

10 CFR 50.54(q)  
10 CFR 50.90  
10 CFR 50.12

May 27, 2014

ZS-2014-088

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

Zion Nuclear Power Station, Units 1 and 2  
Facility Operating License Nos. DPR-39 and DPR-48  
NRC Docket Nos. 50-29, 50-304 and 72-1037  
50-295

Subject: License Amendment Request for Proposed Revision to Zion Nuclear Power Station Defueled Station Emergency Plan and Request for Exemption from Certain Requirements of 10 CFR 50.47, and 10 CFR 50, Appendix E

- References:
- 1) Letter from U.S. Nuclear Regulatory Commission to Zion Nuclear Power Station, Unit Nos. 1 and 2, "*Request For Approval of Defueled Station Emergency Plan and Exemption from Certain Requirements of 10 CFR 50.47, "Emergency Plans"- Zion Nuclear Power Station, Unit Nos. 1 and 2 (TAC NOS MA5253 and MA5254),*" dated August 31, 1999. (ADAMS Accession No. 9909070079)
  - 2) Letter from Patrick S. Thurman, Esq. to U.S. Nuclear Regulatory Commission, "*Request for Exemption to Revised Emergency Planning Rule,*" (ZS-2012-0307) dated June 20, 2012

Pursuant to 10 CFR 50.54(q) and 10 CFR 50.12, ZionSolutions, LLC (ZS) hereby submits a proposed change to the Zion Nuclear Power Station (ZNPS) Defueled Station Emergency Plan (DSEP) and a request for exemption from certain sections of 10 CFR 50.47 and 10 CFR 50 Appendix E. As required by 10 CFR 50.54(q)(iv)(4), ZS requests an amendment to the facility operating licenses listed above in accordance with 10 CFR 50.90. Along with the license amendment request, an exemption is required to certain portions of the emergency planning regulations that are no longer applicable once all spent fuel has been transferred to the Independent Spent Fuel Storage Installation (ISFSI).

The major proposed changes to the DSEP are the removal of the various emergency actions related to the former storage of spent fuel in the spent fuel pool, the transfer of responsibility for implementing the Emergency Plan to the ISFSI Shift Supervisors, a revised emergency plan organization, and abandonment of the former Control Room consistent with the current state of decommissioning. The plan has also been reformatted to current industry standards, contains information consistent with Spent Fuel Project Office Interim Staff Guidance 16, "Emergency Planning", and the Emergency Actions Levels are modified to align with NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors".

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The proposed change has been reviewed considering the requirements of 10 CFR 50.54(q), the planning standards of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. These changes have been determined to cause a reduction in the effectiveness of the DSEP in accordance with requirements of 10 CFR 50.54(q) and require prior NRC approval. The reduction in effectiveness was determined due to the decreased emergency condition levels required after spent fuel transfer was completed to the ISFSI, a decrease in Emergency Planning staffing, and a change in roles and responsibilities and organization. The entire plan has been revised and will be reissued as Revision 16.

Attachment 1 provides a discussion of the proposed changes, technical analysis, regulatory analysis and environmental consideration. Attachment 2 provides the revised DSEP reflecting the proposed changes. Attachment 3 provides the Emergency Action Level Basis Document. Attachment 4 provides a description of how the proposed Emergency Action Levels (EALs) differ from the Generic Emergency Action Levels of NEI 99-01, Revision 6, and the basis for the differences. Attachment 5 provides the exemption request.

The proposed changes do not impact the public health and safety and do not involve a Significant Hazards Consideration (SHC) pursuant to the provisions of 10 CFR 50.92 (see SHC provided in Attachment 1).

ZS requests approval of the proposed changes to the Emergency Plan prior to completion of transfer of spent fuel assemblies to the ISFSI. We request NRC approval by February 1, 2015, to permit implementation of the approved amendment as soon as possible after transfer of the last spent fuel assembly from the spent fuel pool to the ISFSI. Transfer of spent fuel assemblies is expected to be completed by February 2015. ZS will notify the NRC when the last fuel loaded VCC is transferred to the ISFSI.

Also, pursuant to 10 CFR 50.12, "Specific Exemptions," ZS is requesting NRC approval of an exemption from certain requirements of 10 CFR 50.47 and 10 CFR 50, Appendix E consistent with changes that have occurred with all spent fuel being transferred to the ISFSI and in support of the DSEP changes. Attachment 5, Enclosure 1, identifies exemptions previously granted by the NRC (Reference 1). Enclosure 2, identifies exemptions requested in 2012 (Reference 2) that are awaiting NRC action and Enclosure 3 identifies the specific requirements in the regulation that are the subject of the current exemption requests and contains the associated justifications. The changes and justifications are consistent with those previously granted to other licensees.

ZS has determined that the exemption request and its impacts on the corresponding emergency plan is authorized by law, will not present an undue risk to the public health and safety and is consistent with the common defense and security in accordance with 10 CFR 50.12.

The ZionSolutions Station Review Committee reviewed the proposed changes and concurred with the determination. In accordance with 10 CFR 50.91(b)(1), a copy of this request for amendment has been sent to the State of Illinois.

We are requesting approval of the exemption request by February 1, 2015 consistent with the implementation of the revised emergency plan.

ZionSolutions, LLC  
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No new regulatory commitments are established by this submittal.

If you have any questions concerning this revision, please contact Gerry van Noordennen at (224) 789-4025.

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

Executed on May 27, 2014.

Respectfully,



John T. Sauger  
Senior Vice President and General Manager  
ZionSolutions, LLC

Attachments:

1. Defueled Station Emergency Plan Change Request
2. Proposed Defueled Station Emergency Plan
3. Emergency Action Level Basis Document
4. Defueled Station Emergency Plan Differences from NEI 99-01, Rev. 6
5. Exemption Request

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ZionSolutions, LLC  
ZS-2014-0088: Attachment 1

## **Defueled Station Emergency Plan**

**Revision 16**

**Description and Evaluation of Changes**

**License Amendment Request for Proposed Revision to  
ZNPS Defueled Station Emergency Plan**

**DESCRIPTION AND EVALUATION OF CHANGES**

**1.0 INTRODUCTION**

This license amendment request proposes changes to ZNPS Defueled Station Emergency Plan (DSEP) in accordance with 10 CFR 50.54(q). ZionSolutions, LLC (ZS) proposes removal of the various emergency actions related to the former spent fuel pool, the transfer of responsibility for implementing the Emergency Plan to the Independent Spent Fuel Storage Installation (ISFSI) Shift Supervisor, a revised emergency plan organization, abandonment of the Control Room consistent with the current state of decommissioning, transition to NEI 99-01 Revision 6 and reformatting consistent with current industry practice.

**2.0 BACKGROUND**

The emergencies addressed in this proposed plan are related to the ZNPS Waste Handling Accident analyzed in Chapter 5 of the ZNPS Defueled Safety Analysis Report (DSAR) and the dry cask storage of spent nuclear fuel at the ISFSI including off-normal, accident, natural phenomena, and hypothetical events and consequences as presented in the NAC International Modular Advanced Generation Nuclear All-purpose Storage System Final Safety Analysis Report (MAGNASTOR FSAR).

If an emergency condition develops, the ISFSI Shift Supervisor (ISS) is responsible for identifying an emergency condition, assuming the role of the Emergency Director (ED) and classifying the event. The ED and On-Shift Radiation Protection Technician are responsible for performing emergency response activities until augmented with additional personnel in the event of an ALERT or at the discretion of the ED. Notification is made to the Illinois Emergency Management Agency (IEMA), and the Nuclear Regulatory Commission. Conditions are assessed and corrective actions are implemented to restore the facility to a normal safe condition.

The DSEP is based on applicable regulations, industry guidelines, ZNPS DSAR Waste Handling Accident analysis and MAGNASTOR FSAR accident analyses for the dry cask storage system. Regulations include 10 CFR 50.47(b) as exempted, 10 CFR 50.54(q), 10 CFR 50.54(t), 10 CFR 50 Appendix E as exempted, 10 CFR 72.32(c), 10 CFR 72.104, 10 CFR 72.106, and 10 CFR 72.212(b)(6).

### **3.0 PROPOSED CHANGES**

The proposed changes to the Emergency Plan are discussed below:

Cover Page    The cover page is changed to reflect the current revision and effective date.

Entire        All Sections of the DSEP are reformatted and the content is structured using Spent Fuel Project Office, Interim Staff Guidance No. 16 (SFST – ISG-16), “Emergency Planning”, as a model.

Table of Contents is revised to reflect updated DSEP format and Revision 16 of the DSEP.

**Section 1.0, Introduction:** This section contains information previously found in the Introduction Section of Revision 15 from which the references to the Spent Fuel Pool, future transfer of irradiated fuel, returning of fuel to the reactor vessel and reactor operation are removed. Additional information describing ZNPS and ISFSI emergencies has been provided. A brief overview of the ISFSI emergency response and organization is provided. The bases for ISFSI emergency planning are established citing applicable regulation, industry standards, DSAR, and MAGNASTOR FSAR accident analyses.

**Section 2.0, Facility Description:** This section follows the format of ISG-16 and provides information describing the site, surrounding area, ZNPS, ISFSI and the MAGNASTOR dry cask storage system. Information regarding the location of the site, specifics of the ZNPS plant, and minor discussion of the ISFSI and MAGNASTOR system were contained in Section 1.1 of Revision 15. The information retained from Revision 15 has been expanded and a discussion of the area surrounding the site has been added. Information not retained from Revision 15 is related to cooling water supplies, the Spent Fuel Pool, and reactor cavities. Discussion of storage of Greater Than Class C (GTCC) waste is eliminated. Section 2.0 of Revision 15 was titled Abbreviations and Acronyms. This information was transferred to Appendix A of Revision 16.

**Section 3.0, Postulated Emergency Conditions:** This section describes the ZNPS Radioactive Waste Handling Accident as analyzed in the ZNPS DSAR and applicable events and accidents at the ISFSI as analyzed and documented in the MAGNASTOR FSAR. Additional information specific to the site was obtained from the ZNPS ISFSI 72.212 Report. The information discussed in this section also addresses, as appropriate to site conditions, Section 3.5, “Detection of Accidents”, 3.6.1, Limiting Actions”, and 3.6.2, “Onsite Protective Actions”. This information was not previously discussed in Revision 15. Section 3.0 was titled Plan Summary; the information was not transferred to Revision 16.

**Section 4.0, Classification:** This section describes the methodology and guidance used in establishing the bases for classification of accidents. Information relating to classification of emergencies was contained in Section 5.0 of Revision 15. The introductory paragraph has been changed to provide the bases for the classification system. The descriptions of UNUSUAL EVENT and ALERT have been modified.

The Revision 15 Initiating Condition Matrix was divided into two tables, one describing ZNPS emergencies and the second describing ISFSI emergencies. The terminology and wording were updated to be consistent with NEI 99-01, Revision 6, as modified by documented differences and deviations from the EAL BASES. The description of the Initiating Condition matrix and discussion of the Recognition Category Code has been removed.

The Revision 15 EAL MUI relating to “Decrease in Spent Fuel Pool level OR temperature increase that is not the result of a planned evolution” has been removed. All spent fuel has been transferred to dry cask storage at the ISFSI and the Spent Fuel Pool is being decommissioned.

A discussion and annotation to Table 4.1 has been added that the ED (ISFSI Shift Supervisor) should consult with the Radiation Protection Director or the On-Shift Radiation Protection Technician prior to classifying radiological events.

**Section 5.0, Response:** This section describes the emergency response actions and capabilities during emergencies. This information was primarily contained in Section 6.0 of Revision 15.

The processes of recognition/classification and notification/activation are described. Defueled Emergency Response Organization (DERO) actions are summarized. Requirements for radiological assessment, including monitoring and exposure control within the limits of 10 CFR 20.1201, are established. Protective measures, first aid, medical, firefighting, deactivation, and recovery are also discussed

**Section 6.0, Facilities and Equipment:** This section describes the facilities and equipment available during emergencies. This information was described in Section 7.0 of Revision 15.

Changes from Revision 15 include:

Discussions of the Control Room as the location for Command and Control are eliminated and replaced with the Emergency Response Facility (ERF) currently designated as the ISFSI Monitoring Building. Also removed is the discussion of Control Room personnel and the Shift Supervisor. With all spent fuel relocated to the ISFSI, the Control Room, Shift Supervisor, and Control Room personnel are no longer required.

Information regarding the Onsite Meteorological Monitoring System has been removed. In the current state of decommissioning activities, this system is no longer necessary to support emergency preparedness. Information needed to support emergency preparedness can be obtained from the Internet or available commercial sources.

Information discussing the installed radiation monitoring system, noble gas effluent monitoring and particulate effluent monitoring has been modified. Releases will be batch releases and there are administrative controls in place that will limit discharge tank contents to  $\leq 80\%$  of the ODCM/RETS limits. Airborne releases will continue to be monitored. The On-Shift Radiation Protection Technician will be responsible for evaluating these monitors. With all spent fuel removed from the Spent Fuel pool and in dry cask storage at the ISFSI the source of noble gas is eliminated, therefore the need for monitoring noble gas is also eliminated.

The discussion of Site Hydrological has been removed; hydrological data is no longer required because the design basis seismic or flood event does not adversely affect the MAGNASTOR system in use at the ISFSI. Any damage caused by natural occurrences to the ZNPS creates no significant radiological consequences to the public.

Specific information regarding equipment and supplies has been transferred to Emergency Plan Implementing Procedures (EPIPs).

Discussions relating to fire detection and prevention have been modified to align with the state of decommissioning and design features of the ISFSI Monitoring Building. Also added is information regarding communication capabilities.

Information not previously included or relocated from other sections of DSEP Revision 15, includes the establishment of an Emergency Support Center where members of the Augmented DERO may be directed to assemble and provide support to the ED and that Assembly Areas will be designated by the ED during an emergency.

**Section 7.0, Organization and Responsibilities:** The normal and emergency organization is described in this section. This information was primarily located in Section 4 of Revision 15.

An updated description of the organization is provided. It establishes the ISS as the senior management position outside of normal working hours. It also describes the Defueled Emergency Response Organization (DERO) which is split into two components, the On-Shift DERO, that consists of the ED and On-Shift Radiation Protection Technician and an Augmented DERO consisting of personnel that are contacted to augment the On-Shift DERO in the event of an ALERT or at the discretion of the ED. It specifies that in the event of an ALERT classification involving radiological consequences, that the minimum staffing for

the Augmented DERO will include a Radiation Protection Director. It also delineates the responsibilities of the DERO and other select positions that have specific responsibilities during an emergency and other possible sources of assistance that the ED may call upon.

**Section 8.0, Maintaining Emergency Preparedness:** This section establishes the requirements for the maintenance of emergency preparedness. The principal changes from Revision 15, include organizational changes, summarization of requirements delineated in regulations and site procedures. Training requirements for DERO personnel are described. Drill and exercise requirements are established.

The section addresses review and update of the DSEP and implementing procedures, and describes periodic surveillance of emergency equipment and verification of emergency notification phone numbers. Equipment inventories will be performed semi-annually. Emergency notification phone numbers will be verified semi-annually and communication systems will be checked monthly. The requirement for independent review of DSEP program elements in accordance with 10 CFR 50.54(t) is established.

**Appendix A, Definitions, Abbreviations and Acronyms:** This is a new Appendix and relocates and updates information previously contained in Revision 15, Section 2.0.

**Appendix B, Letters of Agreement:** This is a new Appendix that contains a list of the written agreements in effect between ZionSolutions, LLCs and offsite support organizations. This information was mentioned in various locations in Revision 15. These agreements are unchanged and are reviewed annually. The letters of agreement will be maintained on file. Sample copies will not be placed in this Appendix B.

**Appendix C, Emergency Plan Procedures:** This is a new appendix that contains a list of applicable Emergency Plan Implementing Procedures (EPIPs).

#### **4.0 TECHNICAL ANALYSIS**

ZionSolutions, LLC is the holder of Facility Operating Licenses DPR-39 and DPR-48 for the Zion Nuclear Power Station Unit 1 and Unit 2. The licenses, pursuant to the Atomic Energy Act of 1954 and 10 CFR Part 50, allow ZS to possess spent nuclear fuel at the permanently shutdown and defueled ZNPS facility. All spent fuel has been transferred to dry cask storage at the Independent Spent Fuel Storage Installation (ISFSI) under the general license provisions of 10 CFR 72, Subpart K. Decommissioning activities are continuing.

The current Defueled Station Emergency Plan (DSEP) continues to meet the emergency planning requirements contained in 10 CFR 50 that are applicable to the permanently shutdown and defueled condition of the plant. ZS has previously requested exemptions (References 7.1, 7.2 and 7.4) from emergency planning requirements in 10 CFR 50.47 and in 10 CFR 50 Appendix E

that are not applicable to a plant in decommissioning. The exemptions requested in References 7.1 and 7.2 were approved in Reference 7.3. ZS is requesting additional exemptions (Attachment 5, Enclosure 3 of this submittal) from regulations that are not applicable with all spent fuel stored at the ISFSI. The current and proposed exemptions are incorporated by reference in this submittal and should be used as further justification for NRC approval of this proposed change to the DSEP.

## **5.0 REGULATORY ANALYSIS**

### **5.1 Applicable Regulatory Requirements and Criteria**

10 CFR 50.54(q) – *Conditions of Licenses – Emergency Plans* – Requires that a License Amendment Request be submitted to the NRC for approval prior to implementation of changes to the Emergency Plan which are considered to constitute a "reduction in effectiveness."

10 CFR 50.47 – *Emergency Plans* – As exempted.

10 CFR 50 Appendix E – *Emergency Planning and Preparedness for Production and Utilization Facilities* – As exempted.

The proposed change to the Emergency Plan continues to implement the applicable requirements of the regulations cited above as noted in the existing and pending exemptions for emergency planning. Therefore, the revised Emergency Plan provides reasonable assurance that public health and safety is not endangered, and ZS continues to satisfy the planning standards set forth in 10 CFR 50.47(b) and 10 CFR 50 Appendix E.

### **5.2 No Significant Hazards Consideration**

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," ZS requests an amendment to Facility Operating Licenses DPR-39 and DPR-48 for the Zion Nuclear Power Station Unit 1 and Unit 2. The proposed amendment would revise the Emergency Plan to reflect the current state of plant decommissioning, reflect that all spent fuel has been transferred to the ISFSI, update to the current industry standard for format, and transition from Revision 4 to Revision 6 of NEI 99-01, "Development of Emergency Action Levels for Non-Passive Reactors". ZS has evaluated whether a significant hazards consideration is involved with the proposed amendment by focusing on the three conditions set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

#### **5.2.1 Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?**

Response: No.

ZS has, in effect, an NRC-approved emergency plan. The remaining ZNPS accident (Radioactive Waste Handling Accident) and the credible accidents involving the ISFSI and MAGNASTOR system have been analyzed and determined that none result in doses to the public beyond the owner controlled area boundary that would exceed the EPA PAGs. These

analyses have not changed. With spent fuel relocated to the ISFSI, the Spent Fuel Pool previously analyzed events (Loss of Spent Fuel Pool Cooling, Loss of Spent Fuel Pool Inventory, and Fuel Handling Accident in the Fuel Building) are no longer credible.

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

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

Response: No.

ZS has, in effect, an NRC-approved emergency plan. The remaining ZNPS accident (Radioactive Waste Handling Accident) and the credible accidents involving the ISFSI and MAGNASTOR system have been analyzed and determined that none result in doses to the public beyond the owner controlled area boundary that would exceed the EPA PAGs. These analyses have not changed. With spent fuel relocated to the ISFSI, the Spent Fuel Pool previously analyzed events (Loss of Spent Fuel Pool Cooling, Loss of Spent Fuel Pool Inventory, and Fuel Handling Accident in the Fuel Building) are no longer credible. Accidents associated with the ISFSI are addressed in the MAGNASTOR FSAR.

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

**5.2.3 Does the proposed amendment involve a significant reduction in a margin of safety?**

Response: No.

Margin of safety is related to the ability of the fission product barriers (fuel cladding, reactor coolant system, and primary containment) to perform their design functions during and following postulated accidents. ZS has, in effect, an NRC-approved emergency plan. The remaining ZNPS accident (Radioactive Waste Handling Accident) and the credible accidents involving the ISFSI and MAGNASTOR system have been analyzed and determined that none result in doses to the public beyond the owner controlled area boundary that would exceed the EPA PAGs. These analyses have not changed. With spent fuel relocated to the ISFSI, the Spent Fuel Pool previously analyzed events (Loss of Spent Fuel Pool Cooling, Loss of Spent Fuel Pool Inventory, and Fuel Handling Accident in the Fuel Building) are no longer credible.

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

Based on the above, ZS concludes that the proposed amendment does not involve a 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.

### 5.3 Conclusions

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation of the facility in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

## 6.0 ENVIRONMENTAL CONSIDERATION

A review has determined the proposed amendment would change the ZNPS DSEP with respect to the current state of plant decommissioning and to reflect that all spent fuel has been moved to the ISFSI. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or a significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

## 7.0 REFERENCES

- 7.1 R. Krich, ComEd, to U.S. Nuclear Regulatory Commission, "Request for Approval of Defueled Station Emergency Plan and Exemption from 10 CFR 50.47(b) and 10 CFR 50.47(c)(2)", dated April 13, 1999
- 7.2 R. Krich, ComEd, to U.S. Nuclear Regulatory Commission, "Revision to Request for Approval of Defueled Station Emergency Plan and Exemption from 10 CFR 50.47(b) and 10 CFR 50.47(c)(2)", dated July 8, 1999
- 7.3 Letter from U.S. Nuclear Regulatory Commission to Mr. Oliver J. Kingsley, Request for Approval of Defueled Station Emergency Plan and Exemption from Certain Requirements of 10 CFR 50.47, "Emergency Plans", Zion Nuclear Power Station Unit, dated August 31, 1999
- 7.4 P. Thurman, ZionSolutions, LLC (ZS-2012-0307), "Request for Exemption to Revised Emergency Planning Rule", dated June 20, 2012

ZionSolutions, LLC  
ZS-2014-0088: Attachment 2

## **Defueled Station Emergency Plan**

**Revision 16**



**Zion Station**

**Defueled Station Emergency Plan (DSEP)**

**May 2014  
Revision 16**

Defueled Station Emergency Plan  
Revision 16

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## 1.0 INTRODUCTION

The Zion Station Defueled Station Emergency Plan (DSEP) describes the *ZionSolutions* (ZS) plan for responding to emergencies that may arise at Zion Nuclear Power Station (ZNPS) and the Zion Station Independent Spent Fuel Storage Installation (ISFSI) with ZNPS in a permanently defueled configuration, ZNPS decommissioning in progress, and all irradiated fuel stored at the ISFSI.

The emergencies related to ZNPS are airborne and liquid radiological releases to the environment and increases in radiation levels in the Radiological Restricted Area (RRA) as a result of decommissioning activities. The DSEP also addresses other situations where the Emergency Director (ED) determines that emergency classification is warranted.

The emergencies addressed related to the dry storage of spent nuclear fuel at the ISFSI include off-normal, accident, natural phenomena, and hypothetical events and consequences as presented in the NAC International Modular Advanced Generation Nuclear All-purpose Storage (MAGNASTOR) Final Safety Analysis Report (FSAR).

All spent fuel has been relocated to the ISFSI, therefore, only those off-normal events and accidents that apply to storage conditions are addressed.

Security Events are classified and responded to in accordance with the ISFSI Physical Security Plan.

The analysis of the potential radiological impact of an accident at ZNPS in a permanently defueled condition indicates that any releases beyond the Exclusion Area Boundary (EAB) are less than the Environmental Protection Agency (EPA) Protective Action Guide (PAG) exposure levels, as detailed in EPA-400-R-92-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents." Exposure levels, which warrant pre-planned response measures, are limited to onsite areas. In light of the substantially reduced risk and consequences of any potential incidents in a permanently defueled condition, the overall purpose of the plan as it relates to ZNPS is to delineate the actions necessary to safeguard onsite personnel and minimize damage to property.

The analyses of the radiological impact of potential accidents at the ISFSI site also conclude that any releases beyond the ISFSI Controlled Area Boundary are less than the exposure levels, as detailed in EPA-400-R-92-001. The Controlled Area, as defined in 10 CFR 72.3, means the area immediately surrounding an ISFSI for which the licensee exercises authority over its use and within which ISFSI operations are performed. ZS shall exclude access to the ISFSI Controlled Area if adverse radiological conditions require.

If an emergency condition develops, the ISFSI Shift Supervisor (ISS) is responsible for recognizing the event and assuming the role of the Emergency Director (ED). The ED is responsible for declaring the emergency and implementing the DSEP. The On-Shift Defueled Emergency Response Organization (On-Shift DERO) is responsible for performing emergency response activities and may be augmented with additional

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emergency response personnel at the discretion of the ED. Notification is made to State agencies and the Nuclear Regulatory Commission. Conditions are assessed and corrective actions are implemented to restore the facility to a normal safe condition. While the need to implement is unlikely, protective actions, including on-site evacuation, accountability of personnel, and access control can be implemented as determined by the ED.

The DSEP is based on applicable regulations, industry guidelines, ZNPS Defueled Safety Analysis Report, and the MAGNASTOR FSAR accident analyses for the dry cask storage system.

## 2.0 FACILITY DESCRIPTION

### 2.1 SITE

The ZNPS and ISFSI are sited on a tract of land of approximately 250 acres in the extreme eastern portion of the city of Zion, Lake County, Illinois, on the west shore of Lake Michigan. The site is approximately 6 miles NNE of the center of the city of Waukegan, Illinois and 8 miles south of the center of the city of Kenosha, Wisconsin. For detailed site information refer to the Zion Station Defueled Safety Analysis Report (DSAR).

The principal site feature associated with the DSEP is the ISFSI, which will be used as the command center for emergency response. Other ancillary buildings on the site will be used as a support center when necessary. Because of changes that will occur to the site and radiological requirements during decommissioning activities, the location and required support equipment for the support center will be specified in Emergency Plan Implementing Procedure (EPIP) EPIP-13, "Emergency Response Facility and Emergency Support Centers". Site communications will be accomplished using commercial telephone and portable radio equipment. Emergency equipment storage locations and equipment will be specified and controlled in EPIP-10, "Emergency Equipment and Supplies".

### 2.2 SURROUNDING AREA

ZNPS DSAR Figure 2-1 provides information regarding the topographical features within a ten mile radius of the site.

In the vicinity of the site (approximate 1 mile radius) is the extreme western portion of the City of Zion which encompasses the Zion Metra Train Station, a small public park (Edina Park), a portion of a light industrial region , including a warehouse facility, and a small number of residences. There are no schools, hospitals or prisons within a 1 mile radius of the site. The site is bordered on the north and south by the Illinois Beach State Park.

The centers of the closest communities of Zion and Winthrop Harbor are located approximately 1.6 miles and 2.5 miles away respectively. In addition to Shiloh Boulevard providing access to the site, there are three other highways or major roads (Illinois Route 173, 29<sup>th</sup> Street and Wadsworth Road) that intersect the 1 mile radius and extend westward to other principal north-south roads that are outside of the boundary. Additionally, part of the Chicago and Northwestern Railroad track system passes through the boundary (approximately 0.8 miles to the west) and is used for commuter and freight traffic.

