>ERMS Operator</b>	No tasks listed in procedures	N/A	Yes	Eliminate position	No	No	EP-FC-112-300-AD-F-02	N/A
<b>Maintenance Coordinator (2)</b>	T1. Assist the OSC Director in supervision of OSC personnel T2. Assist in formulation of Field Monitoring Teams T3. Assist in formulation of sampling teams T4. Ensure in-plant survey information and radiochemistry results are maintained T5. Ensure exposure records for essential onsite personnel are maintained T6. Coordinate with the OSC Coordinators to organize in-plant teams T7. Ensure in-plant team briefings include expected activities and radiological hazards T8. Ensure periodic facility briefings are conducted on plant radiological conditions T9. Assume OSC Director duties if OSC Director is unavailable T10. Coordinate the acquisition of parts and supplies	N/A	Yes	Eliminate position T1 N/A T2 N/A T3 N/A T4 to OSC Director T5 to OSC Director T6 N/A T7 to OSC Director T8 to OSC Director T9 N/A T10 to OSC Director	No	No	EP-FC-112-300 EP-FC-112-300-F-02 EP-FC-112-300-AD-F-02	N/A
<b>Maintenance Planner (2)</b>	No tasks listed in procedures	N/A	Yes	Eliminate position	No	No	EP-FC-112-300-AD-F-02	N/A
<b>Medical Response Coordinator</b>	T1. Identify available qualified personnel T2. Provide briefings as time and conditions allow	N/A	Yes	Eliminate position T1 to OSC Director T2 to OSC Director	No	No	EP-FC-112-300 EP-FC-112-300-F-04 EP-FC-112-300-AD-F-02	N/A
<b>Radio Operator (2)</b>	No tasks listed in procedures	N/A	Yes	Eliminate position	No	No	EP-FC-112-300-AD-F-02	N/A
<b>Store Keeper</b>	No tasks listed in procedures	N/A	Yes	Eliminate position	No	No	EP-FC-112-300-AD-F-02	N/A
<b>Accountability Clerk</b>	No tasks listed in procedures	N/A	Yes	Eliminate position	No	No	EP-FC-112-300-AD-F-02	N/A
<b>JOINT INFORMATION CENTER</b>								
<b>Company Spokesperson</b>	T1. Establish communications with the EOF Information Specialist T2. Keep Senior Management informed and respond to their inquiries T3. Designate a Senior Manager at corporate headquarters as Executive Liaison to brief other Senior Managers and the Board of Directors on emergency status T4. Respond to congressional and other government inquiries T5. Designate a Senior Manager at corporate headquarters as Internal Informational Spokesperson T6. Participate in periodic media briefings T7. Coordinate releases of plant information with release of off-site information by federal, state and local officials T8. Ensure that all emergency information messages and news releases are emailed or faxed to the Executive Liaison	T1 from Executive Liaison T1 from Internal Information Spokesperson (Liaison) T2 from Internal Information Spokesperson (Liaison)	No	N/A	Yes	No	Crisis Communication Plan	T7 NUREG 0654 II.B.7.d/ II.G.3.a/II.G.4.a

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<b>JIC Manager</b>	T1. Implement the Crisis Communication Plan T2. Establish communications with the EOF Information Specialist and the Corporate Spokesperson T3. Evaluate information received to determine type of notification required T4. Ensure Corporate Marketing and Communications is staffed to handle media inquiries or make media contacts, if required T5. Keep the Corporate Spokesperson informed of all media activity T6. Activate the Joint Information Center T7. Synchronize the JIC clocks with EOF time T8. Activate the Call Center T9. Ensure distribution of plant status reports T10. Assist the Corporate Spokesperson with timely exchange and release of information with federal, state and local response organizations T11. If the Corporate Spokesperson has not arrived, assume duties as official spokesperson for OPPD T12. Schedule news briefings and/or news conferences and technical briefings as appropriate and in cooperation with other response agencies T13. Serve as moderator at briefings T14. Supervise preparation of FCS Emergency Information website postings, written news releases and emergency status information sheets and serve as final release authority T15. Ensure OPPD participates in Public Inquiry efforts T16. Ensure that briefings and news conferences are recorded and available for transcription T17. Arrange for continuous news media and social media monitoring T18. Ensure around-the-clock coverage of JIC staffing requirements	T2 from Public Inquiry Supervisor T3 from Public Inquiry Supervisor T4 from Public Inquiry Supervisor T6 from Public Inquiry Supervisor T8 from Public Inquiry Supervisor	No	N/A	Yes	No	EP-FC-1001 Section 8, 4.9.1 Crisis Communication Plan	N/A
<b>Executive Liaison</b>	T1. Assist Corporate Spokesperson and Internal Information Spokesperson in disseminating information on the emergency status	N/A	Yes	Eliminate position T1 to Company Spokesperson	No	No	Crisis Communication Plan	N/A
<b>Internal Information Liaison (Spokesperson)</b>	T1. Oversee distribution of periodic information updates to OPPD employees T2. Coordinate with Human Resources representatives in responding to calls from family members regarding status of employees	N/A	Yes	Eliminate position T1 to Company Spokesperson T2 to Company Spokesperson	No	No	Crisis Communication Plan	N/A
<b>JIC Media Information Specialist</b>	T1. Assist in facility activation T2. Establish contact with the EOF Information Specialist T3. Ensure news conference and media reception area are established and supplied with up to date information T4. Issue JIC activation news release T5. Ensure latest messages from EOF Information Specialist have been forwarded to the JIC T6. Coordinate with state and other agencies to ensure any news releases or PARs are included on FCS's Emergency Information website T7. Prepare written corporate news releases/information updates T8. Post general information updates on FCS Emergency Information website following media briefings T9. Secure JIC Manager review of authorization to release Media Update Messages, website postings and news releases T10. Provide reviewed copy to JIC Clerical Supervisor for appropriate duplication and distribution T11. Coordinate with Public Inquiry Supervisor to ensure regular contact with Universal News Service with special attention toward rumors/media errors or other items of interest T12. Work with the JIC Manager, Corporate Spokesperson and others to ensure needed materials are prepared and ready for use during media briefings T13. Provide assistance for news conferences and briefings as directed by the JIC Manager T14. Greet and orient news personnel as the arrive	N/A	No	N/A	Yes	No	Crisis Communication Plan	N/A