The site is bounded on the east by Lake Michigan on which surface vessels and aircraft operate. Commercial barge and ship traffic does not ordinarily operate within five miles of the site.

## 2.3 ZION NUCLEAR POWER STATION

ZNPS consisted of two identical Pressurized Water Reactor (PWR) Nuclear Steam Supply Systems (NSSS), each designed for a power output of 3250 MWt and systems, structures, and components necessary for their operation, maintenance and support. Both units are certified to have ceased power operations and are permanently defueled in accordance with 10CFR50.82(a)(1)(i) and (ii) and all spent fuel has been relocated to the ISFSI. Detailed information regarding ZNPS is available in the DSAR. As decommissioning activities proceed the information in the DSAR is subject to change.

## 2.4 INDEPENDENT SPENT FUEL STORAGE INSTALLATION

All the ZNPS spent fuel is in dry cask storage at the ISFSI located south of the ComEd switchyard within the ZNPS Site Boundary (site property line) as shown in DSAR Figure 1-1.

The cask storage pads are two 36 inch thick reinforced concrete slabs that are 689-feet wide by 148-feet long. They are independent structures separated by a reinforced concrete apron located between the two pads. In total, the cask storage pads are designed to accommodate 72 Vertical Concrete Casks (VCCs) (9 rows with 4 VCCs per row on each pad). Sixty-one (61) VCCs are used for the storage of spent fuel.

The ISFSI pads are surrounded by the Protected Area (PA) fence. A second fence surrounds the PA fence and establishes an isolation zone between the two fences. The ISFSI is also located within the Radiological Restricted Area Boundary which provides an additional fenced perimeter. Both the ISFSI and the Radiological Restricted Area are inside the Site Boundary.

The ISFSI monitoring building provides for normal ISFSI access control and ISFSI monitoring. The Central Alarm Station is the portion of the ISFSI Monitoring Building where ISFSI monitoring is conducted. When the DSEP is implemented, the ISFSI Monitoring Building becomes the Emergency Response Facility (ERF) and is the location where emergency events will be initially assessed, classified, and managed.

The ISFSI is designed for interim storage of spent fuel in a contained shielded system. ZS utilizes the MAGNASTOR dry cask storage system under the provisions of 10 CFR 72 Part K, "General License of Storage of Spent Fuel at Power Reactor Sites." A general license is granted under 10 CFR 72.210 for storage of spent nuclear fuel in an ISFSI at power reactor sites to persons that are authorized to possess or operate nuclear power reactors under 10 CFR 50. ZS is authorized by the NRC to store and possess spent nuclear fuel at ZNPS by Facility Operating Licenses (DPR-39 and DPR-48) pursuant to the provisions of 10 CFR 50.

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The MAGNASTOR system is a sealed canister based system for the storage and transportation of spent nuclear fuel. The primary components of the MAGNASTOR system consist of the Transportable Storage Canister (TSC) and the Vertical Concrete Cask (VCC). The VCC provides radiation shielding and contains internal airflow paths that allow decay heat generated by the spent nuclear fuel stored within the TSC to be removed by natural air circulation around the canister wall. For additional information on the MAGNASTOR system, refer to the MAGNASTOR FSAR, Certificate of Compliance #1031 and the Zion Nuclear Power Station Independent Spent Fuel Storage Installation (ZNPS ISFSI), 10 CFR 72.212 Evaluation Report.

### 3.0 POSTULATED EMERGENCY CONDITIONS

This DSEP is based on addressing the applicable accidents and off-normal events evaluated in the ZNPS DSAR and the MAGNASTOR FSAR. The potential consequences were conservatively calculated in order to determine the necessary controls to be employed during decommissioning activities. Potential off-site doses are calculated to verify that the necessary controls are in place to ensure exposures are less than the EPA 400, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," protective action guide limit of 1 rem at the Site Boundary.

Radioactive material at ZNPS is limited primarily to stored dry and liquid waste, irradiated and contaminated components and legacy activation from plant operations. Administrative and engineering controls will be used during decommissioning activities to protect workers and the public from airborne and liquid releases. The inventory of radioactive material will be reduced as decommissioning activities progress and radioactive systems are carefully dismantled and packaged for disposal.

The robust nature and high integrity of the spent fuel storage system selected for use at the ISFSI is designed to prevent the release of radioactivity in the event of accidents, including environmental phenomena (e.g., earthquake and flooding). As a result of the high integrity design of the canisters and the substantial protection afforded the canisters by the storage casks, leakage of fission products from a canister is not considered to be a credible event.

#### 3.1 ZNPS ACCIDENTS

The following is a description of the remaining bounding accident described in the DSAR that applies to ZNPS during decommissioning activities with all the spent fuel at the ISFSI.

##### Radioactive Waste Handling Accident

ZNPS DSAR Chapter 5, Accident Analysis, postulates the failure of a High Integrity Container (HIC) containing dewatered radioactive demineralizer resin generated during decommissioning activities to the extent that entire solid, non-combustible contents escape. The results of the analysis indicate that the projected radiological doses at the Exclusion Area Boundary are insignificant in comparison to the 10CFR100 guidelines and are less than the EPA PAGs. While the analysis postulates that the accident occurs in the Interim Radwaste Storage Facility (IRSF), other locations used to store HICs will not affect the analyzed consequences. Additional details regarding this analysis are available in the DSAR.

#### 3.2 ISFSI OFF-NORMAL EVENTS AND ACCIDENTS

The following is a description of off-normal events and accident conditions described in Chapter 12 of the MAGNASTOR FSAR that are applicable to when all spent fuel being located at the ISFSI for long term storage. The analyses

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demonstrate that the MAGNASTOR storage system satisfies the requirements of 10 CFR 72.24 and 10 CFR 72.122 for off-normal events and accident conditions. The design of the concrete cask and storage canister preclude the release of contamination from the contents during use of the storage system. Evaluations show that for off-normal events and accident conditions, there is no mechanistic failure of the confinement boundary of the storage canister. The storage canister maintains its structural integrity during off-normal events and accident conditions without release of radioactive material or excessive radiation exposure to workers or the general public. The storage canister has no credible leakage, and therefore, there is no release of radioactive material during off-normal events and accident conditions of storage.

Accidents and off-normal events that are analyzed for the ISFSI, including some events considered to be non-credible, have been reviewed. All spent fuel has been relocated to the ISFSI, therefore, only those off-normal events and accidents that apply to storage conditions are addressed. This plan classifies events based on predetermined Emergency Action Levels (EALs). This approach establishes clear, predetermined actions to an emergency event or accident, allowing a coordinated response to the eventual mitigation of the emergency condition and the restoration of the facility to a safe status.

### 3.2.1 ISFSI Off-Normal Events

The MAGNASTOR FSAR presents evaluations of postulated off-normal events that could occur once during any calendar year of operation.

- Severe Ambient Temperature Events ( $>106^{\circ}\text{F}$  or  $<-40^{\circ}\text{F}$ )
- Blockage of One-Half of the Air Inlets
- Small Releases of Radioactive Particulate From TSC Exterior

These off-normal events result in no serious radiological consequences.

### 3.2.2 ISFSI Accidents

The MAGNASTOR FSAR presents results of analyses of design basis and hypothetical accident conditions evaluated for the MAGNASTOR system. In addition to design basis accidents, the MAGNASTOR FSAR also addresses low-probability events including natural phenomena that might occur once over the lifetime of the ISFSI or have consequences that may result in maximum potential effect on the immediate environment. The analyses show that the MAGNASTOR system has a substantial design margin of safety and the system provides protection to the public and to site personnel. The following accidents have been evaluated.

#### 3.2.2.1 Accident Pressurization

This is a hypothetical event that assumes the failure of all fuel rods in a canister. No normal storage conditions are expected to lead to the rupture of all the fuel rods. Pressurization of the

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canister is caused by release of fission products and helium fill gas from the fuel rods. Analysis shows that the maximum TSC pressure resulting from this accident is less than the TSC design pressure.

There are no radiological consequences for this accident and there are no adverse consequences as a result of the maximum accident internal pressure.

Failure of fuel rods is unlikely to be detected by any measurement or inspection that could normally be undertaken from the exterior of the TSC or VCC.

There are no corrective actions required.

#### 3.2.2.2 Earthquake

The analysis shows that the design basis earthquake does not affect the MAGNASTOR concrete cask performance. The loaded concrete cask does not tip over for the design basis earthquake defined as a horizontal acceleration load of 0.37g at the top surface of the ISFSI pad. The maximum horizontal acceleration at the ZNPS ISFSI has been determined to be 0.19g. Maximum sliding distance of a concrete cask due to the horizontal acceleration is approximately 6.2 inches. With a minimum 16 feet center-to-center spacing of the casks there is sufficient clear space in between adjacent casks. Sliding due to the design basis earthquake will not cause adjacent concrete casks to impact one another, nor will it cause a concrete cask to slide off the ISFSI pad.

There are no radiological consequences for this accident.

An earthquake would be detected by ISFSI personnel feeling the movement of the area.

Corrective action consists of inspecting the VCCs following the event.

#### 3.2.2.3 Explosion

An explosion is unlikely because administrative controls exclude explosive substances in the vicinity of the ISFSI. The closest explosive sources were evaluated and it was determined that MAGNASTOR design basis values were not exceeded.

There are no radiological consequences for this accident.

An explosion would be detected by visual or audible observation.

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Inspection of the storage casks is required to ensure that the air inlets and outlets are free of debris. There are no recovery actions or corrective actions required for this accident event.

**3.2.2.4 Failure of All Fuel Rods with a Subsequent Ground Level Breach of the Canister**

Because no mechanistic failure of the TSC was identified with the Failure of All Fuel Rods and since the TSC is leaktight, this potential accident is not evaluated in the MAGNASTOR FSAR.

**3.2.2.5 Fire**

A fire is a very unlikely occurrence since there are no flammable materials stored in the area of the ISFSI pad. However, controls are in place limiting flammable materials to less than the 50 gallons in the direct vicinity of a VCC assumed in the hypothetical fire accident. The hypothetical fire accident is assumed to involve 50 gallons of fuel in the cask transport vehicle with the fire totally engulfing the entire base of a concrete cask. The duration of the analyzed fire is 8 minutes. There are no significant radiological consequences for this accident. There may be local spalling of concrete during the fire event, which could lead to some minor reduction in shielding effectiveness and an insignificant increase in radiation dose rates on the cask surface.

Fires will be detected by visual observation or possibly by odor.

Following the fire, the concrete cask should be inspected for general deterioration of the concrete, loss of shielding (spalling of concrete), exposed reinforcing bar, and surface discoloration that could affect heat rejection. This inspection will determine the repair activities necessary to return the concrete storage cask to its design basis configuration.

**3.2.2.6 Flood**

The MAGNASTOR system is not adversely affected by a design basis flood having a depth of water of 50 feet and a flow velocity of 15 feet per second. The ISFSI is bounded by this accident since the ISFSI pads are constructed above Probable Maximum Surge and Sieche levels described in the ZNPS DSAR.

There are no radiological consequences for this accident.

Flooding will be detected by visual observation.

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Should water overflow the ISFSI pad, inspection of the concrete casks would be performed to ensure that the air inlets and outlets are free of debris.

**3.2.2.7 Full Blockage of Air Inlets**

The likely cause of complete cask air inlet blockage is the covering of the base of the cask with snow, water or earth in a catastrophic event that is beyond the design basis earthquake. This hypothetical event is a bounding accident and is not considered credible. The evaluation of the accident demonstrates that there are no adverse consequences providing at least two of the air inlets are cleared of obstruction within 58 hours of event initiation. The remaining air inlets should be cleared of obstructions as soon as possible after that. The blockage of the air inlets would be detected by a Technical Specification Surveillance required to be performed every 24 hours to ensure that all inlet and outlet screens are free of blockage or in response to natural phenomena.

There are no radiological consequences for this accident with exception of the dose received in clearing the air inlets. For the MAGNASTOR system, the estimated extremity dose is 448 mrem for clearing the 4 air inlets of a VCC. The whole body dose would be slightly less.

Blocked air inlets would be detected by visual observation.

If observed, air vent obstructions will be cleared.

**3.2.2.8 Lightning**

A lightning strike is a random weather related event. Since the MAGNASTOR storage cask is located on an unsheltered pad, the storage cask may be subject to a lightning strike. A lightning strike on a concrete cask may be visually detected at the time of the strike, or by visible surface discoloration at the point of entry or exit of the current flow. The analysis shows that the only area affected will be the surface of the VCC and that the increase VCC bulk temperature due to Joulean heating is not significant.

There are no radiological consequences for this accident.

Lightning strikes will be detected by visual observation.

The array of VCCs will be visually inspected for any damage following the lightning event and if damage is discovered, appropriate actions will be taken.

3.2.2.9 Maximum Anticipated Heat Load (133°F Ambient Temperature)

The cause of this condition is a weather event that causes the MAGNASTOR system to be subject to a 133°F ambient temperature with complete inlet flow blockage. The maximum component temperatures are less than the allowable temperatures for accident conditions and are also less than the temperature limits for normal conditions of storage. ZNPS DSAR and available information from the U.S. National Oceanic and Atmospheric Administration for Chicago, Illinois indicates that the maximum temperature reached in the area has been 105°F.

There are no radiological consequences for this accident.

High ambient temperature would be detected by individual senses and monitored using thermometers or weather reports.

While the MAGNASTOR FSAR does not require recovery or corrective actions for this accident, ZS has surveillance requirements that would detect and correct air inlet flow blockages.

3.2.2.10 Tip-Over of the Concrete Cask

A hypothetical non-credible accident condition has been postulated involving the non-mechanistic tip over of a concrete storage cask. No design basis accidents will cause the concrete cask to tip over. An earthquake having a magnitude greatly exceeding the design basis earthquake would be required to tip over the concrete cask. Functionally, the concrete cask is not expected to suffer significant adverse effects due to this event. The concrete cask and canister are expected to continue to provide design basis shielding, geometry control of contents, contents confinement performance, and spent fuel cooling.

There is a radiological consequence due to the hypothetical tip over event since the bottom end of the concrete cask has significantly less shielding than the sides and top of the concrete cask. High dose rates can be expected at the exposed concrete cask bottom following the tip over event and would dictate the use of supplemental shielding until the concrete cask can be up-righted. Stringent access controls must be applied to ensure that personnel do not enter the area of radiation shine from the exposed bottom of the tipped over concrete cask. Following a tip over event, supplemental shielding should be used until the concrete cask can be up-righted. Surface and top and bottom edges of the concrete cask are expected to exhibit cracking and possible loss of concrete down to the layer of reinforcing bar.

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The increased dose rate due to this cracking is not expected to be significant.

Tip-over casks will be detected by visual observation. Recovery and corrective actions are described in the MAGNASTOR FSAR. As previously noted, tip over is not a credible event.

### 3.2.2.11 Tornado and Tornado Driven Missiles

A tornado is a random weather event having a higher probability of occurrence at certain times of the year and geographical locations. The postulated tornado wind loading and tornado missile impacts are not capable of overturning the cask, or penetrating the boundary established by the concrete cask. There is little potential for significant damage to the concrete cask, which provides radiation shielding. The worst tornado missile impact for a MAGNASTOR concrete cask at the ISFSI pad could cause a penetration of approximately 6 inches into the concrete shield. The loss of shielding would result in a local surface radiation dose rate of less than 600 mrem/hr at the point of penetration.

The presence of a tornado will be detected by weather reports or visual observation. Any subsequent damage will be detected by visual observation.

A tornado event is not expected to result in the need to take any corrective actions other than an inspection of the ISFSI. This inspection would be directed at ensuring the concrete cask inlets and outlets had not become blocked by wind-blown debris, and at checking for obvious surface damage to the concrete cask. In the worst case, a tornado missile could dislodge concrete to a depth of approximately 6 inches which would require repair of the damage by grouting.

## 4.0 CLASSIFICATION

### 4.1 CLASSIFICATION OF EMERGENCIES

The DSEP provides an emergency classification system based on Nuclear Energy Institute (NEI) 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors." Specifically, Appendix C of NEI 99-01, Rev. 6, contains a set of Initiating Conditions (ICs)/Emergency Action Levels (EALs) for permanently defueled nuclear power plants that had previously operated under a 10 CFR Part 50 license and have permanently ceased operations. Additionally, Section 8 of the same document provides ICs/EALs for an Independent Spent Fuel Storage Installation (ISFSI). The classification system in NEI 99-01 has been endorsed by the NRC and offers a standard method for classifying emergencies. Appropriate ICs/EALs, based on approved and requested exemptions from 10 CFR 50, Appendix E and 10 CFR 50.47; and the current conditions at ZNPS and the ZNPS ISFSI have been incorporated into this plan.

This plan addresses two classifications of emergencies:

#### 4.1.1 UNUSUAL EVENT

Events are in progress or have occurred which indicate a potential degradation of the level of safety at the site or the ISFSI or indicate a security threat to the ISFSI.

No release of radioactive material requiring off-site response or monitoring is expected.

The State of Illinois and the NRC are notified of an Unusual Event.

The purpose of this classification is to assure that the first step in future response has been carried out, to bring the staff to a state of readiness, and to provide systematic handling of unusual event information and decision-making.

#### 4.1.2 ALERT

Events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the site or ISFSI.

As in the case of the UNUSUAL EVENT, the ALERT classification includes emergency situations which are not expected to threaten the public, but for which notification of the State of Illinois and the NRC is required.

The purpose of the ALERT classification is to assure that the DERO is available to respond to perform event mitigation, radiation monitoring if required, and to provide the State of Illinois and the NRC with current information on status.

#### 4.1.3 Other Classification Levels

The higher classifications required for operating nuclear power plants are exempted by the NRC for a permanently defueled facility once the determination is made that credible accident scenarios can no longer exceed the Protective Action Guidelines specified by the Environmental Protection Agency.

### 4.2 EMERGENCY ACTION LEVELS (EALS)

An event is classified using EPIP-16, “Emergency Identification, Classification, and Notification”. This procedure is based on the information contained in Table 4.1, “ZNPS Emergency Events” and Table 4.2, “ISFSI Emergency Events”; and the Emergency Action Level Basis Document. The tables and supplemental information provided in the Emergency Action Level Basis Document identify possible Initiating Conditions, Recognition Category Codes, Emergency Action Level (EAL) Threshold Values, and the Emergency Classification associated with each Initiating Condition. EAL Threshold Values include predetermined values or conditions and are used to determine that the severity of an event has progressed to that which warrants being given the designated Emergency Classification. The Recognition Category Codes are also used to reference a corresponding Bases document in Appendix D.

During an event, recognition of the emergency condition is the responsibility of the ISS. When conditions described in a specific Emergency Action Level (EAL) are reached, the ISS assumes the position of Emergency Director and classifies the emergency as either an UNUSUAL EVENT or ALERT. Classification of radiological emergencies will be made after consultation with the Radiation Protection Director or the On-Shift Radiation Protection Technician. Upon classification of an ALERT the ED activates the DERO. The ED has the discretion to activate the DERO for an UNUSUAL EVENT.

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**TABLE 4.1**  
**ZNPS EMERGENCY EVENTS**  
**NOTES**

The Radiation Protection Director or the On Shift Radiation Protection Technician should be consulted prior to classifying a ZNPS Radiological Event. These events are indicated by an asterisk (\*) in the Emergency Classification column.

Calculated values are provided in the EAL Basis Document for the corresponding Recognition Category Code and EPIP-16, "Emergency Identification, Classification, and Notification".

Initiating Condition	Recognition Category Code	Emergency Action Level Threshold Values	Emergency Classification Level
Release of airborne or liquid radioactivity greater than 2 times the ODCM/RETS limits for 60 minutes or longer.	PD-AU1	(1) Reading on effluent radiation monitors greater than 2 times the alarm setpoint established by the ODCM/RETS for 60 minutes or longer.  -OR-  (2) Confirmed sample analysis for an airborne release indicates a concentration or release rate greater than 2 times the ODCM/RETS limits for 60 minutes or longer.	UNUSUAL EVENT*
UNPLANNED Rise in Radiation Levels	PD-AU2	UNPLANNED VALID Area Radiation Monitor reading or survey results indicate a rise by a factor of 1000 times over NORMAL LEVELS.	UNUSUAL EVENT*
Release of airborne radioactivity to the environment greater than 200 times the ODCM/RETS for $\geq 15$ .	PD-AA1	(1) Valid reading on effluent radiation monitors greater than 200 times the alarm setpoint established by the ODCM/RETS for 15 minutes or longer.  -OR-  (2) Confirmed sample analysis for an airborne release indicates a concentration or release rate greater than 200 times the ODCM/RETS limits for 15 minutes or longer.	ALERT*

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Initiating Condition	Recognition Category Code	Emergency Action Level Threshold Values	Emergency Classification Level
Other conditions exist which in the judgment of the Emergency Director warrant declaration of an UNUSUAL EVENT	PD-HU3	Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which indicate a potential degradation of the level of safety at the site.	UNUSUAL EVENT
Other conditions exist which in the judgment of the Emergency Director warrant declaration of an ALERT.	PD-HA3	Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety at the site or an event that involves probable life threatening risk to personnel.	ALERT

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**TABLE 4.2**  
**ISFSI EMERGENCY EVENTS**

**NOTE**

Calculated values are provided in the EAL Basis Document and EPIP-16, "Emergency Identification, Classification, and Notification".

Event Type	Recognition Category Code	Emergency Action Level Threshold Values	Emergency Classification Level
Damage to a loaded cask Confinement Boundary	E-HU1	Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by an on contact radiation reading greater than two times the NAC Certificate of Compliance, Appendix A, Technical Specification limits of LCO 3.3.1 on the surface of the spent fuel cask	UNUSUAL EVENT
Security Condition	PD-HU1	Confirmed SECURITY CONTINGENCY EVENT at the ISFSI that results in the necessity for LLEA to respond to the ISFSI. -OR- Notification of a credible threat to the site, reported by the NRC or other recognized offsite agency, that presents a risk to site personnel, a potential degradation to the level of safety at the site or a security threat to the ISFSI.	UNUSUAL EVENT
Other conditions exist which in the judgment of the Emergency Director warrant declaration of an UNUSUAL EVENT	PD-HU3	Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which indicate a potential degradation of the level of safety at the ISFSI.	UNUSUAL EVENT

## 5.0 RESPONSE

### 5.1 RECOGNITION AND CLASSIFICATION

Recognition of the emergency condition is the responsibility of the ISS. When conditions described in a specific Emergency Action Level (EAL) are reached, the ISS assumes the position of Emergency Director and classifies the emergency as either an UNUSUAL EVENT or ALERT. Classification of radiological emergencies will be made after consultation with the Radiation Protection Director or the On-Shift Radiation Protection Technician. Upon classification of an ALERT the ED activates the DERO. The ED has the discretion to activate the DERO for an UNUSUAL EVENT. A classification of Recovery is made when repairs are being made as required to return to an acceptable condition and parameters are stable or improving. Termination is declared when no EAL Threshold Values are exceeded and the DERO is no longer needed.

### 5.2 NOTIFICATION AND ACTIVATION

The ED will notify site personnel, *ZionSolutions* management, activate the On-Shift DERO and when needed, the Augmented DERO.

Upon declaration of an emergency, the ED will assure notifications of the emergency have been given to the Illinois Emergency Management Agency (IEMA), and the NRC Operations Center. The ED may delegate making the notification to others. Notification will be made to IEMA within 30 minutes and the NRC within 1 hour of declaring an emergency. Notification to IEMA should be accomplished using the Nuclear Accident Reporting System (NARS). NRC notification should be accomplished using the NRC Event Notification System (ENS).

A designated member of ZS management will be responsible for handling all public and corporate communications associated with a declared emergency.

### 5.3 DEFUELED EMERGENCY RESPONSE ORGANIZATION (DERO) ACTIONS

The following is a general summary of the actions taken in response to an emergency:

- ISS recognizes off-normal condition, assesses its significance and assumes the role of ED.
- ED classifies the event and declares either an UNUSUAL EVENT or ALERT.
- ED communicates the initiating conditions to on-shift personnel.
- ED assesses danger to personnel and provides protective action guidance. Establishes access controls to affected areas if radiological conditions require.
- On-site personnel respond as directed by ED.

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- Required notification to IEMA is completed within 30 minutes of the declaration of emergency.
- Required notification to the NRC is completed within one hour of the declaration of emergency.
- ZionSolutions management is notified. The Augmented DERO is activated as determined by the ED.
- Recovery actions are determined in accordance with EPIP-02, "Recovery and Termination."
- ED deactivates Augmented DERO.
- The event is terminated in accordance with EPIP-02, "Recovery and Termination."
- ED deactivates DERO
- ED position is deactivated.

## 5.4 RADIOLOGICAL ASSESSMENT

Radiological assessment shall be performed, if required by procedure or as directed by Radiation Protection management after any natural phenomena event or accident condition.

For ZNPS, this may include radioactive waste storage areas and areas where radiological decommissioning work activities are being conducted.

For the ISFSI, no postulated accident for the MAGNASTOR system results in a loss of canister confinement boundary, so a radiological release is not expected.

The ISS will ensure an assessment of ISFSI dose rates is performed after any natural phenomena event or accident condition. If this assessment indicates increased dose rates exceed EAL Threshold Levels, an Unusual Event will be declared.

### 5.4.1 Radiological Monitoring

With declaration of an Unusual Event due to increased dose rates or radiological releases, follow up radiological surveys will be performed by Radiation Protection personnel and appropriate action will be taken. Recovery and corrective actions will be planned and executed in a manner that minimizes exposure to personnel.

### 5.4.2 Radiological Exposure Control

Both the ED and, Radiation Protection management shall limit radiation exposure during events and recovery actions. Personnel exposure during recovery from radiological emergencies should not exceed 10 CFR 20.1201 annual occupational dose limits to individual adults, except for emergency dose limits listed in EPA-400-R92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents.

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Personnel exposure will be kept As Low As Reasonably Achievable (ALARA).

Personnel exposure during radiological recovery operations will be controlled in accordance with the following 10 CFR 20.1201 dose limits:

- 1) Total effective dose equivalent (TEDE) 5 rem.
- 2) The sum of the deep-dose equivalent and the committed dose equivalent to any individual organ or tissue other than the lens of the eye being equal to 50 rem.
- 3) An eye dose equivalent of 15 rem.
- 4) A shallow-dose equivalent of 50 rem to the skin or to each of the extremities.
- 5) The dose received by an embryo/fetus during the entire pregnancy due to the occupational exposure of a declared pregnant worker should not exceed 0.50 rem (500 mrem).

The ED is responsible for limiting personnel exposure by controlling access to affected areas. Emergency response personnel will wear dosimetry when required. Non occupational workers' exposure will be controlled in accordance with the 10 CFR 20.1301 dose limit of 0.1 rem in a year.

Radiation Protection management is responsible for ensuring personnel exposures are limited during recovery and corrective actions necessary to return to normal activities.

## 5.5 PROTECTIVE MEASURES

### 5.5.1 Accountability/Evacuation

If determined to be necessary, the ED will initiate accountability of personnel. All reports of initial and continuous accountability of personnel shall be provided to the ED.

In the unlikely event that the ED decides that an evacuation is needed, the ED will notify personnel of the need to evacuate. Individuals leaving the site and/or ISFSI area will go to the assembly area designated by the ED. Appropriate steps will be taken to locate any persons not accounted for.

DERO personnel remaining on-site or arriving on-site following an evacuation shall report to the ERF (ISFSI Monitoring Building), or alternate location as directed.

Accountability and evacuation are controlled by EPIP-15, "Warning, Accountability, and Evacuation".

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**5.5.2 Decontamination Capabilities**

The structural integrity of the MAGNASTOR dry cask storage system precludes the release of contents in any of the design basis normal conditions and off-normal or accident events, thereby assuring public health and safety during use of the system. There are no evaluated normal, off-normal, or accident conditions for the MAGNASTOR system that result in the breach of the canister and the subsequent release of fission products. For this reason, contamination of individuals at the ISFSI, injured or not, is not a credible event.

A decontamination capability is maintained during decommissioning activities. Portable instruments for personnel monitoring are readily available. Personnel found to be contaminated shall undergo decontamination under the direction of Radiation Protection personnel.

In the event that conditions result in a contaminated injured individual, the victim's rescue and medical treatment take precedence over the victim's radiation exposure due to bodily contamination. Gross decontamination of the victim (generally limited to the removal of contaminated articles of clothing) will be accomplished to the extent that the health of the patient is not affected.

**5.5.3 Access Control**

Access control to the site and ISFSI area will be established at a location designated by the ED in an emergency.

**5.5.4 Protective Equipment and Supplies**

Radiation dose survey, airborne radiation monitoring, and personnel contamination survey equipment is available. Surveys will be conducted as necessary to ensure that personnel responding to an emergency are provided appropriate protection. Recovery actions will not be performed until a comprehensive radiation survey, if required, is conducted.

**5.6 FIRST AID AND MEDICAL**

Individuals trained in first aid will be available. Medical supplies are available at several locations, these locations and available medical supplies are specified in EPIP-10, Emergency Equipment and Supplies.

Injured persons requiring offsite medical care will be transported to the Vista Medical Center East for treatment. Arrangements have been made with the City of Zion Fire and Rescue Department to provide emergency transportation for personnel requiring offsite medical treatment. Both the Vista Medical Center East and the City of Zion Fire and Rescue Department have personnel trained in radiation protection measures. Personnel requiring offsite treatment may be transported to the hospital by ambulance or LLEA vehicle. All actions of offsite responders will be coordinated by the ED.

## 5.7 FIREFIGHTING

Personnel capable of using portable fire extinguishers to put out small incipient stage fires in their work areas are available when hot work is in progress. The Zion Fire and Rescue Department is responsible for all other firefighting emergencies. Designated personnel will coordinate on-site activities with the Zion Fire and Rescue Department.

## 5.8 DEACTIVATION

In any emergency event, immediate response actions are directed toward limiting the consequences of the emergency in a manner that will afford maximum protection to on-site personnel. Once the immediate corrective and on-site protective actions have been implemented, and a stable and safe condition is established, deactivation of the DERO may be initiated. The ED will terminate the event and provide notification to on-site personnel and appropriate offsite authorities.

## 5.9 RECOVERY

Following deactivation of the DERO, additional corrective actions may be necessary to complete the recovery and return to normal activities. All re-entry and recovery actions will be preplanned and will be documented. Radiological or other hazard areas will be posted with warning signs indicating radiation levels or other hazards. Efforts shall be made to limit radiation exposure.

The ED has the authority and responsibility to initiate the re-entry and recovery actions. Once re-entry is initiated, a designated member of Site Management assumes control and directs recovery and corrective actions. The ED is then deactivated.

The decision to initiate re-entry shall be made by the ED, and the following prerequisites shall be considered:

- Personnel monitoring requirements are determined.
- Portable radiation monitoring instruments are available, if needed.
- Communications are available.
- Radiological conditions are determined and are documented prior to entry.
- Habitability of evacuated areas is confirmed.

The designated member of Site Management will coordinate the restoration of the facility and has the authority to take the necessary actions to ensure the facility is returned to a safe condition. Recovery responsibilities include but are not limited to:

- Developing the site recovery plan.
- Maintaining comprehensive hazard assessment of the facility.
- Prioritizing clean-up of affected areas and equipment.
- Isolating and repairing damaged equipment or systems.
- Documenting corrective actions taken related to recovery and the return to normal activities.

## 6.0 FACILITIES AND EQUIPMENT

### 6.1 EMERGENCY FACILITIES

#### 6.1.1 Emergency Response Facility (ERF)

During an emergency the ISFSI Monitoring Building is designated as the Emergency Response Facility (ERF). Emergency conditions are normally managed by the ED at this location. The ERF provides sufficient space to accommodate On-Shift DERO personnel and has communications systems and other necessary equipment available.

#### 6.1.2 Emergency Support Center (ESC)

If the Augmented DERO is activated, personnel might be directed to assemble at the ESC instead of the ERF. Because of ongoing decommissioning activities, the location of the ESC may frequently change, therefore, the location and equipping of the ESC is addressed in EPIP-13, Emergency Response Facility and Emergency Support Center.

#### 6.1.2 Assembly Areas

Should an evacuation be necessary, personnel will be directed to report to a safe assembly area designated by the ED.

#### 6.1.3 First Aid Supplies

Emergency first aid equipment and supplies are located in the ERF and other locations specified in EPIP-10, Emergency Equipment and Supplies.

### 6.2 SYSTEMS, EQUIPMENT, AND ADVISORY SERVICES

#### 6.2.1 Equipment

Dedicated emergency equipment is located at various locations designated in EPIP-10, Emergency Equipment and Supplies. Hospital emergency supplies are maintained at Vista Medical Center East.

Controlled copies of appropriate facility documents (drawings, procedures, Technical Specifications, FSAR, etc.) are available to the ERF and ESC. This information is readily available for use by the On-Site DERO and Augmented DERO.

#### 6.2.2 Fire Detection and Protection

ZNPS fires are expected to be of local origin caused by decommissioning activities. Detection will be by visual observation by personnel; communication will be by voice, telephone and/or portable radio. Portable fire extinguishers are located throughout the site and small incipient fires are expected to be extinguished by fire watches or personnel trained in the use of portable fire extinguishers. Fires that cannot be extinguished using

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portable fire extinguishers will be addressed by the City of Zion Fire and Rescue Department.

The ISFSI Monitoring Building is equipped with general occupancy smoke detectors, sprinklers, and portable fire extinguishers. Fires that cannot be extinguished using portable fire extinguishers will be addressed by the City of Zion Fire and Rescue Department.

**6.2.3 Meteorological Information**

General meteorological information can be obtained using the internet and may be used in dealing with an emergency.

**6.2.4 Offsite Advisories**

LLEA frequency radio can be monitored for information and advisories. NRC security advisories can be received at the ISFSI by available communications systems.

**6.3 COMMUNICATIONS**

**6.3.1 Commercial Telephone System**

The on-site commercial telephone system is used as the primary backup means for notification of Augmented DERO personnel. It is also used as the backup method of alerting State, and Federal entities of an emergency.

**6.3.2 Portable FM Radios**

Designated on-shift personnel are equipped with two-way portable FM radios for communications on-site.

**6.3.3 LLEA Frequency Radio**

The ISFSI is equipped with City of Zion Police Department Radios operating on the LLEA frequency. These radios maintain a direct and continuous communications capability between the ISFSI and the LLEA.

**6.3.4 Nuclear Accident Reporting System (NARS)**

The NARS is a dedicated phone system using a two number code to establish contact with the Illinois Emergency Management Agency (IEMA) within 30 minutes of event classification or change of classification. It contains information that identifies the station, classification, meteorological data and Emergency Action Level (EAL). In the event of failure of the NARS network, commercial telephone lines would be used to make notifications to IEMA.

**6.3.5 NRC Emergency Notification System (ENS)**

The ENS is a dedicated telephone system used to notify the NRC Operations Center. The NRC will be notified immediately after State

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notifications and within 1 hour of event classification or change in classification. In the event of failure of the ENS, commercial phone lines would be used to notify the NRC.

## 7.0 ORGANIZATION AND RESPONSIBILITIES

### 7.1 NORMAL ORGANIZATION

The normal organization consists of an ISFSI Shift Supervisor (ISS) managing the activities of ISFSI Security staff. During weekdays and some weekends, various organizations are on-site performing decommissioning activities, with radiological support provided by Radiation Protection. Outside of normal working hours the ISS is the senior management position on site.

### 7.2 DEFUELED EMERGENCY RESPONSE ORGANIZATION (DERO)

The DERO consists of an On-Shift DERO and an Augmented DERO. The On-Shift DERO is comprised of the ED, and for emergencies involving radiological consequences, an On-Shift Radiation Protection Technician. The ED may elect to use the On-Shift Radiation Protection Technician for non- radiological emergencies and may also utilize any employees or contract personnel that may be on site at the time of the emergency. On-Shift ISFSI personnel are excluded unless the emergency involves an ISFSI Security Contingency Event which, by the ISFSI Security Plan, requires their action. Personnel not specifically trained as a member of the DERO will be given specific direction prior to being assigned any task.

The ED can utilize other resources and offsite support organizations (Fire Department, LLEA, and Medical Facilities) as needed to support the emergency response and recovery actions. The ED will provide personnel with appropriate instructions and assignments to ensure that assistance resources are used effectively. Additional resources are expected to respond in a timely manner when contacted.

#### 7.2.1 On-Shift DERO

Detection and recognition of conditions that warrant declaration of an emergency is the responsibility of the ISS. Upon declaration of an emergency, the ISS assumes the position of ED, assumes emergency response duties and implements the DSEP.

The ED may delegate administrative duties to available personnel not otherwise involved with the emergency, including notifications to State, and Federal entities and *ZionSolutions* management. The ED has overall responsibility for the coordination of emergency response activities of the On-Shift and Augmented DERO.

The ED is responsible for directing all aspects of the response to an emergency. Depending on the situation, the ED may either remain in the ERF or perform designated activities from another location.

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At the direction of the ED, the On-Shift RP Technician, employees and contract personnel on site at the time of the emergency may be used to conduct actions to bring the facility to a stable condition. On-Shift ISFSI personnel are excluded unless the emergency involves an ISFSI Security Contingency Event which, by the ISFSI Security Plan, requires their action.

#### 7.2.2 Augmented DERO

The On-Shift DERO can respond to most situations arising from implementation of the DSEP without assistance from others. However, for an Emergency Classification of ALERT involving radiological consequences or at the discretion of ED, the Augmented DERO can be activated. In the event of an ALERT classification involving radiological consequence, the minimum staffing for the Augmented DERO will be the Radiation Protection Director. The Radiation Protection Director is the only member of the Augmented DERO that is on call. The remainder of the Augmented DERO will be developed by the ED using guidance and contact information provided in EPIP-14, "Augmented DERO". The goal of the Augmented DERO is to provide additional personnel to support the On-Shift DERO within four hours of being activated. The size and composition of the Augmented DERO is determined by the ED. The Augmented DERO may provide support to the ED to assess radiological conditions, provide technical support, support maintenance and repair activities, develop plans to implement corrective actions, and assist with recovery actions.

Personnel assigned to the DERO may be assigned to perform activities such as the following, if required:

- Assessing the extent of damaged equipment.
- Identifying short and long-term repair needs.
- Establishing repair priorities and deploying repair teams.
- Coordinating available resources to restore equipment and systems.
- Coordinating logistical needs.
- Performing radiological surveys and assessments.
- Coordinating news announcements with the EnergySolutions Corporate Communications.
- Facilitating communications with the NRC, IEMA, and other organizations.
- Assisting with recovery actions.

### 7.3 ON-SITE RESPONSIBILITIES

#### 7.3.1 ISFSI Shift Supervisor (ISS)

The ISS is responsible for the detection and recognition of conditions that warrant declaration of an emergency. Upon

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identification of an emergency, the ISS assumes the position of ED, assumes emergency response duties, declares the emergency and implements the DSEP.

#### 7.3.2 Emergency Director (ED)

Actions the ED cannot delegate are:

- Classification of emergency.
- Authorization of radiation exposure in excess of 10 CFR 20 limits.
- Initiation of re-entry/recovery operations.
- Authorization of State and NRC notifications.
- Termination of the event.

The primary responsibilities of the ED are:

- Direction of emergency response actions.
- Command and control of the DERO.
- Classification and notification.
- Assessment of radiological conditions.
- Authorization of on-site protective actions.
- Determination of need for and requesting assistance.
- Implementation of EPIPs.
- Prioritization of DERO actions.
- Periodic updates to State, and Federal entities.
- Mitigation of event.
- Interface with offsite agencies.
- Access control.
- Deactivation of the DERO

Although the On-Shift ISS will initially assume the position of ED, any ED qualified individual may be utilized to fulfill the positions duties and responsibilities.

#### 7.3.3 Radiation Protection Director (RPD)

When activated, the Radiation Protection Director, reports to the ED. RPDs are designated by the Radiation Protection management. The RPD shall be activated in the event of an ALERT involving radiological consequences.

The RPD provides the following services:

- Monitor personnel accumulated dose
- Advise the Emergency Director concerning Radiological EALs
- Augment the emergency staff as deemed necessary with Radiation Protection personnel

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- Direct radiological support to search and rescue and medical emergencies
- Direct the performance of radiological monitoring and surveys

**7.3.4 On-Shift Radiation Protection Technician**

The On-Shift Radiation Protection Technician assists the ED with the classification of events involving radiological consequences. This position is only required for radiological emergencies and will be transitioned to an Augmented DERO, on-call position when ZS has determined that the radiological source term at ZNPS has been appropriately reduced such that an ALERT classification involving radiological consequences is no longer possible. The ED may also utilize the On-Shift Radiation Protection Technician during non-radiological emergencies.

**7.4 CORPORATE SUPPORT**

Corporate support may be provided by ZionSolutions, EnergySolutions, or Exelon.

**7.5 LOCAL OFFSITE SUPPORT**

Arrangements have been made with local organizations to provide:

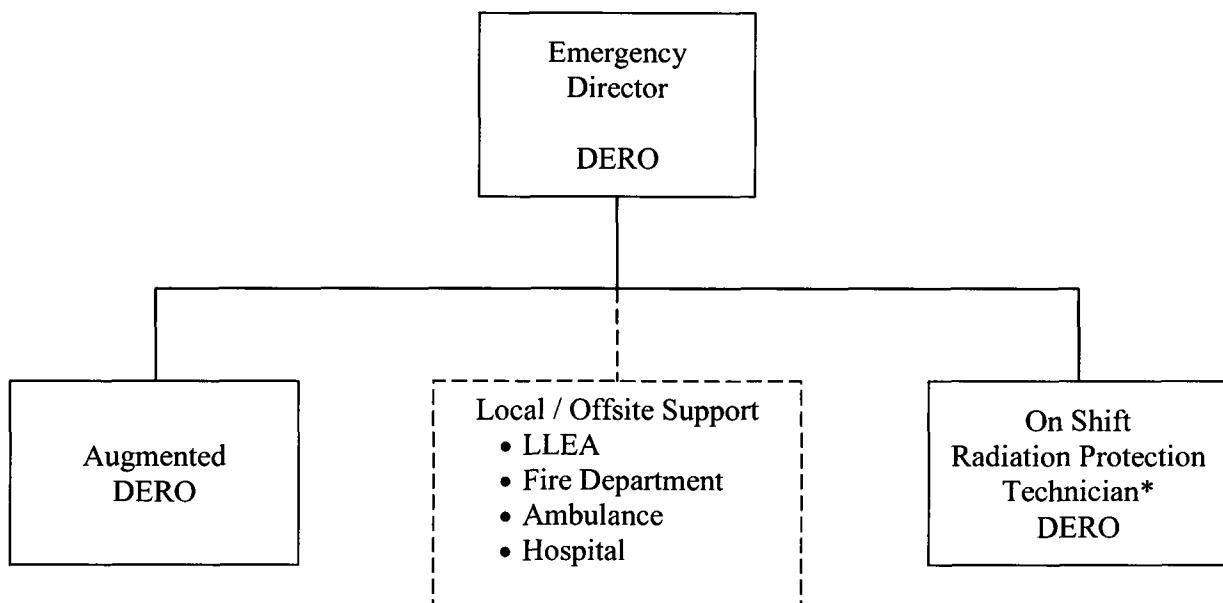
- LLEA support for security events.
- Firefighting and rescue services.
- Transportation of injured personnel.
- Hospital services for medical treatment of injured personnel.

Letters of Agreement for local offsite support are maintained on file and are listed in Appendix B.

**7.6 STATE AND FEDERAL GOVERNMENT**

State and Federal government response is expected to be limited to documenting the notification of the emergency, periodically receiving updated information on the emergency, and coordinating public information news releases if necessary. Investigations or inquiries may be commenced by State or Federal officials following an event.

**FIGURE 7.1**  
**EMERGENCY RESPONSE ORGANIZATION**



- \* The On-Shift Radiation Protection Technician is a required member of the On-Shift DERO for emergencies involving radiological consequences. The ED may elect to utilize The On-Shift Radiation Protection Technician as part of the On-Shift DERO for non-radiological emergencies.

## **8.0 MAINTAINING EMERGENCY PREPAREDNESS**

### **8.1 RESPONSIBILITIES**

ZS senior management has overall responsibility for maintaining emergency preparedness and is responsible for ensuring adequate resources. The Emergency Preparedness Manager is responsible for ensuring the following tasks and functions are completed:

- 8.1.1 Maintenance of readiness of the ERF, ESC and equipment.
- 8.1.2 Development and maintenance of the DSEP.
- 8.1.3 Development and maintenance of the EPIPs.
- 8.1.4 Training and qualification of DERO personnel.
- 8.1.5 Conduct of drills and exercises.
- 8.1.6 Monitoring effectiveness of and providing input to emergency preparedness training.
- 8.1.7 Maintaining agreements with local offsite support services.

### **8.2 TRAINING**

Training consists of lesson plans designed to provide the skills and knowledge necessary to maintain staff proficiency. Procedures will be reviewed to identify activities that are not considered to be a part of personnel's day-to-day routine function (i.e., use of telephones, general communication protocol, etc.). Lessons will focus on non-routine and specialized activities that are particular to the individual functions and overall emergency response actions. Training may consist of, but not be limited to, classroom lecture, self-study, practical demonstrations, and facility drills.

#### **8.2.1 DSEP Training**

Each person specifically charged with DERO responsibilities will be provided initial and continuing training. This continuing training will be conducted during the calendar year. Continuing training addresses general changes to the DSEP, facilities, equipment, regulations, policies, and specific changes to their responsibilities (which are not considered part of their routine duties). This training will also address problem areas identified during audits, drills, or exercises.

#### **8.2.2 Offsite Assistance Training**

Organizations which may be called upon to render assistance on-site will be offered general facility familiarization sessions on an annual basis. These sessions may include a walk down of the facility, safety, building layout, access protocol, communications capabilities, and security requirements.

## 8.3 DRILLS AND EXERCISES

In addition to the training described earlier, the DERO will conduct drills to enhance skills and knowledge of the practical implementation of the DSEP and demonstrate the adequacy of emergency facilities, equipment, and implementing procedures. Drills allow interaction between evaluators and DERO personnel to reinforce requirements and overall process implementation. Drills will be scheduled with various objectives to demonstrate these capabilities. Some drills will focus on specific functions while others will involve a broader scope of the DSEP. Offsite support organizations (e.g., ambulance service, fire department, and LLEA) may be invited to participate in drills.

### 8.3.1 Drills

In addition to training drills discussed above, the following drills will be conducted annually:

- 1) Health Physics Drill
- 2) Medical Emergency Drill

### 8.3.2 Exercise

An exercise will be conducted biennially to demonstrate the capability to implement the DSEP. Objectives will be developed to ensure major elements of the DSEP are performed and evaluated to ensure the appropriate level of preparedness is being maintained.

Offsite response organizations will be invited to participate in or observe the exercise.

### 8.3.3 Drill and Exercise Evaluation

Facility staff will evaluate the exercise and drills. Expectations for evaluators will be discussed with each evaluator prior to the drill/exercise. Evaluators should be assigned to evaluate functions or areas consistent with their expertise. Following the drill/exercise a critique of the evolution will be conducted and any identified deficiencies will be corrected through retraining, remedial drills, or by other means. Comment resolution will be assigned to responsible personnel for final implementation.

## 8.4 REVIEW AND UPDATE OF DSEP, EAL BASIS DOCUMENT, AND EPIPS

### 8.4.1 DSEP

This plan, including written agreements between ZionSolutions and other organizations, will be reviewed annually. Approved changes to the plan will be incorporated into the appropriate implementing procedures along with the plan changes. Letters of Agreement will be reviewed annually and verified to be in effect at the time of the plan review. This may be

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accomplished via written communication or documented telephone conversation.

**8.4.2 EAL Basis Document**

The EAL Basis Document will be reviewed annually. The controls associated with the maintenance of this document are the same as established for EPIPs.

**8.4.3 Emergency Plan Implementing Procedures (EPIPs)**

Procedures which implement the DSEP will be reviewed, revised and distributed in accordance with procedure and document control requirements. Revisions will be made whenever a plan change is made that affects the procedure, or other circumstances dictate a revision is necessary.

**8.5 PERIODIC SURVEILLANCE**

Facilities and equipment will be maintained in accordance with EPIP-10, Emergency Equipment and Supplies, and EPIP-13, Emergency Response Facility and Emergency Support Center. Inventories of DSEP kits and supplies will be conducted on a semi-annual basis and after DSEP implementation (either by actual event or drill activity).

A list of telephone numbers that are important to emergency notification is verified on a semi-annual basis.

The NARS and NRC ENS systems will be tested monthly.

**8.6 INDEPENDENT REVIEW**

All Emergency Plan program elements shall be reviewed by persons having no direct responsibility for the implementation of the DSEP at least once every 12 months to satisfy the requirements of 10 CFR 50.54(t). An independent audit covering all program elements satisfies this requirement.

## APPENDIX A

### DEFINITIONS, ABBREVIATIONS AND ACRONYMS

#### 1.0 DEFINITIONS

##### Actions

Assessment Actions – Actions taken during or after an incident to obtain and process information that is necessary to make decisions to implement specific emergency measures.

Corrective Actions – Actions taken to make improvements.

Emergency Actions – Actions taken to improve or terminate an emergency situation.

Protective Actions – Actions taken to avoid or reduce radiological exposure to personnel.

Recovery Actions – Actions taken after an emergency to restore the facility to pre-emergency condition.

Airborne Radioactivity – Any particulate radioactive material dispersed in the air.

ALERT - Events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the site.

Confinement Boundary – The confinement boundary of the canister consists of the TSC cylindrical shell, bottom plate, closure lid, and vent and drain port covers.

Contamination (Radioactive) – Radioactive material in any place where it is unwanted (e.g., on persons, places, or things).

Decontamination – The reduction or removal of contaminating radioactive material from a person, area, or object by cleaning or washing.

Defueled Emergency Response Organization (DERO) – The organization responsible under emergency conditions.

Emergency Action Level (EAL) – A pre-determined, site-specific, observable threshold for an Initiating Condition that, when met or exceeded, places the site in a given emergency classification level. EAL statements may utilize a variety of criteria including instrument readings and status indications; observable events; results of calculations and analyses; entry into particular procedures; and the occurrence of natural phenomena.

Emergency Director (ED) - The person in charge during an emergency.

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Exclusion Area Boundary - That line that delineates the area surrounding the reactors, in which the reactor licensee has the authority to determine all activities including exclusion or removal of personnel and property from the area. This area may be traversed by a highway, railroad, or waterway, provided these are not so close to the facility as to interfere with normal operations of the facility and provided appropriate and effective arrangements are made to control traffic on the highway, railroad, or waterway, in case of emergency, to protect the public health and safety. Residence within the exclusion area shall normally be prohibited. In any event, residents shall be subject to ready removal in case of necessity. Activities unrelated to operation of the reactor may be permitted in an exclusion area under appropriate limitations, provided that no significant hazards to the public health and safety will result. The Exclusion Area Boundary is depicted on DSAR Figure 2-2.

Initiating Condition – An event where either the potential exists for a radiological or security emergency, or an event where such an emergency has occurred.

Independent Spent Fuel Storage Installation (ISFSI) – The facility designed and constructed to provide on-site dry storage of spent fuel.

ISFSI Controlled Area – as defined in 10 CFR 72.3, is the area immediately surrounding an ISFSI for which the licensee exercises authority over its use and within which ISFSI operations are performed.

MAGNASTOR System – The NAC International, Inc. Modular Advanced Generation Nuclear All-purpose Storage system which is being used at the ISFSI to store spent fuel.

NORMAL LEVELS - Normal levels can be considered as the highest reading in the past twenty-four hours excluding the current peak value.

ODCM/RETS – This term is used to identify the specific section (RETS) of the controlling document (ODCM). RETS is Chapter 12 of the ODCM and contains values necessary to quantify limits set within certain Emergency Action Level Threshold Values.

Protective Action Guides (PAGs) – Guidelines provided by the EPA regarding projected absorbed dose to individuals in the general population which warrant protective action.

Radiological Restricted Area (RRA) - An area, access to which is limited for the purpose of protecting individuals against undue risks from exposure to radiation and radioactive materials.

Site Boundary - The line beyond which the land is not owned, leased, or otherwise controlled by the licensee.

Transportable Storage Canister (TSC) – The stainless steel canister that provides containment for the spent fuel. The loaded TSCs are placed inside of the VCCs for on-site dry storage.

UNUSUAL EVENT– Events are in progress or have occurred which indicate a potential degradation of the level of safety at the site or the ISFSI or indicate a security threat to the ISFSI. No releases of radioactive material requiring offsite response or monitoring are expected.

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**UNPLANNED** - A parameter change or an event that is not the result of an intended evolution and requires corrective or mitigative actions.

**VALID** - An indication, report or condition, is considered to be VALID when it is verified by (1) an instrument response check, or (2) indications on related or redundant indicators, or (3) by direct observation by site personnel, such that doubt related to the indicator's operability, the condition's existence, or the report's accuracy is removed. Implicit in this definition is the need for timely assessment.

**Vertical Concrete Cask (VCC)** – The cask positioned on the ISFSI pad that contains the TSC used to store spent fuel.

## **2.0 ABBREVIATIONS AND ACRONYMS**

ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
EAL	Emergency Action Level
ED	Emergency Director
ERF	Emergency Response Facility
ESC	Emergency Support Center
DERO	Defueled Emergency Response Organization
DSAR	Defueled Safety Analysis Report
IEMA	Illinois Emergency Management Agency
ISFSI	Independent Spent Fuel Storage Installation
ISS	ISFSI Shift Supervisor
LLEA	Local Law Enforcement Agency
mrem/hr	milli-rem (1/1000 rem) per hour
NRC	Nuclear Regulatory Commission
ODCM/RETS	Offsite Dose Calculation Manual/Radiological Effluent Technical Standards
rem	Roentgen Equivalent Man – A measure of biological damage caused by radiation exposure
TLD	Thermo Luminescent Dosimeter
TSC	Transportable Storage Canister
VCC	Vertical Concrete Cask

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**APPENDIX B**

**LETTERS OF AGREEMENT**

This appendix lists the letters of agreement in effect between ZionSolutions and offsite authorities and support organizations. These agreements are reviewed annually. Signed copies of these agreements are maintained by the Emergency Preparedness Manager and are available upon request.