## ERO POSITION MATRIX

Current ERO Position	Tasks (T#)	Implementing Actions	Position eliminated?	Task Assigned to?	Min Staffing?	Key NRC PI?	Procedure(s) E-Plan (Rev. 0) section	Regulatory Requirement
JIC Technical Liaison	T1. Establish communication with the EOF Technical Liaison T2. Receive and evaluate plant status board reports and review significant changes with the Corporate Spokesperson, JIC Manager and JIC Media Information Specialist T3. Assist the JIC Manager and JIC Media Information Specialist in checking corporate news releases for technical accuracy T4. Assist the Corporate Spokesperson in interpretation and evaluation of nuclear-related information T5. Attend all media briefings and provide necessary technical support T6. Serve as a technical information source for Public Inquiry	N/A	No	N/A	Yes	No	Crisis Communication Plan	N/A
Public Inquiry Supervisor	T1. Set up and staff the Public Inquiry Center T2. Coordinate activities with state and local information officers T3. Assign a Public Inquiry Specialist to act as liaison between Public Inquiry and JIC Manager T4. Keep the Public Inquiry Specialists fully informed on status of the emergency T5. Ensure any media error reported to Public Inquiry are brought immediately to the attention of the JIC Manager or Corporate Spokesperson T6. Ensure any rumors/requests for information from the Call Center are responded to T7. Coordinate with the JIC Media Information Specialist to ensure regular contact with media monitoring T8. Contact Call Center to ensure they are activated	N/A	Yes	Eliminate position T1 N/A T2 to JIC Manager T3 to JIC Manager T4 to JIC Manager T5 to Public Inquiry Specialist T6 to JIC Manager T7 N/A T8 JIC Manager has (T8)	No	No	Crisis Communication Plan	T6 NUREG 0654 II.G.4.c
Public Inquiry Specialist (10)	T1. Assist in facility activation T2. Staff telephones and provide prompt and accurate information to citizen callers T3. Direct media to attend news briefings and to access the website T4. Report all unusual or new rumors to the Public Inquiry Supervisor T5. Record all calls on appropriate forms	Reduce to 5 positions T5 from Public Inquiry Supervisor	No (reduce to 5)	N/A	No	No	Crisis Communication Plan	N/A
JIC Clerical Supervisor	T1. Assist the JIC Manager in staffing and activating the JIC T2. Set up clerical center and supervise staffing and equipping of JIC T3. Assist with notifying locals news media and state and local public information officers as directed T4. Ensure media information updates/news releases are retrieved, copied and distributed as directed T5. During news media briefings, ensure the JIC Manager is immediately notified of emergency classification changes T6. Escort outside agencies to their work areas T7. Assist outside agencies with set up and provide orientation to the JIC T8. Provide clerical and other support to outside agencies, as needed T9. Provide information to the Executive Liaison/Internal Information Spokesperson, as directed T10. Assist the JIC Manager with scheduling of news conferences and briefings T11. Assign clerical help to assist JIC Manager and Corporate Spokesperson as required T12. Supervise reproduction and distribution of emergency messages from the EOF, website postings, written news releases and media update sheets, and all messages and news releases provided by the state and federal information officers, as directed T13. Assist in receiving telephone calls and messages for the JIC Manager if needed T14. Maintain a complete file of all information processed through the clerical center	N/A	No	N/A	Yes	No	Crisis Communication Plan	N/A

**OMAHA PUBLIC POWER DISTRICT**

**FORT CALHOUN STATION**

**DOCKET NUMBER 50-285 / LICENSE NUMBER DPR-40**

**ATTACHMENT 6**

**LIST OF REGULATORY COMMITMENTS**

### Regulatory Commitments

This table identifies actions discussed in this letter for which OPPD commits to perform. Any other actions discussed in this submittal are described for the NRC's information and are **not** commitments.

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
FCS has not yet finalized a schedule of drills that will be conducted. Provide the NRC Project Manager a schedule of drills that will be conducted in preparation for implementation of the FCS post-shutdown RERP.	<b>x</b>		Appropriate advanced notice to allow the NRC and FEMA an opportunity to observe each drill.
Revise applicable fuel handling procedures to require that a Chemistry Technician be on-site or the radiation monitors listed in the gaseous effluent EALs are in service as a prerequisite to handling or moving spent fuel.	<b>x</b>		Prior to implementation of ERO changes.
Training and procedures will be developed and in place prior to performing post-shutdown ERO drills. The drill scenarios will include spent fuel pool events and be designed to test the major elements of the FCS post shutdown emergency plan. Major elements to be tested will include communications and coordination with offsite response organizations, including the Joint Information Center.	<b>x</b>		Prior to implementation of ERO changes.
State, local and Federal response organizations will be provided the opportunity to participate in or observe the drills conducted in preparation for implementation of the FCS post-shutdown RERP.	<b>x</b>		Appropriate advanced notice to allow the NRC and FEMA an opportunity to observe each drill and to allow the State/local organizations to participate.