**City of Zion**

- Fire and Rescue Department
- Police Department

**Vista Medical Center East**

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**APPENDIX C**

**EMERGENCY PLAN PROCEDURES**

The following Emergency Plan Procedures implement the requirements specified in this plan.

<u>EPP No.</u>	<u>Title</u>
EPIP-01	Emergency Director
EPIP-02	Recovery and Termination
EPIP-03	Radiation Protection Director / On-Shift Radiation Protection Technician
EPIP-04	Emergency Radiation Exposure Limits
EPIP-05	Deleted
EPIP-06	Deleted
EPIP-07	Deleted
EPIP-08	Contaminated Injury Response
EPIP-09	Deleted
EPIP-10	Emergency Equipment and Supplies
EPIP-11	Emergency Communications Systems and Operational Tests
EPIP-12	Maintaining Emergency Preparedness
EPIP-13	Emergency Response Facility and Emergency Support Center
EPIP-14	Augmented DERO
EPIP-15	Warning, Accountability and Evacuation
EPIP-16	Emergency Identification, Classification and Notification
EPIP-17	Airborne Sample Calculations

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ZS-2014-0088: Attachment 3

**Defueled Station Emergency Plan**

**Emergency Action Level**

**Basis Document**

**Revision 0**



## Zion Station

# **Defueled Station Emergency Plan Emergency Action Level Basis Document**

**May 2014**

**Revision 0**

Defueled Station Emergency Plan  
Emergency Action Level  
Basis Document  
Revision 0

**E-HU1**

**(ISFSI)**

**ECL:** Unusual Event

**Initiating Condition:** Damage to a loaded cask CONFINEMENT BOUNDARY.

**Emergency Action Level Threshold Values:**

- (1) Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by an on-contact radiation reading greater than two times the NAC Certificate of Compliance, Appendix A, Technical Specification limits of LCO 3.3.1 on the surface of the Vertical Concrete Cask.

**Basis:**

This IC addresses an event that results in damage to the CONFINEMENT BOUNDARY of a storage cask containing spent fuel. It applies to irradiated fuel that is licensed for dry storage beginning at the point that the loaded storage cask is sealed. The issues of concern are the creation of a potential or actual release path to the environment, degradation of one or more fuel assemblies due to environmental factors, and configuration changes which could cause challenges in removing the cask or fuel from storage.

Calculated Values

(Two times the NAC Certificate of Compliance,  
Appendix A, Technical Specification limits of LCO 3.3.1)

>190 mrem/hr gamma on vertical surface

-OR-

> 10 mrem/hr neutron on vertical surface

-OR-

> 900 mrem/hr (neutron + gamma) on the top

The existence of "damage" is determined by radiological survey. The technical specification multiple of "2 times", which is also used in Recognition Category A IC AU1, is used here to distinguish between non-emergency and emergency conditions. The emphasis for this classification is the degradation in the level of safety of the spent fuel cask and not the magnitude of the associated dose or dose rate. It is recognized that in the case of extreme damage to a loaded cask, the fact that the "on-contact" dose rate limit is exceeded may be determined based on measurement of a dose rate at some distance from the cask.

Security-related events for ISFSIs are covered under IC PD-HU1.

Defueled Station Emergency Plan  
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**PD-AU1**

**(SITE)**

**ECL:** Unusual Event

**Initiating Condition:** Release of airborne radioactivity greater than 2 times the ODCM/RETS limits for 60 minutes or longer.

**Emergency Action Level Threshold Values:** (1 or 2)

**Notes:**

- The Emergency Director should declare the UNUSUAL EVENT promptly upon determining that 60 minutes has been exceeded, or will likely be exceeded.
- If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 60 minutes.
- If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.

(1) VALID reading on effluent radiation monitors greater than 2 times the alarm setpoint established by the ODCM/RETS for 60 minutes or longer.

(2) Confirmed sample analysis for an airborne release indicates a concentration or release rate greater than 2 times the ODCM/RETS limits for 60 minutes or longer.

**Basis:**

This IC addresses a potential decrease in the level of safety of the site as indicated by a low-level radiological release that exceeds regulatory commitments for an extended period of time (e.g., an uncontrolled release). It includes any airborne radiological release, monitored or un-monitored, including those for which a radioactivity discharge permit is normally prepared.

There are administrative controls established to prevent unintentional releases, and to control and monitor intentional releases. The occurrence of an extended, uncontrolled radioactive release to the environment is indicative of degradation in these controls.

Radiological effluent EALs are also included to provide a basis for classifying events and conditions that cannot be readily or appropriately classified on the basis of site conditions alone. The inclusion of both site condition and radiological effluent EALs more fully addresses the spectrum of possible accident events and conditions.

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Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.

Releases should not be prorated or averaged. For example, a release exceeding 4 times release limits for 30 minutes does not meet the EAL.

The ODCM/RETS multiples are specified in PD-AU1 and PD-AA1 only to distinguish between non-emergency conditions, and from each other. While these multiples obviously correspond to an off-site dose or dose rate, the emphasis in classifying these events is the degradation in the level of safety at the site, not the magnitude of the associated dose or dose rate.

EAL #1 - This EAL addresses radioactivity releases that cause effluent radiation monitor readings to exceed the threshold identified in the EAL. This EAL is intended for effluent monitoring on routine release pathways for which a discharge permit would not normally be prepared. The effluent monitors listed are those normally used for routine release pathways. If a discharge is performed using a different flowpath or effluent monitor other than those listed (e.g., a portable or temporary effluent monitor), then the declaration criteria will be based on the monitor specified in the different flowpath.

Calculated Values

(Two time the ODCM/RETS limits)

Monitor	Discharge Type	Value ( $\mu\text{Ci}/\text{cc}$ )
1RIA-PR49	Particulate	1.11E-7 $\mu\text{Ci}/\text{cc}$
2RIA-PR49	Particulate	1610 cpm

EAL #2 - This EAL addresses uncontrolled airborne releases that are detected by sample analyses or environmental surveys.

Calculated Values

Values for airborne samples will be calculated in accordance with EPIP-17, "Airborne Sample Calculations".

Escalation of the emergency classification level would be via IC PD-AA1.

Defueled Station Emergency Plan  
Emergency Action Level  
Basis Document  
Revision 0

**PD-AU2**

**(SITE)**

**ECL:** Unusual Event

**Initiating Condition:** UNPLANNED rise in radiation levels.

**Emergency Action Level Threshold Value:** (1)

UNPLANNED VALID Area Radiation Monitor (ARM) reading or survey results indicate rise by a factor of 1000 over NORMAL LEVELS.

**Basis:**

This IC addresses elevated radiation levels caused by UNPLANNED events. The increased radiation levels are indicative of a minor loss in the ability to control radioactive materials which is a potential degradation in the level of safety at the site.

**This EAL excludes radiation level increases that result from planned activities such as use of radiographic sources and movement of radioactive waste materials. The specific list of ARMs is not required, as it would restrict the applicability of the threshold. The intent is to identify loss of control of radioactive material in any monitored area. Survey results are not required for confirmation of area radiation monitor readings but are applicable to areas where area radiation monitors do not have sufficient range to indicate a rise by a factor of 1000 over NORMAL LEVELS.**

Defueled Station Emergency Plan  
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Basis Document  
Revision 0

**PD-AA1**

**(SITE)**

**ECL: ALERT**

**Initiating Condition:** Release of airborne radioactivity to the environment greater than 200 times the ODCM/RETS limits for 15 minutes or longer.

**Emergency Action Level Threshold Values: (1 or 2)**

**Notes:**

- The Emergency Director should declare the ALERT promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
  - If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 15 minutes.
  - If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.
- (1) VALID reading on effluent radiation monitors greater than 200 times the alarm setpoint established by the ODCM/RETS for 15 minutes or longer.
- (2) Confirmed sample analysis for an airborne release indicates a concentration or release rate greater than 200 times the ODCM/RETS limits for 15 minutes or longer.

**Basis:**

This IC addresses an actual or substantial potential decrease in the level of safety of the site as indicated by a radiological release that exceeds regulatory commitments for an extended period of time (e.g., an uncontrolled release). It includes any airborne radiological release, monitored or un-monitored, including those for which a radioactivity discharge permit is normally prepared.

There are administrative controls established to prevent unintentional releases, and to control and monitor intentional releases. The occurrence of an extended, uncontrolled radioactive release to the environment is indicative of degradation in these controls.

Radiological effluent EALs are also included to provide a basis for classifying events and conditions that cannot be readily or appropriately classified on the basis of site conditions alone. The inclusion of both site condition and radiological effluent EALs more fully addresses the spectrum of possible accident events and conditions.

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Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.

Releases should not be prorated or averaged. For example, a release exceeding 600 times release limits for 5 minutes does not meet the EAL.

The ODCM/RETS multiples are specified in PD-AU1 and PD-AA1 only to distinguish between non-emergency conditions, and from each other. While these multiples obviously correspond to an off-site dose or dose rate, the emphasis in classifying these events is the degradation in the level of safety at the site, not the magnitude of the associated dose or dose rate.

EAL #1 - This EAL addresses radioactivity releases that cause effluent radiation monitor readings to exceed the threshold identified in the EAL. This EAL is intended for effluent monitoring on routine release pathways for which a discharge permit would not normally be prepared. The effluent monitors listed are those normally used for routine release pathways. If a discharge is performed using a different flowpath or effluent monitor other than those listed (e.g., a portable or temporary effluent monitor), then the declaration criteria will be based on the monitor specified in the different flowpath.

Calculated Values  
(200 times the ODCM/RETS)

Monitor	Discharge Type	Value
1RIA-PR49	Particulate	1.11 E-5 $\mu$ Cl/cc
2RIA-PR49	Particulate	161,000 cpm

EAL #2 - This EAL addresses uncontrolled airborne releases that are detected by sample analyses or environmental surveys.

Calculated Values

**Values for airborne samples will be calculated in accordance with EPIP-17, "Airborne Sample Calculations"**

Defueled Station Emergency Plan  
Emergency Action Level  
Basis Document  
Revision 0

**PD-HU1**

**(ISFSI)**

**ECL:** Unusual Event

**Initiating Condition:** Confirmed SECURITY CONDITION or threat.

**Emergency Action Level Threshold Values:** (1 or 2 or 3)

- (1) Confirmed SECURITY CONTINGENCY EVENT at the ISFSI that results in the necessity for LLEA to respond to the ISFSI.
- (2) Notification of a credible threat to the site, reported by the NRC or other recognized off site agency, that presents a risk to site personnel, a potential degradation to the level of safety at the site or a security threat to the ISFSI.

**Basis:**

This IC addresses events that pose a threat to site personnel or the ISFSI, and thus represents a potential degradation in the level of safety.

Security events which do not meet one of these EALs are adequately addressed by the requirements of 10 CFR § 73.71 or 10 CFR § 50.72.

Classification of these events will initiate appropriate threat-related notifications to site and ISFSI personnel and offsite organizations.

Security plans and terminology are based on the guidance provided by NEI 03-12, *Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]*.

EAL #1 addresses threats to the ISFSI requiring assistance from the LLEA. These threats are discussed in detail in the ISFSI Physical Security Plan.

EAL #2 addresses the receipt of a credible threat that presents a risk to personnel or degradation of safety at the site. The threat is assumed to be credible if reported by the NRC or other recognized off site organization.

Emergency plans and implementing procedures are public documents; therefore, EALs should not incorporate Security-sensitive information. This includes information that may be advantageous to a potential adversary, such as the particulars concerning a specific threat or threat location. Security-sensitive information should be contained in non-public documents such as the Security Plan.

Defueled Station Emergency Plan  
Emergency Action Level  
Basis Document  
Revision 0

**PD-HU3**

**(ISFSI & SITE)**

**ECL:** Unusual Event

**Initiating Condition:** Other conditions exist which in the judgment of the Emergency Director warrant declaration of an UNUSUAL EVENT.

**Emergency Action Level Threshold Values:**

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which indicate a potential degradation of the level of safety at the site or ISFSI. No releases of radioactive material requiring offsite response or monitoring are expected.

**Basis:**

This IC addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Director to fall under the emergency classification level description for an UNUSUAL EVENT.

Defueled Station Emergency Plan  
Emergency Action Level  
Basis Document  
Revision 0

**PD-HA3**

**(SITE)**

**ECL: ALERT**

**Initiating Condition:** Other conditions exist which in the judgment of the Emergency Director warrant declaration of an ALERT.

**Emergency Action Level Threshold Values:**

(1) Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety at the site or ISFSI; or an event that involves probable life threatening risk to personnel. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

**Basis:**

This IC addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Director to fall under the emergency classification level description for an ALERT.

**Zion Nuclear Power Station (ZNPS)**  
**Defueled Station Emergency Plan (DSEP)**  
**Administrative Changes, Differences and Deviations from**  
**NEI 99-01, Rev. 6**

**Zion Nuclear Power Station (ZNPS)**  
**Defueled Station Emergency Plan (DSEP)**  
**Administrative Changes, Differences and Deviations from NEI 99-01, Rev. 6**

The Generic Emergency Action Levels (EALs) provided in NEI 99-01, Revision 6 are intended to meet all of the requirements of the current version of 10 CFR 50, Appendix E and 10 CFR 50.47. The guidance, however, also states that “each licensee will need to develop its emergency classification scheme using the NRC-approved exemptions, and the source terms and accident analyses specific to the licensee”. This document delineates the Administrative Changes, Differences and Deviations from the Generic EALs and the reasoning behind them. It also provides the justification for NEI 99-01, Rev. 6 EALs that are not included in the DSEP.

A Difference is an EAL change where the basis scheme guidance differs in wording but agrees with the meaning and intent, such that the classification of an event would be the same whether using the basis scheme guidance or the site specific proposed EAL.

A Deviation is an EAL change where the basis scheme guidance differs in wording and is altered in meaning or intent such that classification of the event could be different from the basis scheme guidance and the site specific proposed EAL.

**NEI 99-01 Revision 6 EALs not included in Revision 16 of the ZNPS DSEP**

- |        |  |
|--------|--|
| PD-AA2 | Unplanned rise in plant radiation levels that impedes plant access to maintain spent fuel integrity. |
| PD-HU2 | Hazardous event affecting SAFETY SYSTEM equipment necessary for spent fuel cooling.                  |
| PD-HA1 | HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack within 30 minutes.                |
| PD-SU1 | UNPLANNED rise in spent fuel pool temperature rise   |

The following pages from NEI 99-01, Revision 6, providing the generic EALs, have been marked up to reflect these conditions. The deviations/differences are noted and explained at the end of each EAL. For those EALs not included in the DSEP, the justification is provided.

**MARKUP**

**E-HU1**

**ECL:** Notification of Unusual Event

**Initiating Condition:** Damage to a loaded cask CONFINEMENT BOUNDARY.

**Operating Mode Applicability:** Not Applicable

**Example-Emergency Action Levels Level Threshold Value:**

(1) Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by an on-contact radiation reading greater than two times the *NAC Certificate of Compliance, Appendix A, Technical Specification limits of LCO 3.3.1* (site-specific cask specific technical specification allowable radiation level) on the surface of the spent fuel cask.

**Basis:**

This IC addresses an event that results in damage to the CONFINEMENT BOUNDARY of a storage cask containing spent fuel. It applies to irradiated fuel that is licensed for dry storage beginning at the point that the loaded storage cask is sealed. The issues of concern are the creation of a potential or actual release path to the environment, degradation of one or more fuel assemblies due to environmental factors, and configuration changes which could cause challenges in removing the cask or fuel from storage.

The existence of "damage" is determined by radiological survey. The technical specification multiple of "2 times", which is also used in Recognition Category IC AU1, is used here to distinguish between non-emergency and emergency conditions. The emphasis for this classification is the degradation in the level of safety of the spent fuel cask and not the magnitude of the associated dose or dose rate. It is recognized that in the case of extreme damage to a loaded cask, the fact that the "on-contact" dose rate limit is exceeded may be determined based on measurement of a dose rate at some distance from the cask.

**Calculated Values**

**>190 mrem/hr gamma on vertical surface**

**-OR-**

**> 10 mrem/hr neutron on vertical surface**

**-OR-**

**> 900 mrem/hr (neutron + gamma) on the top**

Security-related events for ISFSIs are covered under ICs **PD-HU1** and **HA1**.

## ADMINISTRATIVE CHANGES, DIFFERENCES AND DEVIATIONS FROM GENERIC E-HU1

### Administrative Change

#### Example Emergency Action Levels

Replaced (site-specific technical specification allowable radiation level) with NAC Certificate of Compliance, Appendix A, Technical Specification limits of LCO 3.3.1

### Differences

#### Deleted Operating Mode Applicability – Not Applicable

This line does not have meaning during decommissioning and does not provide any value. This elimination has been previously accepted by the NRC and is reflected in the current DSEP.

#### Changed “Example Emergency Action Levels” to “Emergency Action Level Threshold Value”

This change does not change the intent of heading and provides clarification to personnel reading the DSEP. This change has been previously accepted by the NRC and is reflected in the current DSEP.

#### Example Emergency Action Levels

Added Calculated Values that provides the “2 times the NAC Certificate of Compliance, Appendix A, Technical Specification limits of LCO 3.3.1” levels.

### Basis

Changed HU1 to PD-HU1

ZNPS is a permanently defueled facility.

### Deviations

### Basis

Deleted HA-1 (PD-HA1) from the last sentence.

PD-HA1 is not applicable. Refer to PD-HA1, Justification for Deletion.

**MARKUP**

**PD-AU1**

**ECL: Notification of Unusual Event**

**Initiating Condition:** Release of ~~gaseous~~ airborne or liquid radioactivity greater than 2 times the (site specific effluent release controlling document) **ODCM/RETS** limits for 60 minutes or longer.

**Operating Mode Applicability: Not Applicable**

**Example Emergency Action Level Threshold Values:** (1 or 2)

**Notes:**

- The Emergency Director should declare the UNUSUAL EVENT promptly upon determining that 60 minutes has been exceeded, or will likely be exceeded.
- If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 60 minutes.
- If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.

(1) Reading on ANY *of the following* effluent radiation monitor greater than 2 times the alarm setpoint established by a current radioactivity discharge permit the **ODCM/RETS** for 60 minutes or longer.

**Calculated Values**

<b><i>Monitor</i></b>	<b><i>Discharge Type</i></b>	<b><i>Value (uCi/cc)</i></b>
<b><i>1RIA-PR49</i></b>	<b><i>Particulate</i></b>	<b><i>1.11E-7 uCi/cc</i></b>
<b><i>2RIA-PR49</i></b>	<b><i>Particulate</i></b>	<b><i>1610 cpm</i></b>

(2) **Confirmed** sample analysis for an ~~gaseous~~ airborne or liquid release indicates a concentration or release rate greater than 2 times the (site specific effluent release controlling document) **ODCM/RETS** limits for 60 minutes or longer.

**Calculated Values**

**Values for airborne samples will be calculated in accordance with EPIP-17, "Airborne Sample Calculations"**

**Basis:**

This IC addresses a potential decrease in the level of safety of the ~~plant site~~ as indicated by a low-level radiological release that exceeds regulatory commitments for an extended period of time (e.g., an uncontrolled release). It includes any ~~gaseous airborne or liquid~~ radiological release, monitored or un-monitored, including those for which a radioactivity discharge permit is normally prepared.

~~Nuclear power plants incorporate design features intended to control the release of radioactive effluents to the environment. Further, There are administrative controls established to prevent unintentional releases, and to control and monitor intentional releases. The occurrence of an extended, uncontrolled radioactive release to the environment is indicative of degradation in these features and/or controls.~~

Radiological effluent EALs are also included to provide a basis for classifying events and conditions that cannot be readily or appropriately classified on the basis of ~~plant site~~ conditions alone. The inclusion of both ~~plant site~~ condition and radiological effluent EALs more fully addresses the spectrum of possible accident events and conditions.

Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.

Releases should not be prorated or averaged. For example, a release exceeding 4 times release limits for 30 minutes does not meet the EAL.

*The ODCM/RETS multiples are specified in PD-AU1 and PD-AA1 only to distinguish between non-emergency conditions, and from each other. While these multiples obviously correspond to an off-site dose or dose rate, the emphasis in classifying these events is the degradation in the level of safety of the plant, not the magnitude of the associated dose or dose rate.*

EAL #1 - This EAL addresses radioactivity releases that cause effluent radiation monitor readings to exceed ~~the threshold identified in the EAL. This EAL is intended for effluent monitoring on routine release pathways for which a discharge permit would not normally be prepared.~~

*The effluent monitors listed are those normally used for routine release pathways. If a discharge is performed using a different flowpath or effluent monitor other than those listed (e.g., a portable or temporary effluent monitor), then the declaration criteria will be based on the monitor specified in the different flowpath.*

~~2 times the limit established by a radioactivity discharge permit. This EAL will typically be associated with planned batch releases from non-continuous release pathways (e.g., radwaste, waste gas).~~

EAL #2 - This EAL addresses uncontrolled ~~gaseous or liquid~~ **airborne** releases that are detected by sample analyses or environmental surveys, particularly on unmonitored pathways (e.g. spills of radioactive liquids into storm drains, heat exchanger leakage in river water systems, etc.).

Escalation of the emergency classification level would be via IC PD-AA1.

## ADMINISTRATIVE CHANGES, DIFFERENCES AND DEVIATIONS FROM GENERIC PD-AU1

### Administrative Changes

#### Initiating Condition & EAL (2)

Replaced (site-specific effluent release controlling document) with the ODCM/RETS.

### Differences

#### Deleted Operating Mode Applicability

This line does not have meaning during decommissioning and does not provide any value. This elimination has been previously accepted by the NRC and is reflected in the current DSEP.

#### Changed “Example Emergency Action Levels” to “Emergency Action Level Threshold Value”

This change does not change the intent of heading and provides clarification to personnel reading the DSEP. This change has been previously accepted by the NRC and is reflected in the current DSEP.

#### Deleted Operating Mode Applicability: Not Applicable

This line does not have meaning during decommissioning and does not provide any value. This elimination has been previously accepted by the NRC and is reflected in the DSEP.

#### EAL (1)

Added a table providing the monitor, discharge type and calculated value that would result in the UNUSUAL EVENT being declared.

ZNPS current conditions limit the number and locations of effluent radiation monitors. Potential airborne releases are monitored using the Auxiliary Building vent stack monitors.

Changed “by a current radioactive discharge permit” to “the ODCM/RETS”. All planned discharges will use ODCM/RETS values.

#### EAL (2)

Changed “a gaseous” to “an airborne”

Refer to the explanation under Initiating Condition.

Added reference to the EPIP for calculating sample values

Basis

First and third paragraphs: Changed plant to site.

The use of site is more appropriate to the existing conditions. It does not change the intent of the basis statement.

First paragraph: Changed gaseous to airborne.

Refer to explanation under Initiating Condition.

Second paragraph: Deleted “Nuclear power plants incorporate design features intended to control the release of radioactive effluents to the environment. Further” and “features and/or”.

As decommissioning activities proceed the mentioned design features will be progressively eliminated. ZNPS will rely on administrative controls to ensure appropriate control and monitoring is accomplished during activities that have the potential to release radioactivity to the environment. This does not change the intent that activities that could produce a release of radioactivity are controlled and monitored.

Sixth paragraph: Changed “a radioactivity discharge permit” to “the ODCM/RETS”.

Discharge limits will be based upon ODCM/RETS limits.

Sixth and seventh paragraphs: Deleted the parenthetical examples.

The examples may or may not be applicable as decommissioning activities proceed and might introduce confusion. Providing examples is better addressed by training. The deletion does not change intent.

Deviations

Initiating Condition

Changed “gaseous” to “airborne”

With the removal of all spent fuel from the Spent Fuel Pool there is no longer a source for a gaseous release, however, some decommissioning activities have the potential to allow an airborne release of particulate matter to the environment. The use of airborne is more reflective of the potential release possible on site.

Deleted "liquid"

There are no continuous liquid release pathways. There is one batch liquid release pathway for radiological effluents. This pathway is monitored during a release with an automatic release isolation function set at 50% of the ODCM limit including dilution flow. Each batch liquid release tank is administratively controlled to 80% of the ODCM limit not including dilution flow prior to discharge. Therefore, no batch liquid release will exceed the EAL threshold value.

**MARKUP**

**PD-AU2**

**ECL:** Notification of Unusual Event

**Initiating Condition:** UNPLANNED rise in plant radiation levels.

**Operating Mode Applicability:** Not Applicable

**Example Emergency Action Level Threshold Value:** (1) or 2)

(1) a. ~~UNPLANNED water level drop in the spent fuel pool as indicated by ANY of the following:~~

~~(site specific level indications).~~

~~AND~~

b. ~~UNPLANNED rise in area radiation levels as indicated by ANY of the following radiation monitors.~~

~~(site specific list of area radiation monitors).~~

(2) UNPLANNED VALID Area Radiation Monitor reading or survey results indicate rise by a factor of 1000 over NORMAL LEVELS.

~~Radiation monitor reading or survey result indicates an UNPLANNED rise of 25 mR/hr.~~

**Basis:**

This IC addresses elevated plant radiation levels caused by a decrease in water level above irradiated (spent) fuel or other UNPLANNED events. The increased radiation levels are indicative of a minor loss in the ability to control radiation levels within the plant or radioactive materials which is a potential degradation in the level of safety at the site. Either condition is a potential degradation in the level of safety of the plant.

A water level decrease will be primarily determined by indications from available level instrumentation. Other sources of level indications may include reports from plant personnel or video camera observations (if available). A significant drop in the water level may also cause an increase in the radiation levels of adjacent areas that can be detected by monitors in those locations.

***EAL #1 excludes radiation level increases that result from planned activities such as use of radiographic sources and movement of radioactive waste materials. The specific list of ARMs is not required, as it would restrict the applicability of the threshold. The intent is to identify loss of control of radioactive material in any monitored area. Survey results are not required for confirmation of area radiation monitor readings but are applicable to areas where area radiation monitors do not have sufficient range to indicate a rise by a factor of 1000 over NORMAL LEVELS.***

~~The effects of planned evolutions should be considered. Note that EAL #1 is applicable only in cases where the elevated reading is due to an UNPLANNED water level drop. EAL #2 excludes radiation level increases that result from planned activities such as use of radiographic sources and movement of radioactive waste materials.~~

## ADMINISTRATIVE CHANGES, DIFFERENCES AND DEVIATIONS FROM GENERIC PD-AU2

### Differences

#### Deleted Operating Mode Applicability: Not Applicable

This line does not have meaning during decommissioning and does not provide any value. This elimination has been previously accepted by the NRC and is reflected in the current DSEP.

#### Example Emergency Action Levels

##### Changed "Example Emergency Action Levels to "Emergency Action Level Threshold Value"

This change does not change the intent of heading and provides clarification to personnel reading the DSEP. This change has been previously accepted by the NRC and is reflected in the current DSEP.

### Deviations

#### Example Emergency Action Levels

##### EAL (1)a and (1)b

###### Deleted

This EAL is associated with facilities that are storing spent fuel in a Spent Fuel Pool. All spent fuel has been removed from the ZNPS Spent Fuel Pool and has been transferred to the ISFSI, therefore, this EAL is no longer applicable.

##### EAL (2)

###### Changed "25mR/hr" to "rise by a factor of 1000 over NORMAL LEVELS"

The NEI 99-01, Revision 6 example of 25 mR/hr is too restrictive for active decommissioning and is not considered a potential degradation in the level of safety of the site. The rise by a factor of 1000 over NORMAL LEVELS is more conducive for active decommissioning and would be considered a potential degradation in the level of safety of the site.

### Basis

Based on the removal and transfer of spent fuel the following changes have been made in the Basis:

#### First paragraph

Deleted - "a decrease in water level above irradiated (spent) fuel or other"

Deleted - "radiation level within the plant"

Deleted - "Either condition is a potential degradation in the level of safety of the plant."

Added – “which is a potential degradation in the level of safety at the site.” To the end of the remaining second sentence.

Second paragraph  
Deleted in entirety.

Third paragraph  
Deleted – Note that EAL #1 is applicable only in cases where the elevated reading is due to an UNPLANNED water level drop.”

Changed EAL #2 to EAL #1. This resulted in removing “2” from the parenthetical in the Emergency Action Level Threshold Values heading.

Last line  
Eliminated IC PD-AA2  
PD-AA2 is not valid for ZNPS for its current condition.

**MARKUP**

**PD-AA1**

**ECL: Alert**

**Initiating Condition:** Release of airborne radioactivity to the environment greater than 200 times the ODCM/RETS for 15 minutes or longer. Emergency Action Level Threshold Values: (1 or 2)

~~Release of gaseous particulate or liquid radioactivity resulting in offsite dose greater than 10 mRem TEDE or 50 mRem thyroid CDE.~~

**Operating Mode Applicability:** ~~Not Applicable~~

**Example-Emergency Action Level Threshold Values:** (1 or 2 or 3 or 4)

**Notes:**

- The Emergency Director should declare the Alert promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
- If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded 15 minutes.
- If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.
- ~~The pre-calculated effluent monitor values presented in EAL #1 should be used for emergency classification assessments until the results from a dose assessment using actual meteorology are available.~~

(1) VALID reading on effluent radiation monitors greater than 200 times the alarm setpoint established by the ODCM/RETS for 15 minutes or longer:

~~Reading on ANY of the following radiation monitors greater than the reading shown for 15 minutes or longer:~~

~~(site specific monitor list and threshold values)~~

(2) ~~Confirmed sample analysis for an airborne release indicates a concentration or release rate greater than 200 times the ODCM/RETS limits for 15 minutes or longer. Dose assessment using actual meteorology indicates doses greater than 10 mRem TEDE or 50 mRem thyroid CDE at or beyond (site specific dose receptor point)~~

(3) ~~Analysis of a liquid effluent sample indicates a concentration or release rate that would result in doses greater than 10 mRem TEDE or 50 mRem thyroid CDE at or beyond (site specific dose receptor point) for one hour of exposure.~~

(4) Field survey results indicate ~~EITHER~~ of the following at or beyond (site specific dose receptor point):

- ~~Closed window dose rates greater than 10 mR/hr expected to continue for 60 minutes or longer.~~
- ~~Analyses of field survey samples indicate thyroid CDE greater than 50 mRem for one hour of inhalation.~~

**Basis:**

*This IC addresses an actual or substantial potential decrease in the level of safety of the site as indicated by a radiological release that exceeds regulatory commitments for an extended period of time (e.g., an uncontrolled release). It includes any airborne radiological release, monitored or un-monitored, including those for which a radioactivity discharge permit is normally prepared.*

*There are administrative controls established to prevent unintentional releases, and to control and monitor intentional releases. The occurrence of an extended, uncontrolled radioactive release to the environment is indicative of degradation in these controls.*

*Radiological effluent EALs are also included to provide a basis for classifying events and conditions that cannot be readily or appropriately classified on the basis of site conditions alone. The inclusion of both site condition and radiological effluent EALs more fully addresses the spectrum of possible accident events and conditions.*

*Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.*

*Releases should not be prorated or averaged. For example, a release exceeding 600 times release limits for 5 minutes does not meet the EAL.*

*The ODCM/RETS multiples are specified in PD-AU1 and PD-AA1 only to distinguish between non-emergency conditions, and from each other. While these multiples obviously correspond to an off-site dose or dose rate, the emphasis in classifying these events is the degradation in the level of safety of the plant, not the magnitude of the associated dose or dose rate.*

*EAL #1 - This EAL addresses radioactivity releases that cause effluent radiation monitor readings to exceed the threshold identified in the EAL. This EAL is intended for effluent monitoring on routine release pathways for which a discharge permit would not normally be prepared. The effluent monitors listed are those normally used for routine release pathways. If a discharge is performed using a different flowpath or effluent monitor other than those listed (e.g., a portable or temporary effluent monitor), then the declaration criteria will be based on the monitor specified in the different flowpath.*

Calculated Values

<i>Monitor</i>	<i>Discharge Type</i>	<i>Value</i>
<i>1RIA-PR49</i>	<i>Particulate</i>	<i>1.11 E-5 <math>\mu</math>Ci/cc</i>
<i>2RIA-PR49</i>	<i>Particulate</i>	<i>161,000 cpm</i>

*EAL #2 - This EAL addresses uncontrolled gaseous releases that are detected by sample analyses or environmental surveys.*

Calculated Values

*Values for airborne samples will be calculated in accordance with EPIP-17, "Airborne Sample Calculations"*

~~This IC addresses a release of gaseous or liquid radioactivity that results in projected or actual offsite doses greater than or equal to 1% of the EPA Protective Action Guides (PAGs). It includes both monitored and un-monitored releases. Releases of this magnitude represent an actual or potential substantial degradation of the level of safety of the plant as indicated by a radiological release that significantly exceeds regulatory limits (e.g., a significant uncontrolled release).~~

~~Radiological effluent EALs are also included to provide a basis for classifying events and conditions that cannot be readily or appropriately classified on the basis of plant conditions alone. The inclusion of both plant condition and radiological effluent EALs more fully addresses the spectrum of possible accident events and conditions.~~

~~The TEDE dose is set at 1% of the EPA PAG of 1,000 mRem while the 50 mRem thyroid CDE was established in consideration of the 1:5 ratio of the EPA PAG for TEDE and thyroid CDE.~~

~~Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.~~

**ADMINISTRATIVE CHANGES, DIFFERENCES AND DEVIATIONS FROM  
GENERIC PD-AA1**

Differences

Operating Mode Applicability: Not Applicable

Deleted

This line does not have meaning during decommissioning and does not provide any value. This elimination has been previously accepted by the NRC and is reflected in the current DSEP.

Example Emergency Action Levels

Changed “Example Emergency Action Levels to “Emergency Action Level Threshold Value”

This change does not change the intent of heading and provides clarification to personnel reading the DSEP. This change has been previously accepted by the NRC and is reflected in the current DSEP.

Deviations

Initiating Condition

Retained the DSEP, Revision 15, Initiating Condition

The use of the Revision 15, Initiating Condition, using 200 times the ODCM/RETS limits using the installed radiation monitors results in less than the 10 mrem TEDE dose at the site boundary. In ZNPS’ current state of decommissioning, it is also a quicker and easier method of determining if conditions warrant an ALERT classification. Spent fuel has been removed from the Spent Fuel Pool and placed in dry storage at the ISFSI. In this condition the primary contributor to thyroid dose has been effectively eliminated.

Changed “gaseous” to “airborne”

Spent fuel has been removed from the Spent Fuel Pool and placed in dry storage at the ISFSI. In this condition gaseous radioactive releases are highly unlikely, while an airborne particulate release remains possible.

Deleted "liquid"

There are no continuous liquid release pathways. There is one batch liquid release pathway for radiological effluents. This pathway is monitored during a release with an automatic release isolation function set at 50% of the ODCM limit including dilution flow. Each batch liquid release tank is administratively controlled to 80%

of the ODCM limit not including dilution flow prior to discharge. Therefore, no batch liquid release will exceed the EAL threshold value.

#### Example Emergency Action Levels

Aligned EALs to the Initiating Condition associated with the use of a threshold value based on 200 times the ODCM/RETS limits and the elimination of liquid releases.

#### Basis

Established Basis to support the Initiating Condition associated with the use of a threshold value based on 200 times the ODCM/RETS limits and the elimination of liquid releases.

**THIS RECOGNITION CATEGORY IS NOT USED**

**PD-AA2**

**ECL: Alert**

**Initiating Condition:** UNPLANNED rise in plant radiation levels that impedes plant access required to maintain spent fuel integrity.

**Example Emergency Action Level Threshold Values: (1 or 2)**

(1) UNPLANNED dose rate greater than 15 mR/hr in ANY of the following areas requiring continuous occupancy to maintain control of radioactive material or operation of systems needed to maintain spent fuel integrity:

(site specific area list)

(2) UNPLANNED Area Radiation Monitor readings or survey results indicate a rise by 100 mR/hr over NORMAL LEVELS that impedes access to ANY of the following areas needed to maintain control of radioactive material, or operation of systems needed to maintain spent fuel integrity.

(site specific area list)

**Basis:**

This IC addresses increased radiation levels that impede necessary access to areas containing equipment that must be operated manually or that requires local monitoring, in order to maintain systems needed to maintain spent fuel integrity. As used here, 'impede' includes hindering or interfering, provided that the interference or delay is sufficient to significantly threaten necessary plant access. It is this impaired access that results in the actual or potential substantial degradation of the level of safety of the plant.

This IC does not apply to anticipated temporary increases due to planned events.

### **JUSTIFICATION FOR ELIMINATION OF PD-AA2**

As stated in the Basis this Initiating Condition addresses increased radiation levels that impede necessary access to areas containing equipment that must be operated manually or that requires local monitoring, in order to maintain systems needed to maintain spent fuel integrity. As used here, ‘impede’ includes hindering or interfering, provided that the interference or delay is sufficient to significantly threaten necessary plant access. It is this impaired access that results in the actual or potential substantial degradation of the level of safety of the plant. Also, in the U.S. Nuclear Regulatory Commission Review and Endorsement of NEI 99-01, Revision 6, Dated November, 2012 (TAC No. D92368), Appendix C, Evaluation of Specific and Significant Changes Made to NEI 99-01, Revision 5, Scheme Development Guidance, 2.9.2, EAL Set PD-AU2 to AA2, PD-AA2 states “This initiating condition addresses increased radiation levels that impeded necessary access to areas containing equipment that must be operated manually or that require local monitoring, in order to maintain systems needed to maintain spent fuel integrity.

For ZNPS all spent fuel has been removed from the Spent Fuel Pool and relocated to dry storage at the ISFSI, therefore, there is no longer any equipment that requires manual operation or local monitoring to maintain spent fuel integrity.

For the ISFSI, the MAGNASTOR system is a dry storage system relying on passive, natural convection for spent fuel cooling. There is no equipment that requires manual operation or local monitoring to maintain spent fuel integrity.

## MARKUP

**PD-HU1**

**ECL:** Notification of Unusual Event

**Initiating Condition:** Confirmed SECURITY CONDITION or threat.

**Operating Mode Applicability:** Not Applicable

**Example Emergency Action Levels Level Threshold Values:** (1 or 2 or 3)

(1) A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the (site specific security shift supervision) Confirmed SECURITY CONTINGENCY EVENT at the ISFSI that results in the necessity for LLEA to respond to the ISFSI.

(2) Notification of a credible security threat directed at the site. Notification of a credible threat to the site, reported by the NRC or other recognized of site agency, that presents a risk to site personnel, a potential degradation to the level of safety at the site or a security threat to the ISFSI.

(3) A validated notification from the NRC providing information of an aircraft threat.

**Basis:**

This IC addresses events that pose a threat to plant site personnel or the equipment necessary to maintain cooling of spent fuel ISFSI, and thus represent a potential degradation in the level of plant safety.

Security events which do not meet one of these EALs are adequately addressed by the requirements of 10 CFR § 73.71 or 10 CFR § 50.72. Security events assessed as HOSTILE ACTIONS are classifiable under IC PD-HA1.

Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security related event. Classification of these events will initiate appropriate threat-related notifications to plant site and ISFSI personnel and OROs offsite organizations.

Security plans and terminology are based on the guidance provided by NEI 03-12, Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program].

EAL #1 addresses threats to the ISFSI requiring assistance from the LLEA. These threats are discussed in detail in the ISFSI Physical Security Plan.

references (site specific security shift supervision) because these are the individuals trained to confirm that a security event is occurring or has occurred. Training on security event confirmation and classification is controlled due to the nature of Safeguards and 10 CFR § 2.39 information.

EAL #2 addresses the receipt of a credible security threat *that presents a risk to personnel or degradation of safety at the site. The credibility of the threat is assessed in accordance with (site-specific procedure). The threat is assumed to be credible if reported by the NRC.*

~~EAL #3 addresses the threat from the impact of an aircraft on the plant. The NRC Headquarters Operations Officer (HOO) will communicate to the licensee if the threat involves an aircraft. The status and size of the plane may also be provided by NORAD through the NRC. Validation of the threat is performed in accordance with (site-specific procedure).~~

Emergency plans and implementing procedures are public documents; therefore, EALs should not incorporate Security-sensitive information. This includes information that may be advantageous to a potential adversary, such as the particulars concerning a specific threat or threat location. Security-sensitive information should be contained in non-public documents such as the Security Plan.

~~Escalation of the emergency classification level would be via IC PD-HA1.~~

**ADMINISTRATIVE CHANGES, DIFFERENCES AND DEVIATIONS FROM  
GENERIC PD-HU1**

Differences

**Deleted Operating Mode Applicability: Not Applicable**

This line does not have meaning during decommissioning and does not provide any value. This elimination has been previously accepted by the NRC and is reflected in the DSEP.

**Changed “Example Emergency Action Levels to “Emergency Action Level Threshold Value”**

This change does not change the intent of heading and provides clarification to personnel reading the DSEP. This change has been previously accepted by the NRC and is reflected in the DSEP.

**Example Emergency Action Levels**

**EAL (3)**

**Deleted “validated”**

Notifications made by the NRC are assumed to be valid and will be acted upon.

Basis

**First paragraph**

Changed “plant” to “site” in the first line and deleted “plant” from the last sentence.

These changes better reflect the current condition of ZNPS.

**Third paragraph**

**Deleted “plant”.**

This change better reflects the current condition of ZNPS.

**Changed “ORO” to “offsite organizations”**

ZNPS has requested and been granted exemptions from regulations requiring response from offsite site organizations (Offsite Response Organizations (ORO)). Appropriate off site organizations are still informed of emergencies at the site and can be requested to respond.

**Sixth paragraph**

Changed “The credibility of the threat is assessed in accordance with (site specific procedures).” with “The threat is assumed to be credible when reported by the NRC.

Self-Explanatory

## Deviations

### Example Emergency Action Levels

#### EAL (1)

Changed “A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the (site-specific security shift supervision)” to “Confirmed SECURITY CONTINGENCY EVENT at the ISFSI that results in the necessity for LLEA to respond to the ISFSI.”

As defined in NEI 99-01, Rev. 6, a SECURITY CONDITION IS: “Any Security Event as listed in the approved security contingency plan that constitutes a threat/compromise to site security, threat/risk to site personnel, or a potential degradation to the level of safety of the plant.” Because spent fuel has been removed from the Spent Fuel Pool and transferred to the ISFSI, the ZNPS Physical Security Plan has been rescinded along with associated security contingency plans. The ISFSI Physical Security Plan has security contingency plans and is therefore applicable. The reference to the (site specific security shift supervisor) is not needed since the individual responsible for confirming events is the ISFSI Shift Supervisor, who is a member of the ISFSI security force.

#### EAL (2)

Changed “Notification of a credible security threat directed at the site.” to “Notification of a credible threat to the site, reported by the NRC or other recognized site agency, that presents a risk to site personnel, a potential degradation to the level of safety at the site, or a security threat to the ISFSI.”

Spent fuel has been removed from the Spent Fuel Pool and transferred to dry storage at the ISFSI. With the subsequent equipment and organizational changes that result, shifts security incidents to the ISFSI and makes ZNPS activities more personnel safety based.

#### EAL (3)

Deleted

ZS has an exemption request in process that exempts ZNPS and the ISFSI from requiring emergency plan measures for HOSTILE ACTIONS. This exemption has been previously approved for other licensees

## Basis

### First paragraph

Changed “equipment necessary to maintain cooling of spent fuel” to “ISFSI”.

### Second paragraph

Deleted “Security events assessed as HOSTILE ACTIONS at the ISFSI are classifiable under IC PD-HA1.”

Initiating Condition PD-HA1 is not applicable. ZS has an exemption request in process that exemptsZNPS and the ISFSI from requiring emergency plan measures for HOSTILE ACTIONS. This exemption has been previously approved for other licensees.

**Third paragraph**

Deleted “Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security-related event

Spent fuel has been removed from the Spent Fuel Pool and transferred to dry storage at the ISFSI. With the subsequent equipment and organizational changes that result, including the deactivation of the Control Room and operations staff, the classification of security related events is limited to the ISFSI. The Emergency Director responsibilities have been transitioned to the ISFSI Shift Supervisor, who is part of the ISFSI security force making this statement unnecessary.

**Fifth paragraph**

Deleted “references (site-specific security shift supervision) because these are the individuals trained to confirm that a security event is occurring or has occurred”

The reference to the (site specific security shift supervisor) is not needed since the individual responsible for confirming events is the ISFSI Shift Supervisor, who is a member of the ISFSI security force.

**Sixth paragraph**

Changed “a credible security threat” to “a credible event that presents a risk to personnel or degradation of safety at the site.

Because spent fuel has been removed from the Spent Fuel Pool and transferred to the ISFSI, theZNPS Physical Security Plan has been rescinded therefore there are no credible security threats associated with the site. Security threats associated with the ISFSI are addressed by Threshold Value #1.

**THIS RECOGNITION CATEGORY IS NOT USED**

**PD-HU2**

**ECL:** Notification of Unusual Event

**Initiating Condition:** Hazardous event affecting ~~SAFETY SYSTEM~~ equipment necessary for spent fuel cooling.

**Operating Mode Applicability:** Not Applicable

**Example Emergency Action Levels:**

(1) a. The occurrence of ~~ANY~~ of the following hazardous events:

- Seismic event (earthquake)
- Internal or external flooding event
- High winds or tornado strike
- FIRE
- EXPLOSION
- (site specific hazards)
- Other events with similar hazard characteristics as determined by the Shift Manager

**AND**

b. The event has damaged at least one train of a ~~SAFETY SYSTEM~~ needed for spent fuel cooling.  
**AND**

e. The damaged ~~SAFETY SYSTEM~~ train(s) cannot, or potentially cannot, perform its design function based on ~~EITHER~~:

- Indications of degraded performance
- VISIBLE DAMAGE

**Basis:**

This IC addresses a hazardous event that causes damage to at least one train of a ~~SAFETY SYSTEM~~ needed for spent fuel cooling. The damage must be of sufficient magnitude that the system(s) train cannot, or potentially cannot, perform its design function. This condition reduces the margin to a loss or potential loss of the fuel clad barrier, and therefore represents a potential degradation of the level of safety of the plant.

For EAL 1.c, the first bullet addresses damage to a ~~SAFETY SYSTEM~~ train that is in service/operation since indications for it will be readily available.

~~For EAL 1.c, the second bullet addresses damage to a SAFETY SYSTEM train that is not in service/operation or readily apparent through indications alone. Operators will make this determination based on the totality of available event and damage report information. This is intended to be a brief assessment not requiring lengthy analysis or quantification of the damage.~~ NEI 99-01 (Revision 6) November 2012 C-12

~~Escalation of the emergency classification level could, depending upon the event, be based on any of the Alert ICs; PD-AA1, PD-HA1 or PD-HA3.~~

### **JUSTIFICATION FOR ELIMINATION OF PD-HU2**

As stated in Initiating Condition for the EAL, it addresses Hazardous event affecting SAFETY SYSTEM equipment necessary for spent fuel cooling.

All spent fuel has been removed from the Spent Fuel Pool and transferred to the ISFSI. In this condition there is no SAFETY SYSTEM equipment required to maintain spent fuel cooling. This passive mechanism used by the MAGNASTOR system for cooling spent fuel and the controls established in the MAGNASTOR Technical Specifications preclude the need for this EAL

**MARKUP**

**PD-HU3**

**ECL: Notification of Unusual Event**

**Initiating Condition:** Other conditions exist which in the judgment of the Emergency Director warrant declaration of a ~~(NO)UE~~ ***an UNUSUAL EVENT.***

**Operating Mode Applicability: Not Applicable**

**Example-Emergency Action Levels Level Threshold Values:**

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which indicate a potential degradation of the level of safety ~~of the plant at the site or ISFSI 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.~~

**Basis:**

This IC addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Director to fall under the emergency classification level description for a ~~(NO)UE~~ ***an UNUSUAL EVENT.***

## ADMINISTRATIVE CHANGES, DIFFERENCES AND DEVIATIONS FROM GENERIC PD-HU3

### Differences

#### Initiating Condition:

##### Changed (NO)UE to an UNUSUAL EVENT

This is just a difference in the terminology used to express the same situation. (NO)UE is the abbreviated form of Notification of Unusual Event which is the regulatory language. Common industry usage shortens this to UNUSUAL EVENT. This change does not affect the intent, is currently used in the DSEP and has been previously accepted by the NRC.

##### Deleted Operating Mode Applicability: Not Applicable

This line does not have meaning during decommissioning and does not provide any value. This elimination has been previously accepted by the NRC and is reflected in the DSEP.

#### Example Emergency Action Levels

##### Changed “Example Emergency Action Levels” to “Emergency Action Level Threshold Value”

This change does not change the intent of heading and provides clarification to personnel reading the DSEP. This change has been previously accepted by the NRC and is reflected in the DSEP.

##### Changed “of the plant” to “at the site”

#### Basis

##### Changed (NO)UE to an UNUSUAL EVENT

Refer to explanation under Initiating Condition.

#### Deviations

#### Example Emergency Action Levels

##### Deleted “or indicate a security threat to facility protection has been initiated.”

##### Deleted “unless further degradation of safety systems occurs”

All spent fuel has been removed from the Spent Fuel pool and transferred to the ISFSI. There are no “safety systems” that could undergo “further degradation”

**THIS RECOGNITION CATEGORY IS NOT USED**

**PD-HA1**

**ECL: Alert**

**Initiating Condition:** HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes.

**Operating Mode Applicability:** Not Applicable

**Example Emergency Action Levels:** (1 or 2)

(1) A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the (site specific security shift supervision).

(2) A validated notification from NRC of an aircraft attack threat within 30 minutes of the site.

**Basis:**

This IC addresses the occurrence of a HOSTILE ACTION within the OWNER CONTROLLED AREA or notification of an aircraft attack threat. This event will require rapid response and assistance due to the possibility of the attack progressing to the ISFSI PROTECTED AREA, or the need to prepare the plant and staff for a potential aircraft impact.

Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security related event.

Security plans and terminology are based on the guidance provided by NEI 03-12, *Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]*.

As time and conditions allow, these events require a heightened state of readiness by the plant staff and implementation of onsite protective measures (e.g., evacuation, dispersal or sheltering). The Alert declaration will also heighten the awareness of Offsite Response Organizations, allowing them to be better prepared should it be necessary to consider further actions.

This IC does not apply to incidents that are accidental events, acts of civil disobedience, or otherwise are not a HOSTILE ACTION perpetrated by a HOSTILE FORCE. Examples include the crash of a small aircraft, shots from hunters, physical disputes between employees, etc. Reporting of these types of events is adequately addressed by other EALs, or the requirements of 10 CFR § 73.71 or 10 CFR § 50.72.

EAL #1 is applicable for any HOSTILE ACTION occurring, or that has occurred, in the OWNER CONTROLLED AREA. This includes any action directed against an ISFSI that is located within the OWNER CONTROLLED AREA.

EAL #2 addresses the threat from the impact of an aircraft on the plant, and the anticipated arrival time is within 30 minutes. The intent of this EAL is to ensure that threat related

~~notifications are made in a timely manner so that plant personnel and OROs are in a heightened state of readiness. This EAL is met when the threat-related information has been validated in accordance with (site-specific procedure).~~

~~The NRC Headquarters Operations Officer (HOO) will communicate to the licensee if the threat involves an aircraft. The status and size of the plane may be provided by NORAD through the NRC.~~

~~In some cases, it may not be readily apparent if an aircraft impact within the OWNER CONTROLLED AREA was intentional (i.e., a HOSTILE ACTION). It is expected, although not certain, that notification by an appropriate Federal agency to the site would clarify this point. In this case, the appropriate federal agency is intended to be NORAD, FBI, FAA or NRC. The emergency declaration, including one based on other ICs/EALs, should not be unduly delayed while awaiting notification by a Federal agency.~~

~~Emergency plans and implementing procedures are public documents; therefore, EALs should not incorporate Security-sensitive information. This includes information that may be advantageous to a potential adversary, such as the particulars concerning a specific threat or threat location. Security-sensitive information should be contained in non-public documents such as the Security Plan.~~

## **JUSTIFICATION FOR ELIMINATION OF PD-HA1**

The EP Final Rule published in the Federal Register (76 FR 72560; November 23, 2011) amended certain requirements in 10 CFR Part 50. Among the changes, the definition of "hostile action" was added as an act directed toward a Nuclear Power Plant (NPP) or its personnel. This definition is based on the definition of "hostile action" provided in NRC Bulletin 2005-02. NRC Bulletin 2005-02 was not applicable to nuclear power reactors that have permanently ceased operations and have certified that fuel has been removed from the reactor vessel. The NRC excluded non-power reactors (NPR) from the definition of "hostile action" at that time because an NPR is not a nuclear power plant and a regulatory basis had not been developed to support the inclusion of nonpower reactors in that definition. Likewise, an ISFSI is not a nuclear power plant as defined in the NRC's regulations. The staff also considered the similarities between a decommissioning NPP and a nonpower reactor to determine whether they should be included within the definition of "hostile action." NPRs pose lower radiological risks to the public from accidents than do power reactors because: (1) the core radionuclide inventories are lower as a result of their lower power levels and often shorter operating cycle lengths; and (2) NPRs have lower decay heat associated with a lower risk of core melt and fission product release in a loss-of-coolant accident.

This justification is based on information provided in NSIR/DPR-ISG-02, Interim Staff Guidance, "Emergency Planning Exemption Requests For Decommissioning Nuclear Power Plants", Table 1, "Exemptions for Considerations" relating to HOSTILE ACTIONS. The Table provides wording acceptable to the NRC regarding the Basis for Change.

ZNPS has submitted exemption requests relating to the elimination of HOSTILE ACTION.

**MARKUP**

**PD-HA3**

**ECL: Alert**

**Initiating Condition:** Other conditions exist which in the judgment of the Emergency Director warrant declaration of an ~~Alert~~ ***AERT***.

**~~Operating Mode Applicability: Not Applicable~~**

***Example-Emergency Action Levels Level Threshold Values:***

(1) Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety ~~of the plant at the site or a security an~~ event that involves probable life threatening risk ~~to site~~ personnel ~~or damage to site equipment because of HOSTILE ACTION.~~ Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

**Basis:**

This IC addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Director to fall under the emergency classification level description for an ~~Alert~~ ***AERT***.

**ADMINISTRATIVE CHANGES, DIFFERENCES AND DEVIATIONS FROM  
GENERIC PD-HA3**

**Administrative Changes**

Changed “Alert” to “ALERT”

**Differences**

**Operating Mode Applicability:** Not Applicable

**Deleted**

This line does not have meaning during decommissioning and does not provide any value. This elimination has been previously accepted by the NRC and is reflected in the current DSEP.

**Example Emergency Action Levels**

Changed “Example Emergency Action Levels” to “Emergency Action Level Threshold Value”

This change does not change the intent of heading and provides clarification to personnel reading the DSEP. This change has been previously accepted by the NRC and is reflected in the DSEP.

Changed “at the plant” to “at the site”

This change is more reflective of current conditions.

**Deviations**

**Example Emergency Action Levels**

Changed “security event” to “event”

**Deleted “or damage to site equipment because of Hostile Action”**

ZionSolutions (ZS) has an exemption request in process that exempts ZNPS and the ISFSI from requiring emergency plan measures for HOSTILE ACTIONS. This exemption has been previously granted for other licensees. When granting the exemption(s) the NRC has stated that permanently defueled facilities with fuel being stored in a spent fuel pool or ISFSI do not meet the definition of a nuclear power plant for which the regulation was intended.

**THIS RECOGNITION CATEGORY IS NOT USED**

**PD-SU1**

**ECL:** ~~Notification of Unusual Event~~

**Initiating Condition:** ~~UNPLANNED spent fuel pool temperature rise.~~

**Operating Mode Applicability:** Not Applicable

**Example Emergency Action Levels:**

(1) ~~UNPLANNED spent fuel pool temperature rise to greater than (site specific °F).~~

**Basis:**

~~This IC addresses a condition that is a precursor to a more serious event and represents a potential degradation in the level of safety of the plant. If uncorrected, boiling in the pool will occur, and result in a loss of pool level and increased radiation levels.~~

~~Escalation of the emergency classification level would be via IC PD-AA1 or PD-AA2.~~

### **JUSTIFICATION FOR ELIMINATION OF PD-SU1**

For ZNPS all spent fuel has been removed from the Spent Fuel Pool and relocated to dry storage at the ISFSI, therefore, there are no requirements or consequences associated with monitoring the temperature of the spent fuel pool.

ZionSolutions, LLC  
ZS-2014-0088: Attachment 5

**10 CFR 50.47 &**  
**10 CFR 50.50, APPENDIX E**  
**EXEMPTION REQUEST**

## **Introduction**

ZionSolutions, LLC (ZS) is the holder of Facility Operating License Nos. DPR-39 and DPR-48 which authorize the licensee to possess and store spent nuclear fuel and Greater than Class C (GTCC) radioactive waste at the Zion Nuclear Power Station (ZNPS) Unit Nos. 1 and 2.

On November 23, 2011, the NRC issued a Final Rule promulgating Enhancements to Emergency Preparedness Regulations in the Federal Register (Ref. 1). Pursuant to the Final Rule, licensees are permitted to defer implementation of the final rule until June 20, 2012 with some exceptions. The final rule was described in the Federal Register in terms of six security related emergency planning (EP) issues and six non-security related EP issues.

On August 31, 1999, the NRC issued an exemption (Ref. 2) from certain requirements of 10 CFR 50.47 and Appendix E to 10 CFR Part 50 for the ZNPS based upon requests submitted on April 13, 1999 (Ref. 3) and supplemented on July 8, 1999 (Ref. 4). This exemption was issued to discontinue offsite emergency planning activities and to reduce the scope of onsite emergency planning as a result of the permanently shutdown and defueled status of the facility. The staff concluded that the licensee's request for an exemption was acceptable in view of the greatly reduced offsite radiological consequences associated with the permanently shutdown facility status. The staff found that the postulated dose to the general public from any reasonably conceivable accident would not exceed the Environmental Protection Agency Protective Action Guides (EPA PAGs) and, for the bounding accident, the length of time available to respond to a loss of spent fuel cooling or reduction in water level gives confidence that offsite measures for the public could be taken without preparation.

On June 20, 2012 (Ref. 5) ZS submitted a request to the NRC to carry forward the previously granted exemptions to the updated requirements and requested additional exemptions based on a detailed review of the Final Rule and the decommissioning status of ZNPS. This request is awaiting NRC action. However, in response to ZS' request to carry forward the previously granted exemptions, the NRC issued a letter dated March 19, 2013 (Ref. 6), that stated that existing exemptions from the emergency preparedness requirements in effect before December 23, 2011, still apply provided the basis for the exemptions would support and exemption from the applicable revised requirements.

ZS is submitting the following exemption request based on all spent fuel being removed from the Spent Fuel Pool and transferred to dry cask storage at the Independent Spent Fuel Storage Installation (ISFSI) and the approval of a license amendment request (Ref. 7) removing functional, operational and staffing requirements associated with the storage of spent fuel in the spent fuel pool from the Technical Specifications.

## **Exemption Request and Basis for the Exemption Request**

In accordance with 10 CFR 50.12, "Specific Exemptions," ZionSolutions, LLC is requesting NRC approval of an exemption from specific requirements of 10 CFR 50.47, "Emergency Plans" and 10 CFR 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities". This request is based upon the removal of all spent fuel from the Spent

Fuel Pool and transfer to dry cask storage at the Independent Spent Fuel Storage Installation (ISFSI). It is also based upon the approval of a license amendment request removing functional, operational and staffing requirements associated with the storage of spent fuel in the spent fuel pool from the Technical Specifications.

The specific requested exemptions and the basis for the request are provided in the attached table. Previously granted and/or requested exemptions are indicated by a line out with normal print. The proposed exemptions are indicated by a lineout with bold print. The justifications are based upon exemption requests previously granted by the NRC at one or more of the following facilities:

<u>Facility</u>	<u>Date Exemption Granted</u>
Humboldt Bay	4/29/1987
La Cross	7/8/1988
Fort St. Vrain	12/31/1990
Ranco Seco	2/22/1991
Yankee Rowe	10/30/1992
Trojan	9/30/1993
Haddam Neck	8/28/1998
Maine Yankee	9/3/1998
Big Rock Point	9/30/1998
Zion	8/31/1999

The criteria for granting specific exemptions from 10 CFR 50 regulations are stated in 10 CFR 50.12. In accordance with 10 CFR 50.12(a)(1), the NRC is authorized to grant an exemption upon determining that the exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security.

#### **The Criteria of 10 CFR 50.12(a)(1) Are Satisfied**

Based on the above discussion, application of all of the requirements in 10 CFR 50.47(b) and Appendix E to 10 CFR 50 is not necessary to achieve the underlying purpose of those rules in view of the greatly reduced offsite radiological consequences associated with the current plant status. The requested exemptions are justified, in part because offsite emergency response capability is no longer appropriate as no design basis accident or credible beyond design basis accident can result in radioactive releases which exceed EPA's protective action guides at the site boundary.

**The Requested Exemption is Authorized By Law**

The NRC has the authority under the Atomic Energy Act to grant exemptions from its regulations if doing so would not violate the requirements of law. The exemption is authorized by law as is required by 10 CFR 50.12. No law exists that precludes the activities covered by this exemption request. The provisions of 10 CFR 50.47 and 10 CFR 50, Appendix E were adopted at the discretion of the Commission consistent with its statutory authority. No statute required the NRC to adopt the specific provisions from which ZS seeks an exemption. Rather, the NRC may determine that alternative means are adequate to provide reasonable assurance of safety.

**The Requested Exemption Will Not Present an Undue Risk to the Public Health and Safety, and is Consistent with the Common Defense and Security**

The exemption request would permit ZS to continue to implement emergency planning requirements commensurate with the reduced risk associated with a plant undergoing decommissioning including completion of movement of the spent fuel from the fuel pool to a stand-alone Independent Spent Fuel Storage Installation. Thus the requested exemption will not present an undue risk to the public health and safety and is consistent with the common defense and security.

**The Requested Exemption is in the Public Interest**

The requested exemption is in the public interest, because it will allow ZS to implement a safe approach to maintaining onsite emergency planning without the need by ZS for new systems, equipment, and training programs at a substantial cost without any added safety benefit. Therefore, granting the exemption is in the public interest.

**Environmental Assessment**

In accordance with 10 CFR 51.30 and 51.32, the following information is provided in support of an environmental assessment and finding of no significant impact for the proposed action. The proposed action would grant an exemption from certain requirements of 10 CFR 50.47 and 10 CFR Part 50 Appendix E, which contain requirements for emergency planning. Specifically, the exemption will eliminate unnecessary requirements associated with protective actions, hostile action, emergency facilities and organizational structure in light of the current status of the ZNPS.

Pursuant to 10 CFR 50.82, the ZNPS poses a significantly reduced risk to public health and safety from design basis accidents or credible beyond design basis accidents since these cannot result in radioactive releases which exceed EPA's protective actions guides at the site boundary. Because of this reduced risk, compliance with all the requirements in 10 CFR 50.47 and 10 CFR Part 50 Appendix E is not appropriate. The requested exemption from portions of 10 CFR 50.47 and 10 CFR Part 50 Appendix E is needed to continue decommissioning of the ZNPS and implementing the ZNPS Emergency Plan that is appropriate for a permanently shutdown facility that has removed all spent fuel from the Spent Fuel Pool and transferred it to dry cask storage at

an ISFSI and is commensurate with the reduced risk posed by the facility. The requested exemption will allow safe storage of spent fuel to continue without retaining requirements that provide no increased safety benefit and would preclude the continued decommissioning of ZNPS

The principle alternative to the proposed action would be to deny the requested exemption. Denial of the exemption request would result in no change in environmental impacts. The proposed action (i.e., granting the exemption) will not increase the probability or consequences of accidents, no changes are being made in the types or quantities of effluents that may be released offsite, and there is no significant increase in occupational or public radiation exposure. Therefore, there are no significant radiological environmental impacts associated with the proposed action.

The proposed action does not affect non-radiological plant effluents and has no other environmental impact. Therefore, there are no significant non-radiological impacts associated with the proposed action. Based on the assessment above, the proposed action will not have a significant effect on the quality of the human environment.

Denial of the exemption request, would however, limit ZS' ability to effectively and economically continue decommissioning activities.

### **Conclusion**

ZS considers that this exemption request is in accordance with the criteria of 10 CFR 50.12. Maintaining emergency planning requirements at the ZNPS commensurate with an operating reactor facility or a facility that is storing spent fuel in a Spent Fuel Pool is not necessary to achieve the underlying basis of 10 CFR 50.47 and 10 CFR Part 50 Appendix E. The radiological risk to the public has been significantly reduced because the ZNPS is a facility that has its spent nuclear fuel in dry cask storage. There are no adverse environmental impacts associated with this specific exemption.

### **References**

1. Enhancements to Emergency Preparedness Regulations (76 Federal Register 72560), dated November 23, 2011, effective December 23, 2011 for implementation June 20, 2012 with exceptions.
2. U. S. NRC letter to Commonwealth Edison, "Request for Approval of Defueled Station Emergency Plan and Exemption from Certain Requirements of 10 CFR 47, Emergency Plan," Zion Nuclear Power Station, Unit 1 and Unit 2, dated August 31, 1999.
3. Commonwealth Edison letter to the U. S. NRC, "Request for Approval of Defueled Station Emergency Plan and Exemptions from Certain Requirements of 10 CFR 47, "Emergency Plan," dated April 13, 1999.

4. Commonwealth Edison letter to the U. S NRC, "Supplemental Information for Request for Approval of Defueled Station Emergency Plan and Exemptions from Certain Requirements of 10 CFR 47, Emergency Plan," dated July 8, 1999.
5. ZS-2012-0907, letter from Patrick S. Thurman, Esq. to U.S. Nuclear Regulatory Commission Document Control Desk, "Request for Exemption to Revised Emergency Planning Rule," dated June 20, 2012.
6. ZS-2013-0131. U. S. NRC letter to Patrick Daly, "Applicability of the Emergency Preparedness Final Rule to Zion Nuclear Power Station, Units 1 and2 Decommissioning or Decommissioned Site," dated March 19, 2013.
7. ZS-2014-0058, Letter from John T. Sauger to U.S. Nuclear Regulatory Commission Document Control Desk, " Technical Specification Change Request Related to the Unloaded Spent Fuel Pool," dated March 3, 2014.

**Enclosure 1**

**ZNPS Granted Exemptions from Specific Requirement in 10 CFR 50.47 and 10 CFR 50,  
Appendix E (Granted by NRC - August 30, 1999)**

Historical Requirement Language	Exemption Granted by NRC 8/31/99
<b>10 CFR 50.47</b>	
(b) The onsite and, except as provided in paragraph (d) of this section, offsite emergency response plans for nuclear power reactors must meet the following standards:	(b) The onsite and, <del>except as provided in paragraph (d) of this section, offsite</del> emergency response plans for nuclear power reactors must meet the following standards:
(1) Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the Emergency Planning Zones have been assigned, the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.	(1) Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations <del>within the Emergency Planning Zones</del> 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
(3) Arrangements for requesting and effectively using assistance resources have been made, arrangements to accommodate State and local staff at the licensee's near-site Emergency Operations Facility have been made, and other organizations capable of augmenting the planned response have been identified.	(3) Arrangements for requesting and effectively using assistance resources have been made, <del>arrangements to accommodate State and local staff at the licensee's near-site Emergency Operations Facility have been made,</del> and other organizations capable of augmenting the planned response have been identified.
(4) A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.	(4) A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, <del>and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.</del>

(5) Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and follow up messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.	(5) Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and follow-up messages to response organizations and the public has been established; <del>and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.</del>
(6) Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.	(6) Provisions exist for prompt communications among principal response organizations to emergency personnel <del>and to the public.</del>
(7) Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.	(7) <del>Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.</del>
(9) Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.	(9) Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.
(10) A range of protective actions has been developed for the plume exposure pathway EPZ for emergency workers and the public. <b>In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate.</b> Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.	(10) A range of protective actions have been developed for the plume exposure pathway EPZ for emergency workers and the public. <del>Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.</del>

**10 CFR Part 50 Appendix E to Part 50--Emergency Planning and Preparedness for Production and Utilization Facilities**

**IV. Content of Emergency Plans**

The applicant's emergency plans shall contain, but not necessarily be limited to, information needed to demonstrate compliance with the elements set forth below, i.e., organization for coping with radiation emergencies, assessment action, activation of emergency organization, notification procedures, emergency facilities and equipment, training, maintaining emergency preparedness, and recovery. In addition, the emergency response plans submitted by an applicant for a nuclear power reactor operating license shall contain information needed to demonstrate compliance with the standards described in § 50.47(b), and they will be evaluated against those standards. The nuclear power reactor operating license applicant shall also provide an analysis of the time required to evacuate and for taking other protective actions for various sectors and distances within the plume exposure pathway EPZ for transient and permanent populations.

**IV. Content of Emergency Plans**

The applicant's emergency plans shall contain, but not necessarily be limited to, information needed to demonstrate compliance with the elements set forth below, i.e., organization for coping with radiation emergencies, assessment action, activation of emergency organization, notification procedures, emergency facilities and equipment, training, maintaining emergency preparedness, and recovery. In addition, the emergency response plans submitted by an applicant for a nuclear power reactor operating license shall contain information needed to demonstrate compliance with the standards described in 50.47(b), and they will be evaluated against those standards. ~~The nuclear power reactor operating license applicant shall also provide an analysis of the time required to evacuate and for taking other protective actions for various sectors and distances within the plume exposure pathway EPZ for transient and permanent populations.~~

**10 CFR Part 50, Appendix E. Section IV. A**

1. A description of the normal plant operating organization.	1. A description of the normal plant <del>operating</del> organization.
3. A description, by position and function to be performed, of the licensee's headquarters personnel who will be sent to the plant site to augment the onsite emergency organization.	<del>3. A description, by position and function to be performed, of the licensee's headquarters personnel who will be sent to the plant site to augment the onsite emergency organization.</del>
4. Identification, by position and function to be performed, of persons within the licensee organization who will be responsible for making offsite dose projections, and a description of how these projections will be made and the results transmitted to State and local authorities, NRC, and other appropriate governmental entities.	<del>4. Identification, by position and function to be performed, of persons within the licensee organization who will be responsible for making offsite dose projections, and a description of how these projections will be made and the results transmitted to State and local authorities, NRC, and other appropriate governmental entities.</del>

5. Identification, by position and function to be performed, of other employees of the licensee with special qualifications for coping with emergency conditions that may arise. Other persons with special qualifications, such as consultants, who are not employees of the licensee and who may be called upon for assistance for emergencies shall also be identified. The special qualifications of these persons shall be described.	<del>5. Identification, by position and function to be performed, of other employees of the licensee with special qualifications for coping with emergency conditions that may arise. Other persons with special qualifications, such as consultants, who are not employees of the licensee and who may be called upon for assistance for emergencies shall also be identified. The special qualifications of these persons shall be described.</del>
8. Identification of the State and/or local officials responsible for planning for, ordering, and controlling appropriate protective actions, including evacuations when necessary.	<del>8. Identification of the State and/or local officials responsible for planning for, ordering, and controlling appropriate protective actions, including evacuations when necessary.</del>
<b>10 CFR Part 50, Appendix E. Section IV. B</b>	
The means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety. The emergency action levels shall be based on in- plant conditions and instrumentation in addition to onsite and offsite monitoring. These initial emergency action levels shall be discussed and agreed on by the applicant or licensee and state and local governmental authorities, and approved by the NRC. Thereafter, emergency action levels shall be reviewed with the State and local governmental authorities on an annual basis.	The means to be used for determining the magnitude of and for continually assessing the impact of the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety. The emergency action levels shall be based on in-plant conditions and instrumentation in addition to onsite and offsite monitoring. These emergency action levels shall be discussed and agreed on by the applicant and State and local governmental authorities and approved by NRC. They shall also be reviewed with the State and local governmental authorities on an annual basis.

<b>10 CFR Part 50, Appendix E. Section IV. C</b>	
The entire spectrum of emergency conditions that involve the alerting or activating of progressively larger segments of the total emergency organization shall be described. The communication steps to be taken to alert or activate emergency personnel under each class of emergency shall be described. Emergency action levels (based not only on onsite and offsite radiation monitoring information but also on readings from a number of sensors that indicate a potential emergency, such as the pressure in containment and the response of the Emergency Core Cooling System) for notification of offsite agencies shall be described. The existence, but not the details, of a message authentication scheme shall be noted for such agencies. The emergency classes defined shall include: (1) notification of unusual events, (2) alert, (3) site area emergency, and (4) general emergency. These classes are further discussed in NUREG - 0654; FEMA - REP - 1.	The entire spectrum of emergency conditions that involve the alerting or activating of progressively larger segments of the total emergency organization shall be described. The communication steps to be taken to alert or activate emergency personnel under each class of emergency shall be described. Emergency action levels (based not only on onsite <del>and offsite</del> radiation monitoring information but also on readings from a number of sensors that indicate a potential emergency, <del>such as the pressure in containment and the response of the Emergency Core Cooling System</del> ) for notification of offsite agencies shall be described. The existence, but not the details, of a message authentication scheme shall be noted for such agencies. The emergency classes defined shall include: (1) notification of unusual events, (2) alert, (3) site area emergency, and (4) general emergency. These classes are further discussed in NUREG - 0654; FEMA - REP - 1.
<b>10 CFR Part 50, Appendix E. Section IV. D</b>	
1. Administrative and physical means for notifying local, State, and Federal officials and agencies and agreements reached with these officials and agencies for the prompt notification of the public and for public evacuation or other protective measures, should they become necessary, shall be described. This description shall include identification of the appropriate officials, by title and agency, of the State and local government agencies within the EPZs.1	1. Administrative and physical means for notifying local, State, and Federal officials and agencies and agreements reached with these officials and agencies <del>for the prompt notification of the public and for public evacuation or other protective measures, should they become necessary,</del> shall be described. This description shall include identification of the appropriate officials, by title and agency, of the State and local government agencies <del>within the EPZs.</del> (1)
2. Provisions shall be described for yearly dissemination to the public within the plume exposure pathway EPZ of basic emergency planning information, such as the methods and times required for public notification and the protective actions planned if an accident occurs, general information as to the nature and effects of radiation, and a listing of local broadcast stations that will be used for dissemination of information during an emergency. Signs or	<del>2. Provisions shall be described for yearly dissemination to the public within the plume exposure pathway EPZ of basic emergency planning information, such as the methods and times required for public notification and the protective actions planned if an accident occurs, general information as to the nature and effects of radiation, and a listing of local broadcast stations that will be used for dissemination of information during an emergency. Signs or other measures shall also be used to disseminate to any transient population within the plume</del>

other measures shall also be used to disseminate to any transient population within the plume exposure pathway EPZ appropriate information that would be helpful if an accident occurs.	exposure pathway EPZ appropriate information that would be helpful if an accident occurs.
3. A licensee shall have the capability to notify responsible State and local governmental agencies within 15 minutes after declaring an emergency. The licensee shall demonstrate that the State/local officials have the capability to make a public notification decision promptly on being informed by the licensee of an emergency condition. By February 1, 1982, each nuclear power reactor licensee shall demonstrate that administrative and physical means have been established for alerting and providing prompt instructions to the public within the plume exposure pathway EPZ. The four-month period in 10 CFR 50.54(s)(2) for the correction of emergency plan deficiencies shall not apply to the initial installation of this public notification system that is required by February 1, 1982. The four-month period will apply to correction of deficiencies identified during the initial installation and testing of the prompt public notification systems as well as those deficiencies discovered thereafter. The design objective of the prompt public notification system shall be to have the capability to essentially complete the initial notification of the public within the plume exposure pathway EPZ within about 15 minutes. The use of this notification capability will range from immediate notification of the public (within 15 minutes of the time that State and local officials are notified that a situation exists requiring urgent action) to the more likely events where there is substantial time available for the State and local governmental officials to make a judgment whether or not to activate the public notification system. Where there is a decision to activate the notification system, the State and local officials will determine whether to activate the entire notification system simultaneously or in a graduated or staged manner. The responsibility for activating such a public notification system shall remain with the	3. A licensee shall have the capability to notify responsible State and local governmental agencies within <del>60</del> 15 minutes after declaring an emergency. The licensee shall demonstrate that the State/local officials have the capability to make a public notification decision promptly on being informed by the licensee of an emergency condition. By February 1, 1982, each nuclear power reactor licensee shall demonstrate that administrative and physical means have been established for alerting and providing prompt instructions to the public within the plume exposure pathway EPZ. The four month period in 10 CFR 50.54(s)(2) for the correction of emergency plan deficiencies shall not apply to the initial installation of this public notification system that is required by February 1, 1982. The four month period will apply to correction of deficiencies identified during the initial installation and testing of the prompt public notification systems as well as those deficiencies discovered thereafter. The design objective of the prompt public notification system shall be to have the capability to essentially complete the initial notification of the public within the plume exposure pathway EPZ within about 15 minutes. The use of this notification capability will range from immediate notification of the public (within 15 minutes of the time that State and local officials are notified that a situation exists requiring urgent action) to the more likely events where there is substantial time available for the State and local governmental officials to make a judgment whether or not to activate the public notification system. Where there is a decision to activate the notification system, the State and local officials will determine whether to activate the entire notification system simultaneously or in a graduated or staged manner. The responsibility for activating such a public notification system shall remain with the appropriate governmental authorities.

appropriate governmental authorities.	
<b>10 CFR Part 50, Appendix E. Section IV. E</b>	
Adequate provisions shall be made and described for emergency facilities and equipment, including:	Adequate provisions shall be made and described for emergency facilities and equipment, including:
8. A licensee onsite technical support center and a licensee near-site emergency operations facility from which effective direction can be given and effective control can be exercised during an emergency;	8. A licensee onsite technical support center <del>and a licensee near-site emergency operations facility</del> from which effective direction can be given and effective control can be exercised during an emergency;
a. Provision for communications with contiguous State/local governments within the plume exposure pathway EPZ. Such communications shall be tested monthly.	a. Provision for communications with contiguous State/local governments <del>within the plume exposure pathway EPZ</del> . Such communications shall be tested monthly.
c. Provision for communications among the nuclear power reactor control room, the onsite technical support center, and the near-site emergency operations facility; and among the nuclear facility, the principal State and local emergency operations centers, and the field assessment teams. Such communications systems shall be tested annually.	c. Provision for communications among the nuclear power reactor control room, the onsite technical support center, <del>and the near-site emergency operations facility; and among the nuclear facility, the principal State and local emergency operations centers, and the field assessment teams</del> . Such communications systems shall be tested annually.
d. Provisions for communications by the licensee with NRC Headquarters and the appropriate NRC Regional Office Operations Center from the nuclear power reactor control room, the onsite technical support center, and the near-site emergency operations facility. Such communications shall be tested monthly.	d. Provisions for communications by the licensee with NRC Headquarters and the appropriate NRC Regional Office Operations Center from the nuclear power reactor control room, <del>the onsite technical support center, and the near-site emergency operations facility</del> . Such communications shall be tested monthly.
<b>10 CFR Part 50, Appendix E. Section IV. F</b>	
i. Directors and/or coordinators of the plant emergency organization; ii. Personnel responsible for accident assessment, including control room shift personnel; iii Radiological monitoring teams; iv. Fire control teams (fire brigades); v. Repair and damage control teams; vi. First aid and rescue teams;	i. Directors and/or coordinators of the plant emergency organization; ii. Personnel responsible for accident assessment, including control room shift personnel; iii Radiological monitoring teams; iv. Fire control teams (fire brigades); v. Repair and damage control teams; vi. First aid and rescue teams; Medical support personnel;

<p>vii. Medical support personnel; viii. Licensee's headquarters support personnel; ix. Security personnel.</p> <p>In addition, a radiological orientation training program shall be made available to local services personnel; e.g., local emergency services/Civil Defense, local law enforcement personnel, local news media persons.</p>	<p>viii. Licensee's headquarters support personnel; ix. Security personnel.</p> <p>In addition, a radiological orientation training program shall be made available to local services personnel; e.g., local emergency services/Civil Defense, local law enforcement personnel, <del>local news media persons</del>.</p>
<p>2. The plan shall describe provisions for the conduct of emergency preparedness exercises as follows: Exercises shall test the adequacy of timing and content of implementing procedures and methods, test emergency equipment and communications networks, test the public notification system, and ensure that emergency organization personnel are familiar with their duties.</p> <p>a. A full participation exercise which tests as much of the licensee, State, and local emergency plans as is reasonably achievable without mandatory public participation shall be conducted for each site at which a power reactor is located.</p>	<p>2. The plan shall describe provisions for the conduct of emergency preparedness exercises as follows: Exercises shall test the adequacy of timing and content of implementing procedures and methods, test emergency equipment and communications networks, <del>test the public notification system</del>, and ensure that emergency organization personnel are familiar with their duties.</p>
<p>b. Each licensee at each site shall conduct an exercise of its onsite emergency plan every 2 years. The exercise may be included in the full participation biennial exercise required by paragraph 2.c. of this section. In addition, the licensee shall take actions necessary to ensure that adequate emergency response capabilities are maintained during the interval between biennial exercises by conducting drills, including at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities. The principal functional areas of emergency response include activities such as management and coordination of emergency response, accident assessment, protective action decision making, and plant system repair and corrective actions. During these drills, activation of all of the licensee's emergency response facilities (Technical Support Center (TSC), Operations Support</p>	<p>b. Each licensee at each site shall conduct an exercise of its onsite emergency plan every 2 years. <del>The exercise may be included in the full participation biennial exercise required by paragraph 2.c. of this section</del>. In addition, the licensee shall take actions necessary to ensure that adequate emergency response capabilities are maintained during the interval between biennial exercises by conducting drills, including at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities. The principal functional areas of emergency response include activities such as management and coordination of emergency response, accident assessment, protective action decision making, and plant system repair and corrective actions. During these drills, activation of all of the licensee's emergency response facilities (<del>Technical</del></p>

<p>Center (OSC), and the Emergency Operations Facility (EOF) would not be necessary, licensees would have the opportunity to consider accident management strategies, supervised instruction would be permitted, operating staff would have the opportunity to resolve problems (success paths) rather than have controllers intervene, and the drills could focus on onsite training objectives.</p>	<p><del>Support Center (TSC), Operations Support Center (OSC), and the Emergency Operations Facility (EOF)</del> would not be necessary, licensees would have the opportunity to consider accident management strategies, supervised instruction would be permitted, operating staff would have the opportunity to resolve problems (success paths) rather than have controllers intervene, and the drills could focus on onsite training objectives.</p>
<p>c. Offsite plans for each site shall be exercised biennially with full participation by each offsite authority having a role under the radiological response plan. Where the offsite authority has a role under a radiological response plan for more than one site, it shall fully participate in one exercise every two years and shall, at least, partially participate in other offsite plan exercises in this period.</p>	<p><del>e. Offsite plans for each site shall be exercised biennially with full participation by each offsite authority having a role under the plan. Where the offsite authority has a role under a radiological response plan for more than one site, it shall fully participate in one exercise every two years and shall, at least, partially participate(5) in other offsite plan exercises in this period.</del></p>
<p>d. A State should fully participate in the ingestion pathway portion of exercises at least once every six years. In States with more than one site, the State should rotate this participation from site to site.</p>	<p><del>d. A State should fully participate in the ingestion pathway portion of exercises at least once every six years. In States with more than one site, the State should rotate this participation from site to site.</del></p>
	<p>e. Licensees shall enable any State or local Government located within the plume exposure pathway EPZ to participate in the licensee's drills when requested by such State or local Government.</p> <p>e. Licensees shall enable any State or local Government <u>support service</u> located within the <u>plume exposure pathway EPZ</u> to participate in the licensee's drills when requested by such State or local Government <u>support service</u>.</p> <p>10CFR50 Appendix E. IV.F.2.e. – Exemption is being requested to clarify the local Government entities permitted to participate in emergency preparedness drills by including the phase 'support service' modifying 'local Government.' These local governmental organizations provide emergency support service (<i>viz.</i> ambulance, fire, police) to ZionSolutions upon request. These organizations are identified in the DSEP pursuant to 10CFR50 Appendix E IV.A.6.</p>

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| <p>f. Remedial exercises will be required if the emergency plan is not satisfactorily tested during the biennial exercise, such that NRC, in consultation with FEMA, cannot find reasonable assurance that adequate protective measures can be taken in the event of a radiological emergency. The extent of State and local participation in remedial exercises must be sufficient to show that appropriate corrective measures have been taken regarding the elements of the plan not properly tested in the previous exercises.</p> | <p>f. Remedial exercises will be required if the emergency plan is not satisfactorily tested during the biennial exercise, such that NRC, in <del>consultation with FEMA</del>, cannot find reasonable assurance that adequate protective measures can be taken in the event of a radiological emergency. <del>The extent of State and local participation in remedial exercises must be sufficient to show that appropriate corrective measures have been taken regarding the elements of the plan not properly tested in the previous exercises.</del></p> |
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**Enclosure 2**

**ZNPS 2012 Exemption Request from Specific Requirements in 10 CFR 50.47 and**

**10 CFR 50, Appendix E**

Requirement	Exemption Requested 6/20/12
<b>10 CFR 50.47</b>	
(b)(10)  A range of protective actions has been developed for the plume exposure pathway EPZ for emergency workers and the public. <i>In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. Evacuation time estimates have been developed by applicants and licensees. Licensees shall update the evacuation time estimates on a periodic basis.</i> Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.	(b)(10)  A range of protective actions has been developed for the plume exposure pathway EPZ for (Exemption granted by NRC 8/31/99) emergency workers and the public (Exemption granted by NRC 8/31/99). <i>In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. Evacuation time estimates have been developed by applicants and licensees. Licensees shall update the evacuation time estimates on a periodic basis</i> (Exemption requested 6/20/12). Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed. (Exemption granted by NRC 8/31/99)
<b>10 CFR Part 50, Appendix E</b>	
1.  The applicant's emergency plans shall contain, but not necessarily be limited to, information needed to demonstrate compliance with the elements set forth below, i.e., organization for coping with radiological emergencies, assessment actions, activation of emergency organization, notification procedures, emergency facilities and equipment, training, maintaining emergency preparedness, recovery, and onsite protective actions during hostile action. In addition, the emergency response plans submitted by an applicant for a nuclear power reactor operating license under this part, or for an early site permit (as applicable) or combined license under 10 CFR	1.  The applicant's emergency plans shall contain, but not necessarily be limited to, information needed to demonstrate compliance with the elements set forth below, i.e., organization for coping with radiological emergencies, assessment actions, activation of emergency organization, notification procedures, emergency facilities and equipment, training, maintaining emergency preparedness, recovery, <b>and onsite protective actions during hostile action</b> (Exemption requested 6/20/12) . In addition, the emergency response plans submitted by an applicant for a nuclear power reactor operating license <b>under this part, or for an early site permit (as applicable) or combined</b>

part 52, shall contain information needed to demonstrate compliance with the standards described in 50.47(b), and they will be evaluated against those standards.	<i>license under 10 CFR part 52, shall contain information needed to demonstrate compliance with the standards described in 50.47(b), and they will be evaluated against those standards.</i>
2. <p>This nuclear power reactor license applicant shall also provide an analysis of the time required to evacuate various sectors and distances within the plume exposure pathway EPZ for transient and permanent populations, <i>using the most recent U.S. Census Bureau data as of the date the applicant submits its application to the NRC.</i></p>	2. <p><del>This nuclear power reactor license applicant shall also provide an analysis of the time required to evacuate various sectors and distances within the plume exposure pathway EPZ for transient and permanent populations (Exemption granted 8/31/99), <i>using the most recent U.S. Census Bureau data as of the date the applicant submits its application to the NRC.</i> (Exemption requested 6/20/12)</del></p>
3. <p>Nuclear power reactor licensees shall use NRC approved evacuation time estimates (ETEs) and updates to the ETEs in the formulation of protective action recommendations and shall provide the ETEs and ETE updates to State and local governmental authorities for use in developing offsite protective action strategies.</p>	<i>Nuclear power reactor licensees shall use NRC approved evacuation time estimates (ETEs) and updates to the ETEs in the formulation of protective action recommendations and shall provide the ETEs and ETE updates to State and local governmental authorities for use in developing offsite protective action strategies.</i> (Exemption requested 6/20/12)
4. <p>Within 365 days of the later of the date of the availability of the most recent decennial census data from the U.S. Census Bureau or December 23, 2011, nuclear power reactor licensees shall develop an ETE analysis using this decennial data and submit it under § 50.4 to the NRC. These licensees shall submit this ETE analysis to the NRC at least 180 days before using it to form protective action recommendations and providing it to State and local governmental authorities for use in developing offsite protective action strategies.</p>	<i>Within 365 days of the later of the date of the availability of the most recent decennial census data from the U.S. Census Bureau or December 23, 2011, nuclear power reactor licensees shall develop an ETE analysis using this decennial data and submit it under § 50.4 to the NRC. These licensees shall submit this ETE analysis to the NRC at least 180 days before using it to form protective action recommendations and providing it to State and local governmental authorities for use in developing offsite protective action strategies.</i> (Exemption requested 6/20/12)
5. <p>During the years between decennial censuses, nuclear power reactor licensees shall estimate</p>	<i>During the years between decennial censuses, nuclear power reactor licensees shall estimate</i>

EPZ permanent resident population changes once a year, but no later than 365 days from the date of the previous estimate, using the most recent U.S. Census Bureau annual resident population estimate and State/local government population data, if available. These licensees shall maintain these estimates so that they are available for NRC inspection during the period between decennial censuses and shall submit these estimates to the NRC with any updated ETE analysis.	<del>EPZ permanent resident population changes once a year, but no later than 365 days from the date of the previous estimate, using the most recent U.S. Census Bureau annual resident population estimate and State/local government population data, if available. These licensees shall maintain these estimates so that they are available for NRC inspection during the period between decennial censuses and shall submit these estimates to the NRC with any updated ETE analysis. (Exemption requested 6/20/12)</del>
6. If at any time during the decennial period, the EPZ permanent resident population increases such that it causes the longest ETE value for the 2-mile zone or 5-mile zone, including all affected Emergency Response Planning Areas, or for the entire 10-mile EPZ to increase by 25 percent or 30 minutes, whichever is less, from the nuclear power reactor licensee's currently NRC approved or updated ETE, the licensee shall update the ETE analysis to reflect the impact of that population increase. The licensee shall submit the updated ETE analysis to the NRC under § 50.4 no later than 365 days after the licensee's determination that the criteria for updating the ETE have been met and at least 180 days before using it to form protective action recommendations and providing it to State and local governmental authorities for use in developing offsite protective action strategies.	<del>If at any time during the decennial period, the EPZ permanent resident population increases such that it causes the longest ETE value for the 2-mile zone or 5-mile zone, including all affected Emergency Response Planning Areas, or for the entire 10-mile EPZ to increase by 25 percent or 30 minutes, whichever is less, from the nuclear power reactor licensee's currently NRC approved or updated ETE, the licensee shall update the ETE analysis to reflect the impact of that population increase. The licensee shall submit the updated ETE analysis to the NRC under § 50.4 no later than 365 days after the licensee's determination that the criteria for updating the ETE have been met and at least 180 days before using it to form protective action recommendations and providing it to State and local governmental authorities for use in developing offsite protective action strategies. (Exemption requested 6/20/12)</del>
7. After an applicant for a combined license under part 52 of this chapter receives its license, the licensee shall conduct at least one review of any changes in the population of its EPZ at least 365 days prior to its scheduled fuel load. The licensee shall estimate EPZ permanent resident population changes using the most recent U.S. Census Bureau annual resident population estimate and State/local government population data, if available. If the	<del>After an applicant for a combined license under part 52 of this chapter receives its license, the licensee shall conduct at least one review of any changes in the population of its EPZ at least 365 days prior to its scheduled fuel load. The licensee shall estimate EPZ permanent resident population changes using the most recent U.S. Census Bureau annual resident population estimate and State/local government population data, if available. If the</del>

EPZ permanent resident population increases such that it causes the longest ETE value for the 2-mile zone or 5-mile zone, including all affected Emergency Response Planning Areas, or for the entire 10-mile EPZ, to increase by 25 percent or 30 minutes, whichever is less, from the licensee's currently approved ETE, the licensee shall update the ETE analysis to reflect the impact of that population increase. The licensee shall submit the updated ETE analysis to the NRC for review under § 50.4 of this chapter no later than 365 days before the licensee's scheduled fuel load.

~~EPZ permanent resident population increases such that it causes the longest ETE value for the 2-mile zone or 5-mile zone, including all affected Emergency Response Planning Areas, or for the entire 10-mile EPZ, to increase by 25 percent or 30 minutes, whichever is less, from the licensee's currently approved ETE, the licensee shall update the ETE analysis to reflect the impact of that population increase. The licensee shall submit the updated ETE analysis to the NRC for review under § 50.4 of this chapter no later than 365 days before the licensee's scheduled fuel load. (Exemption requested 6/20/12)~~

#### 10 CFR 50, Appendix E IV. A

7. <i>By June 23, 2014, identification of, and a description of the assistance expected from, appropriate State, local, and Federal agencies with responsibilities for coping with emergencies, including hostile action at the site. For purposes of this appendix, "hostile action" is defined as an act directed toward a nuclear power plant or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force.</i>	7. <i>By June 23, 2014, identification of, and a description of the assistance expected from, appropriate State, local, and Federal agencies with responsibilities for coping with emergencies, including hostile action at the site. For purposes of this appendix, "hostile action" is defined as an act directed toward a nuclear power plant or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force. (Exemption requested 6/20/12)</i>
9. <i>By December 24, 2012, for nuclear power reactor licensees, a detailed analysis demonstrating that on-shift personnel assigned emergency plan implementation functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in the emergency plan.</i>	9. <i>By December 24, 2012, for nuclear power reactor licensees, a detailed analysis demonstrating that on-shift personnel assigned emergency plan implementation functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in the emergency plan. (Exemption requested 6/20/12)</i>

**10 CFR 50, Appendix E IV. B**

1.

The means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety. The emergency action levels shall be based on in-plant conditions and instrumentation in addition to onsite and offsite monitoring. *By June 20, 2012, for nuclear power reactor licensees, these action levels must include hostile action that may adversely affect the nuclear power plant.* The initial emergency action levels shall be discussed and agreed on by the applicant or licensee and state and local governmental authorities, and approved by the NRC. Thereafter, emergency action levels shall be reviewed with the State and local governmental authorities on an annual basis.

1.

The means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within ~~and outside~~ (*Exemption requested 8/31/99*) the site boundary to protect health and safety. The emergency action levels shall be based on in-plant conditions and instrumentation in addition to onsite ~~and offsite~~ (*Exemption granted by NRC 8/31/99*) monitoring. ~~*By June 20, 2012, for nuclear power reactor licensees, these action levels must include hostile action that may adversely affect the nuclear power plant.*~~ (*Exemption requested 6/20/12*) The initial emergency action levels shall be discussed and agreed on by the applicant or licensee and state and local governmental authorities, and approved by the NRC. Thereafter, emergency action levels shall be reviewed with the State and local governmental authorities on an annual basis.

**10 CFR 50, Appendix E IV. C**

2.

By June 20, 2012, nuclear power reactor licensees shall establish and maintain the capability to assess, classify, and declare an emergency condition within 15 minutes after the availability of indications to plant operators that an emergency action level has been exceeded and shall promptly declare the emergency condition as soon as possible following identification of the appropriate emergency classification level. Licensees shall not construe these criteria as a grace period to attempt to restore plant conditions to avoid

2.

~~*By June 20, 2012, nuclear power reactor licensees shall establish and maintain the capability to assess, classify, and declare an emergency condition within 15 minutes after the availability of indications to plant operators that an emergency action level has been exceeded and shall promptly declare the emergency condition as soon as possible following identification of the appropriate emergency classification level. Licensees shall not construe these criteria as a grace period to attempt to restore plant conditions to avoid*~~

declaring an emergency action due to an emergency action level that has been exceeded. Licensees shall not construe these criteria as preventing implementation of response actions deemed by the licensee to be necessary to protect public health and safety provided that any delay in declaration does not deny the State and local authorities the opportunity to implement measures necessary to protect the public health and safety.

~~declaring an emergency action due to an emergency action level that has been exceeded. Licensees shall not construe these criteria as preventing implementation of response actions deemed by the licensee to be necessary to protect public health and safety provided that any delay in declaration does not deny the State and local authorities the opportunity to implement measures necessary to protect the public health and safety.~~ (Exemption requested 6/20/12)

#### 10 CFR 50, Appendix E IV. D

3.  
A licensee shall have the capability to notify responsible State and local governmental agencies within 15 minutes after declaring an emergency. The licensee shall demonstrate that the appropriate governmental authorities have the capability to make a public alerting and notification decision promptly on being informed by the licensee of an emergency condition. *Prior to initial operation greater than 5 percent of rated thermal power of the first reactor at a site, each nuclear power reactor licensee shall demonstrate that administrative and physical means have been established for alerting and providing prompt instructions to the public within the plume exposure pathway EPZ. The design objective of the prompt public alert and notification system shall be to have the capability to essentially complete the initial alerting and initiate notification of the public within the plume exposure pathway EPZ within about 15 minutes. The use of this alerting and notification capability will range from immediate alerting and notification of the public (within 15 minutes of the time that State and local officials are notified that a situation exists requiring urgent action) to the more likely events where there is substantial time available for the appropriate governmental authorities to make a judgment whether or not to activate the public alert and notification system. The alerting and notification*

3.  
A licensee shall have the capability to notify responsible State and local governmental agencies within 60 ~~15~~ (Exemption granted by NRC 8/31/99) minutes after declaring an emergency. ~~The licensee shall demonstrate that the appropriate governmental authorities have the capability to make a public alerting and notification decision promptly on being informed by the licensee of an emergency condition. (Exemption granted by NRC 8/31/99) *Prior to initial operation greater than 5 percent of rated thermal power of the first reactor at a site, (Exemption requested 6/20/12) each nuclear power reactor licensee shall demonstrate that administrative and physical means have been established for alerting and providing prompt instructions to the public within the plume exposure pathway EPZ. The design objective of the prompt public alert and notification system shall be to have the capability to essentially complete the initial alerting and initiate notification of the public within the plume exposure pathway EPZ within about 15 minutes. The use of this alerting and notification capability will range from immediate alerting and notification of the public (within 15 minutes of the time that State and local officials are notified that a situation exists requiring urgent action) to the more likely events where there is substantial time available for the appropriate governmental authorities (Exemption requested 6/20/12) to make a judgment whether or not to*~~

<p><i>capability shall additionally include administrative and physical means for a backup method of public alerting and notification capable of being used in the event the primary method of alerting and notification is unavailable during an emergency to alert or notify all or portions of the plume exposure pathway EPZ population. The backup method shall have the capability to alert and notify the public within the plume exposure pathway EPZ, but does not need to meet the 15-minute design objective for the primary prompt public alert and notification system. When there is a decision to activate the alert and notification system, the appropriate governmental authorities will determine whether to activate the entire alert and notification system simultaneously or in a graduated or staged manner. The responsibility for activating such a public alert and notification system shall remain with the appropriate governmental authorities.</i></p>	<p><i>activate the public alert and notification system. (Exemption granted by NRC 8/31/99) <del>The alerting and notification capability shall additionally include administrative and physical means for a backup method of public alerting and notification capable of being used in the event the primary method of alerting and notification is unavailable during an emergency to alert or notify all or portions of the plume exposure pathway EPZ population. The backup method shall have the capability to alert and notify the public within the plume exposure pathway EPZ, but does not need to meet the 15-minute design objective for the primary prompt public alert and notification system</del> (Exemption requested 6/20/12). When there is a decision to activate the alert and notification system, the appropriate governmental authorities will determine whether to activate the entire alert and notification system simultaneously or in a graduated or staged manner. The responsibility for activating such a public alert and notification system shall remain with the appropriate governmental authorities. (Exemption granted by NRC 8/31/99)</i></p>
4. <p>If FEMA has approved a nuclear power reactor site's alert and notification design report, including the backup alert and notification capability, as of December 23, 2011, then the backup alert and notification capability requirements in Section IV.D.3 must be implemented by December 24, 2012. If the alert and notification design report does not include a backup alert and notification capability or needs revision to ensure adequate backup alert and notification capability, then a revision of the alert and notification design report must be submitted to FEMA for review by June 24, 2013, and the FEMA-approved backup alert and notification means must be implemented within 365 days after FEMA approval. However, the total time period to implement a FEMA-approved backup alert and notification means must not exceed June 22,</p>	4. <p><i>If FEMA has approved a nuclear power reactor site's alert and notification design report, including the backup alert and notification capability, as of December 23, 2011, then the backup alert and notification capability requirements in Section IV.D.3 must be implemented by December 24, 2012. If the alert and notification design report does not include a backup alert and notification capability or needs revision to ensure adequate backup alert and notification capability, then a revision of the alert and notification design report must be submitted to FEMA for review by June 24, 2013, and the FEMA-approved backup alert and notification means must be implemented within 365 days after FEMA approval. However, the total time period to implement a FEMA-approved backup alert and notification means must not exceed June 22, 2015.</i></p>

2015.	(Exemption requested 6/20/12)
<b>10 CFR 50, Appendix E IV. E</b>	
8.a.ii  For nuclear power reactor licensees, a licensee onsite operational support center	8.a.ii  <del>For nuclear power reactor licensees, a licensee onsite operational support center</del> (Exemption requested 6/20/12)
8.b  For a nuclear power reactor licensee's emergency operations facility required by paragraph 8.a of this section, either a facility located between 10 miles and 25 miles of the nuclear power reactor site(s), or a primary facility located less than 10 miles from the nuclear power reactor site(s) and a backup facility located between 10 miles and 25 miles of the nuclear power reactor site(s). An emergency operations facility may serve more than one nuclear power reactor site. A licensee desiring to locate an emergency operations facility more than 25 miles from a nuclear power reactor site shall request prior Commission approval by submitting an application for an amendment to its license. For an emergency operations facility located more than 25 miles from a nuclear power reactor site, provisions must be made for locating NRC and offsite responders closer to the nuclear power reactor site so that NRC and offsite responders can interact face-to-face with emergency response personnel entering and leaving the nuclear power reactor site. Provisions for locating NRC and offsite responders closer to a nuclear power reactor site that is more than 25 miles from the emergency operations facility must include the following: (1) Space for members of an NRC site team and Federal, State, and local responders; (2) Additional space for conducting briefings with emergency response personnel; (3) Communication with other licensee and offsite emergency response facilities; (4) Access to plant data and radiological information; and	8.b  <del>For a nuclear power reactor licensee's emergency operations facility required by paragraph 8.a of this section, either a facility located between 10 miles and 25 miles of the nuclear power reactor site(s), or a primary facility located less than 10 miles from the nuclear power reactor site(s) and a backup facility located between 10 miles and 25 miles of the nuclear power reactor site(s). An emergency operations facility may serve more than one nuclear power reactor site. A licensee desiring to locate an emergency operations facility more than 25 miles from a nuclear power reactor site shall request prior Commission approval by submitting an application for an amendment to its license. For an emergency operations facility located more than 25 miles from a nuclear power reactor site, provisions must be made for locating NRC and offsite responders closer to the nuclear power reactor site so that NRC and offsite responders can interact face-to-face with emergency response personnel entering and leaving the nuclear power reactor site. Provisions for locating NRC and offsite responders closer to a nuclear power reactor site that is more than 25 miles from the emergency operations facility must include the following: (1) Space for members of an NRC site team and Federal, State, and local responders;</del>  <del>(2) Additional space for conducting briefings with emergency response personnel;</del>  <del>(3) Communication with other licensee and offsite emergency response facilities;</del>  <del>(4) Access to plant data and radiological information; and</del>

(5) Access to copying equipment and office supplies;	<p><b><i>(5) Access to copying equipment and office supplies; (Exemption requested 6/20/12)</i></b></p>
8.c <p>By June 20, 2012, for a nuclear power reactor licensee's emergency operations facility required by paragraph 8.a of this section, a facility having the following capabilities:</p> <p>(1) The capability for obtaining and displaying plant data and radiological information for each reactor at a nuclear power reactor site and for each nuclear power reactor site that the facility serves;</p> <p>(2) The capability to analyze plant technical information and provide technical briefings on event conditions and prognosis to licensee and offsite response organizations for each reactor at a nuclear power reactor site and for each nuclear power reactor site that the facility serves; and</p> <p>(3) The capability to support response to events occurring simultaneously at more than one nuclear power reactor site if the emergency operations facility serves more than one site; and</p>	<p>8.c <i>By June 20, 2012, for a nuclear power reactor licensee's emergency operations facility required by paragraph 8.a of this section, a facility having the following capabilities:</i></p> <p><i>(1) The capability for obtaining and displaying plant data and radiological information for each reactor at a nuclear power reactor site and for each nuclear power reactor site that the facility serves;</i></p> <p><i>(2) The capability to analyze plant technical information and provide technical briefings on event conditions and prognosis to licensee and offsite response organizations for each reactor at a nuclear power reactor site and for each nuclear power reactor site that the facility serves; and</i></p> <p><i>(3) The capability to support response to events occurring simultaneously at more than one nuclear power reactor site if the emergency operations facility serves more than one site; and</i> (Exemption requested 6/20/12)</p>
8.d <p>For nuclear power reactor licensees, an alternative facility (or facilities) that would be accessible even if the site is under threat of or experiencing hostile action, to function as a staging area for augmentation of emergency response staff and collectively having the following characteristics: the capability for communication with the emergency operations facility, control room, and plant security; the capability to perform offsite notifications; and the capability for engineering assessment activities, including damage control team planning and preparation, for use when onsite emergency facilities cannot be safely accessed during hostile action. The requirements in this paragraph 8.d must be implemented no later than December 23, 2014, with the exception of the capability for staging emergency response organization personnel at the alternative</p>	<p>8.d <i>For nuclear power reactor licensees, an alternative facility (or facilities) that would be accessible even if the site is under threat of or experiencing hostile action, to function as a staging area for augmentation of emergency response staff and collectively having the following characteristics: the capability for communication with the emergency operations facility, control room, and plant security; the capability to perform offsite notifications; and the capability for engineering assessment activities, including damage control team planning and preparation, for use when onsite emergency facilities cannot be safely accessed during hostile action. The requirements in this paragraph 8.d must be implemented no later than December 23, 2014, with the exception of the capability for staging emergency response organization personnel at the alternative</i></p>

facility (or facilities) and the capability for communications with the emergency operations facility, control room, and plant security, which must be implemented no later than June 20, 2012.	<del>facility (or facilities) and the capability for communications with the emergency operations facility, control room, and plant security, which must be implemented no later than June 20, 2012.</del> (Exemption requested 6/20/12)
8.e  A licensee shall not be subject to the requirements of paragraph 8.b of this section for an existing emergency operations facility approved as of December 23, 2011	8.e  <del>A licensee shall not be subject to the requirements of paragraph 8.b of this section for an existing emergency operations facility approved as of December 23, 2011</del> (Exemption requested 6/20/12)

**10 CFR 50, Appendix E IV. F**

2.a  A full participation <sup>4</sup> exercise which tests as much of the licensee, State, and local emergency plans as is reasonably achievable without mandatory public participation shall be conducted for each site at which a power reactor is located. <i>Nuclear power reactor licensees shall submit exercise scenarios under § 50.4 at least 60 days before use in a full participation exercise required by this paragraph 2.a.</i>	2.a  A full participation <sup>4</sup> exercise which tests as much of the licensee, State, and local emergency plans as is reasonably achievable without mandatory public participation shall be conducted for each site at which a power reactor is located. <i>Nuclear power reactor licensees shall submit exercise scenarios under § 50.4 at least 60 days before use in a full participation exercise required by this paragraph 2.a.</i> (Exemption requested 6/20/12)
2.b  Each licensee at each site shall conduct a subsequent exercise of its onsite emergency plan every 2 years. <i>Nuclear power reactor licensees shall submit exercise scenarios under § 50.4 at least 60 days before use in an exercise required by this paragraph 2.b.</i> The exercise may be included in the full participation biennial exercise required by paragraph 2.c. of this section. In addition, the licensee shall take actions necessary to ensure that adequate emergency response capabilities are maintained during the interval between biennial exercises by conducting drills, including at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities. The principal functional areas of emergency response include activities such as management and coordination of emergency response, accident	2.b  Each licensee at each site shall conduct a subsequent exercise of its onsite emergency plan every 2 years. <i>Nuclear power reactor licensees shall submit exercise scenarios under § 50.4 at least 60 days before use in an exercise required by this paragraph 2.b.</i> (Exemption requested 6/20/12) The exercise may be included in the full participation biennial exercise required by paragraph 2.c. of this section. (Exemption granted by NRC 8/31/99) In addition, the licensee shall take actions necessary to ensure that adequate emergency response capabilities are maintained during the interval between biennial exercises by conducting drills, including at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities. The principal functional areas of emergency response include activities such as management and coordination of emergency response, accident assessment,

<p>assessment, event classification, notification of offsite authorities, assessment of the onsite and offsite impact of radiological releases, protective action recommendation development, protective action decision making, plant system repair and mitigative action implementation. During these drills, activation of all of the licensee's emergency response facilities (Technical Support Center (TSC), Operations Support Center (OSC), and the Emergency Operations Facility (EOF)) would not be necessary, licensees would have the opportunity to consider accident management strategies, supervised instruction would be permitted, operating staff in all participating facilities would have the opportunity to resolve problems (success paths) rather than have controllers intervene, and the drills may focus on the onsite exercise training objectives.</p>	<p><i>event classification, notification of offsite authorities, assessment of the onsite and offsite impact of radiological releases, protective action recommendation development, (Exemption requested 6/20/12) protective action decision making, plant system repair and mitigative action implementation (Exemption requested 6/20/12). During these drills, activation of all of the licensee's emergency response facilities (Technical Support Center (TSC), Operations Support Center (OSC), and the Emergency Operations Facility (EOF)) (Exemption granted by NRC 8/31/99) would not be necessary, licensees would have the opportunity to consider accident management strategies, supervised instruction would be permitted, operating staff in all participating facilities would have the opportunity to resolve problems (success paths) rather than have controllers intervene, and the drills may focus on the onsite exercise training objectives.</i></p>
<p>2.c</p> <p>Offsite plans for each site shall be exercised biennially with full participation by each offsite authority having a role under the radiological response plan. Where the offsite authority has a role under a radiological response plan for more than one site, it shall fully participate in one exercise every two years and shall, at least, partially participate in other offsite plan exercises in this period. If two different licensees each have licensed facilities located either on the same site or on adjacent, contiguous sites, and share most of the elements defining co-located licensees,<sup>6</sup> then each licensee shall:</p> <p>(1) Conduct an exercise biennially of its onsite emergency plan;</p> <p>(2) Participate quadrennially in an offsite biennial full or partial participation exercise;</p> <p>(3) Conduct emergency preparedness activities and interactions in the years between its participation in the offsite full or partial participation exercise with offsite authorities, to test and maintain interface among the</p>	<p>2.c</p> <p><i>Offsite plans for each site shall be exercised biennially with full participation by each offsite authority having a role under the radiological response plan. Where the offsite authority has a role under a radiological response plan for more than one site, it shall fully participate in one exercise every two years and shall, at least, partially participate in other offsite plan exercises in this period. (Exemption granted by NRC 8/31/99) If two different licensees each have licensed facilities located either on the same site or on adjacent, contiguous sites, and share most of the elements defining co-located licensees,<sup>6</sup> then each licensee shall:</i></p> <p><i>(1) Conduct an exercise biennially of its onsite emergency plan;</i></p> <p><i>(2) Participate quadrennially in an offsite biennial full or partial participation exercise;</i></p> <p><i>(3) Conduct emergency preparedness activities and interactions in the years between its participation in the offsite full or partial participation exercise with offsite authorities, to test and maintain interface among the affected</i></p>

<p>affected State and local authorities and the licensee. Co-located licensees shall also participate in emergency preparedness activities and interaction with offsite authorities for the period between exercises;</p> <p>(4) Conduct a hostile action exercise of its onsite emergency plan in each exercise cycle; and</p> <p>(5) Participate in an offsite biennial full or partial participation hostile action exercise in alternating exercise cycles.</p>	<p><del>State and local authorities and the licensee. Co-located licensees shall also participate in emergency preparedness activities and interaction with offsite authorities for the period between exercises;</del></p> <p><del>(4) Conduct a hostile action exercise of its onsite emergency plan in each exercise cycle; and</del></p> <p><del>(5) Participate in an offsite biennial full or partial participation hostile action exercise in alternating exercise cycles. (Exemption requested 6/20/12)</del></p>
<p>2.d</p> <p><del>Each State with responsibility for nuclear power reactor emergency preparedness should fully participate in the ingestion pathway portion of exercises at least once every exercise cycle. In States with more than one nuclear power reactor plume exposure pathway EPZ, the State should rotate this participation from site to site. Each State with responsibility for nuclear power reactor emergency preparedness should fully participate in a hostile action exercise at least once every cycle and should fully participate in one hostile action exercise by December 31, 2015. States with more than one nuclear power reactor plume exposure pathway EPZ (Exemption requested 6/20/12) should rotate this participation from site to site. (Exemption granted by NRC 8/31/99)</del></p>	<p>2.d</p> <p><del>Each State with responsibility for nuclear power reactor emergency preparedness should fully participate in the ingestion pathway portion of exercises at least once every exercise cycle. In States with more than one nuclear power reactor plume exposure pathway EPZ, the State should rotate this participation from site to site. Each State with responsibility for nuclear power reactor emergency preparedness should fully participate in a hostile action exercise at least once every cycle and should fully participate in one hostile action exercise by December 31, 2015. States with more than one nuclear power reactor plume exposure pathway EPZ (Exemption requested 6/20/12) should rotate this participation from site to site. (Exemption granted by NRC 8/31/99)</del></p>
<p>2.f</p> <p>Remedial exercises will be required if the emergency plan is not satisfactorily tested during the biennial exercise, such that NRC, in consultation with FEMA, cannot (1) find reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency or (2) determine that the Emergency Response Organization (ERO) has maintained key skills specific to emergency response. The extent of State and local participation in remedial exercises must be sufficient to show that appropriate corrective measures have been taken regarding</p>	<p>2.f</p> <p>Remedial exercises will be required if the emergency plan is not satisfactorily tested during the biennial exercise, such that NRC, in consultation with FEMA (Exemption granted by NRC 8/31/99), cannot (1) find reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency or (2) determine that the Emergency Response Organization (ERO) has maintained key skills specific to emergency response (Exemption requested 6/20/12). The extent of State and local participation in remedial exercises must be sufficient to show that</p>

the elements of the plan not properly tested in the previous exercises.	<del>appropriate corrective measures have been taken regarding the elements of the plan not properly tested in the previous exercises (Exemption granted by NRC 8/31/99).</del>
2.i  Licensees shall use drill and exercise scenarios that provide reasonable assurance that anticipatory responses will not result from preconditioning of participants. <del>Such scenarios for nuclear power reactor licensees must include a wide spectrum of radiological releases and events, including hostile action.</del> Exercise and drill scenarios as appropriate must emphasize coordination among onsite and offsite response organizations.	<del>Licensees shall use drill and exercise scenarios that provide reasonable assurance that anticipatory responses will not result from preconditioning of participants. <b>Such scenarios for nuclear power reactor licensees must include a wide spectrum of radiological releases and events, including hostile action.</b> (Exemption requested 6/20/12) Exercise and drill scenarios as appropriate must emphasize coordination among onsite and offsite response organizations.</del>
2.j  The exercises conducted under paragraph 2 of this section by nuclear power reactor licensees must provide the opportunity for the ERO to demonstrate proficiency in the key skills necessary to implement the principal functional areas of emergency response identified in paragraph 2.b of this section. Each exercise must provide the opportunity for the ERO to demonstrate key skills specific to emergency response duties in the control room, TSC, OSC, EOF, and joint information center. Additionally, in each eight calendar year exercise cycle, nuclear power reactor licensees shall vary the content of scenarios during exercises conducted under paragraph 2 of this section to provide the opportunity for the ERO to demonstrate proficiency in the key skills necessary to respond to the following scenario elements: hostile action directed at the plant site, no radiological release or an unplanned minimal radiological release that does not require public protective actions, an initial classification of or rapid escalation to a Site Area Emergency or General Emergency, implementation of strategies, procedures, and guidance developed under § 50.54(hh)(2), and integration of offsite resources with onsite response. The licensee shall maintain a record	<del>The exercises conducted under paragraph 2 of this section by nuclear power reactor licensees must provide the opportunity for the ERO to demonstrate proficiency in the key skills necessary to implement the principal functional areas of emergency response identified in paragraph 2.b of this section. Each exercise must provide the opportunity for the ERO to demonstrate key skills specific to emergency response duties in the control room, TSC, OSC, EOF, and joint information center.</del> <del>Additionally, in each eight calendar year exercise cycle, nuclear power reactor licensees shall vary the content of scenarios during exercises conducted under paragraph 2 of this section to provide the opportunity for the ERO to demonstrate proficiency in the key skills necessary to respond to the following scenario elements: hostile action directed at the plant site, no radiological release or an unplanned minimal radiological release that does not require public protective actions, an initial classification of or rapid escalation to a Site Area Emergency or General Emergency, implementation of strategies, procedures, and guidance developed under § 50.54(hh)(2), and integration of offsite resources with onsite response. The licensee shall maintain a record</del>

<p>of exercises conducted during each eight year exercise cycle that documents the content of scenarios used to comply with the requirements of this paragraph. Each licensee shall conduct a hostile action exercise for each of its sites no later than December 31, 2015. The first eight-year exercise cycle for a site will begin in the calendar year in which the first hostile action exercise is conducted. For a site licensed under Part 52, the first eight-year exercise cycle begins in the calendar year of the initial exercise required by Section IV.F.2.a</p>	<p><del>of exercises conducted during each eight year exercise cycle that documents the content of scenarios used to comply with the requirements of this paragraph. Each licensee shall conduct a hostile action exercise for each of its sites no later than December 31, 2015. The first eight-year exercise cycle for a site will begin in the calendar year in which the first hostile action exercise is conducted. For a site licensed under Part 52, the first eight-year exercise cycle begins in the calendar year of the initial exercise required by Section IV.F.2.a</del> <i>(Exemption requested 6/20/12)</i></p>
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#### **10 CFR 50, Appendix E IV. I**

<p><b>Onsite Protective Actions During Hostile Action</b>  By June 20, 2012, for nuclear power reactor licensees, a range of protective actions to protect onsite personnel during hostile action must be developed to ensure the continued ability of the licensee to safely shut down the reactor and perform the functions of the licensee's emergency plan.</p>	<p><b>Onsite Protective Actions During Hostile Action</b>  <del>By June 20, 2012, for nuclear power reactor licensees, a range of protective actions to protect onsite personnel during hostile action must be developed to ensure the continued ability of the licensee to safely shut down the reactor and perform the functions of the licensee's emergency plan.</del> <i>(Exemption requested 6/20/12)</i></p>
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Enclosure 3

ZNPS 2014 Exemption Request from Specific Requirements in 10 CFR 50.47 and  
10 CFR 50, Appendix E

Requirement	Exemption Requested	Justification
<b>10 CFR 50.47</b>		
(b)(10)  A range of protective actions has been developed for the plume exposure pathway EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. Evacuation time estimates have been developed by applicants and licensees. Licensees shall update the evacuation time estimates on a periodic basis. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.	<del>A range of protective actions has been developed for the plume exposure pathway EPZ for (Exemption granted by NRC 8/31/99) emergency workers and the public (Exemption granted by NRC 8/31/99). In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. Evacuation time estimates have been developed by applicants and licensees. Licensees shall update the evacuation time estimates on a periodic basis. (Exemption Requested 6/20/12) Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed. (Exemption granted by NRC 8/31/99)</del>	This change is to remove the remainder of the language that was not included in the exemption request granted on 8/31/99. The removal of the remaining wording does not change the intent of original exemption request. This change aligns with the wording contained in other NRC approved exemption requests.

**10 CFR Part 50, Appendix E. Section IV. C**

2.  By June 20, 2012, nuclear power reactor licensees shall establish and maintain the capability to assess, classify, and declare an emergency condition within 15 minutes after the availability of indications to plant operators that an emergency action level has been exceeded and shall promptly declare the emergency condition as soon as possible following identification of the appropriate emergency classification level. Licensees shall not construe these criteria as a grace period to attempt to restore plant conditions to avoid declaring an emergency action due to an emergency action level that has been exceeded. Licensees shall not construe these criteria as preventing implementation of response actions deemed by the licensee to be necessary to protect public health and safety provided that any delay in declaration does not deny the State and local authorities the opportunity to implement measures necessary to protect the public health and safety.	2.  <b>By June 20, 2012, nuclear power reactor</b> licensees shall establish and maintain the capability to assess, classify, and declare an emergency condition <b>within 15 minutes</b> after the availability of indications to plant operators that an emergency action level has been exceeded and shall promptly declare the emergency condition as soon as possible following identification of the appropriate emergency classification level. Licensees shall not construe these criteria as a grace period to attempt to restore plant conditions to avoid declaring an emergency action due to an emergency action level that has been exceeded. Licensees shall not construe these criteria as preventing implementation of response actions deemed by the licensee to be necessary <b>to protect public health and safety provided that any delay in declaration does not deny the State and local authorities the opportunity to implement measures necessary to protect the public health and safety.</b>	In the Proposed Rule (74 FR 23254) to amend certain emergency planning requirements for 10 CFR Part 50, the NRC asked for public comment on whether the NRC should add requirements for non-power reactor licensees to assess, classify, and declare an emergency condition within 15 minutes and promptly declare an emergency condition. The NRC received several comments on these issues. The NRC believes there may be a need for the NRC to be aware of security related events early on so that an assessment can be made to consider the likelihood that the event is part of a larger coordinated attack. However, the NRC determined that further analysis and stakeholder interactions are needed prior to changing the requirements for non power reactor licensees. Therefore, the NRC did not include requirements in the 2011 EP Final Rule for non power reactor licensees to assess, classify, and declare an emergency condition within 15 minutes and promptly declare an emergency condition. The staff considered the similarity between a permanently defueled reactor and a non-power reactor for the low likelihood of any credible accident resulting in radiological releases requiring
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		<p>offsite protective measures.</p> <p>The exemption request set forth in this attachment may differ from that requested in 2012 exemption request submittal. The language contained in the 2014 exemption request aligns with other NRC approved exemption requests.</p>
<b>10 CFR Part 50, Appendix E. Section IV. D</b>		
1.  Administrative and physical means for notifying local, State, and Federal officials and agencies and agreements reached with these officials and agencies for the prompt notification of the public and for public evacuation or other protective measures, should they become necessary, shall be described. This description shall include identification of the appropriate officials, by title and agency, of the State and local government agencies within the EPZs.	1.  Administrative and physical means for notifying local, State, and Federal officials and agencies and <b>agreements reached with these officials and agencies</b> for the prompt notification of the public and for public evacuation or other protective measures, should <b>they become necessary</b> ( <i>Exemption granted by NRC 8/31/99</i> ), shall be described. This description shall include identification <b>of the appropriate officials, by title and agency</b> , of the State and local government agencies <b>within the EPZs</b> ( <i>Exemption granted by NRC 8/31/99</i> ).	In the Statement of Considerations for the Final Rule for EP requirements for ISFSIs and for MRS facilities (60 FR 32430; June 22, 1995), the Commission responded to comments concerning offsite emergency planning for ISFSIs or an MRS and concluded that, “the offsite consequences of potential accidents at an ISFSI or a MRS [monitor retrievable storage installation] would not warrant establishing Emergency Planning Zones.” In a nuclear power reactor’s permanently defueled state, the accident risks are more similar to an ISFSI or MRS than an operating nuclear power plant. The draft proposed rulemaking in SECY-00-0145 suggested that after at least one year of spent fuel decay time, the decommissioning licensee would be able to reduce its EP program to one similar to that required for an MRS under 10 CFR 72.32(b) and additional EP reductions would occur when: (1) approximately five

	<p>years of spent fuel decay time has elapsed; or (2) a licensee has demonstrated that the decay heat level of spent fuel in the pool is low enough that the fuel would not be susceptible to a zirconium fire for all spent fuel configurations. The EP program would be similar to that required for an ISFSI under 10 CFR 72.32(a) when fuel stored in the SFP has more than five years of decay time and would not change substantially when all the fuel is transferred from the SFP to an onsite ISFSI. Exemptions from offsite EP requirements have been approved when the specific site analyses show that at least ten hours is available from a partial drain down event where cooling of the spent fuel is not effective until the hottest fuel assembly reaches 900°C. Because ten hours allows sufficient time to initiate mitigative actions to prevent a zirconium fire in the SFP or to initiate ad hoc offsite protective actions, offsite EP plans are not necessary for these permanently defueled nuclear power plant licensees.</p> <p>The language contained in the 2014 exemption request aligns with other NRC approved exemption requests.</p>
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10 CFR Part 50, Appendix E. Section IV. E		
8.a.i <p>A licensee onsite technical support center and an emergency operations facility from which effective direction can be given and effective control can be exercised during an emergency;</p>	8.a.i <p>A licensee <del>onsite technical support center and an emergency operations facility</del> (<i>Exemption granted by NRC 8/31/99</i>) from which effective direction can be given and effective control can be exercised during an emergency;</p>	Due to the low probability of design-basis accidents or other credible events to exceed the EPA PAGs, the significantly reduced staff and the minimal expected offsite response required, offsite agency response will not be required at an emergency operations facility (EOF) and onsite actions may be directed from the control room or other location, without the requirements imposed on a Technical Support Center (TSC).
9.c. <p>Provision for communications among the nuclear power reactor control room, the onsite technical support center, and the emergency operations facility; and among the nuclear facility, the principal State and local emergency operations centers, and the field assessment teams. Such communications systems shall be tested annually.</p>	9.c. <p>Provision for communications among the <del>nuclear power reactor control room, the onsite technical support center, and the emergency operations facility; and among the nuclear facility, the principal State and local emergency operations centers, and the field assessment teams</del> (<i>Exemption granted by NRC 8/31/99</i>). Such communications systems shall be tested annually.</p>	Because of the low probability of design-basis accidents or other credible events that would be expected exceed the EPA PAGs and the available time for event mitigation, there is no need for the TSC, EOF or field assessment teams.  Decommissioning power reactors present a low likelihood of any credible accident resulting in radiological releases requiring offsite protective measures because of the permanently shut down and defueled status of the reactor. An emergency operations facility would not be required. The “nuclear island” or “control room” or other location can provide for the communication and coordination with offsite organizations for the level of support required.

	<p>In the Statement of Considerations for the Final Rule for EP requirements for ISFSIs and for MRS facilities (60 FR 32430; June 22, 1995), the Commission responded to comments concerning offsite emergency planning for ISFSIs or an MRS and concluded that, "the offsite consequences of potential accidents at an ISFSI or a MRS [monitor retrievable storage installation] would not warrant establishing Emergency Planning Zones." In a nuclear power reactor's permanently defueled state, the accident risks are more similar to an ISFSI or MRS than an operating nuclear power plant. The draft proposed rulemaking in SECY-00-0145 suggested that after at least one year of spent fuel decay time, the decommissioning licensee would be able to reduce its EP program to one similar to that required for an MRS under 10 CFR 72.32(b) and additional EP reductions would occur when: (1) approximately five years of spent fuel decay time has elapsed; or (2) a licensee has demonstrated that the decay heat level of spent fuel in the pool is low enough that the fuel would not be susceptible to a zirconium fire for all spent fuel configurations. The EP program would be similar to that required for an ISFSI under 10 CFR 72.32(a) when fuel stored in the SFP has</p>
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		<p>more than five years of decay time and would not change substantially when all the fuel is transferred from the SFP to an onsite ISFSI. Exemptions from offsite EP requirements have been approved when the specific site analyses show that at least ten hours is available from a partial drain down event where cooling of the spent fuel is not effective until the hottest fuel assembly reaches 900°C. Because ten hours allows sufficient time to initiate mitigative actions to prevent a zirconium fire in the SFP or to initiate ad hoc offsite protective actions, offsite EP plans are not necessary for these permanently defueled nuclear power plant licensees.</p> <p>Communication with State and local EOCs is maintained to coordinate assistance on site if required.</p>
9.d.  Provisions for communications by the licensee with NRC Headquarters and the appropriate NRC Regional Office Operations Center from the nuclear power reactor control room, the onsite technical support center, and the emergency operations facility. Such communications shall be tested monthly.	9.d.  Provisions for communications by the licensee with NRC Headquarters and the appropriate NRC Regional Office Operations Center from the <b>nuclear power reactor control room, the onsite technical support center, and the emergency operations facility</b> ( <i>Exemption granted by NRC 8/31/99</i> ). Such communications shall be tested monthly.	The functions of the control room, EOF, TSC and OSC may be combined into one or more locations due to the smaller facility staff and the greatly reduced required interaction with State and local emergency response facilities.  In the Statement of Considerations for the Final Rule for EP requirements for ISFSIs and for MRS facilities (60 FR 32430; June 22, 1995), the Commission responded to comments concerning offsite

	<p>emergency planning for ISFSIs or an MRS and concluded that, “the offsite consequences of potential accidents at an ISFSI or a MRS [monitor retrievable storage installation] would not warrant establishing Emergency Planning Zones.” In a nuclear power reactor’s permanently defueled state, the accident risks are more similar to an ISFSI or MRS than an operating nuclear power plant. The draft proposed rulemaking in SECY-00-0145 suggested that after at least one year of spent fuel decay time, the decommissioning licensee would be able to reduce its EP program to one similar to that required for an MRS under 10 CFR 72.32(b) and additional EP reductions would occur when: (1) approximately five years of spent fuel decay time has elapsed; or (2) a licensee has demonstrated that the decay heat level of spent fuel in the pool is low enough that the fuel would not be susceptible to a zirconium fire for all spent fuel configurations. The EP program would be similar to that required for an ISFSI under 10 CFR 72.32(a) when fuel stored in the SFP has more than five years of decay time and would not change substantially when all the fuel is transferred from the SFP to an onsite ISFSI. Exemptions from offsite EP requirements have been approved when the</p>
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		specific site analyses show that at least ten hours is available from a partial drain down event where cooling of the spent fuel is not effective until the hottest fuel assembly reaches 900°C. Because ten hours allows sufficient time to initiate mitigative actions to prevent a zirconium fire in the SFP or to initiate ad hoc offsite protective actions, offsite EP plans are not necessary for these permanently defueled nuclear power plant licensees.
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**10 CFR Part 50, Appendix E, Section IV. F**

1.b  The program will provide for: The participation in training and drills by other persons whose assistance may be needed in the event of a radiological emergency shall be described. This shall include a description of specialized initial training and periodic retraining programs to be provided to each of the following categories of emergency personnel.	No Change	Not Applicable
1.b.i  Directors and/or coordinators of the plant emergency organizations	No Change	Not Applicable
1.b.ii  Personnel responsible for accident assessment, including control room shift personnel	1.b.ii  Personnel responsible for accident assessment, <b>including control room shift personnel</b>	With all spent fuel removed from the Spent Fuel Pool and transferred to the ISFSI, the need for control room staff no longer exists. Accident assessment will be conducted by the ISFSI Shift Supervisor, assisted by a Radiation Protection Technician and/or

		Directory, Radiation Protection
1.b.iii Radiological monitoring teams	1.b.iii <b>Radiological monitoring teams</b>	With all spent fuel removed and transferred from the Spent Fuel Pool to the ISFSI, the ZNPS source term is primarily consists of equipment activated as a result of previous plant operation. In this condition, there is no specific need for DSEP trained radiological monitoring teams. If needed, appropriate personnel will receive briefings by the Emergency Director, or designee, prior to performing DSEP related duties. Personnel and/or positions requiring specific DSEP training is controlled by Emergency Plan Implementing Procedures.
1.b.iv Fire control teams (fire brigades)	1.b.iv <b>Fire control teams (fire brigades)</b>	With all spent fuel removed and transferred from the Spent Fuel Pool to the ISFSI and decommissioning activities progressing, ZNPS relies upon procedural controls to minimize the likelihood of a fire and onsite personnel to detect and if possible extinguish a fire with portable fire extinguishers. If a fire cannot be extinguished with portable fire extinguishers, the Zion Fire and Rescue Department is used to combat the fire.
1.b.v Repair and damage control teams	1.b.v <b>Repair and damage control teams</b>	With all spent fuel removed and transferred from the Spent Fuel Pool to the ISFSI, and decommissioning activities progressing there is no specific need for DSEP trained repair and damage control

		teams. If needed, appropriate personnel will receive briefings by the Emergency Director, or designee, prior to performing DSEP related duties. Personnel and/or positions requiring specific DSEP training is controlled by Emergency Plan Implementing Procedures.
1.b.vi First aid and rescue teams	1.b.vi <del>First aid and rescue teams</del>	With all spent fuel removed and transferred from the Spent Fuel Pool to the ISFSI, and decommissioning activities progressing there is no specific need for DSEP trained first aid and rescue teams. If needed, appropriate personnel will receive briefings by the Emergency Director, or designee, prior to performing DSEP related duties. Personnel and/or positions requiring specific DSEP training is controlled by Emergency Plan Implementing Procedures.
1.b.vii Licensee headquarters support personnel	1.b.vii <del>Licensee headquarters support personnel</del>	<i>Exemption granted by NRC 8/31/99</i>
1.b.viii Security personnel	1.b.viii <del>Security personnel</del>	With all spent fuel removed and transferred from the Spent Fuel Pool to the ISFSI the ZNPS Physical Security Plan and associated personnel have been deactivated. ISFSI Security personnel, with the exception of the ISFSI Shift Supervisor do not have any DSEP related duties. The ISFSI Shift Supervisor becomes the Emergency Director upon activation of the DSEP and is therefore covered

		under 1.b.i of this paragraph. If ISFSI security personnel are utilized for DSEP activities they will receive briefings by the Emergency Director, or designee, prior to performing those duties.
1.b (numb.)  In addition, a radiological orientation training program shall be made available to local services personnel; e.g., local emergency services/Civil Defense, local law enforcement personnel, local news media persons.	1.b (numb.)  In addition, a radiological orientation training program shall be made available to local services personnel; e.g., local emergency services/ <b>Civil Defense</b> , local law enforcement personnel. , <del>local news media persons.</del> <i>(Exemption granted by NRC 8/31/99)</i>	Civil Defense as a distinct functional entity no longer exists. This request to eliminate Civil Defense from offered training is appropriate.
2.a  A full participation <sup>4</sup> exercise which tests as much of the licensee, State, and local emergency plans as is reasonably achievable without mandatory public participation shall be conducted for each site at which a power reactor is located. Nuclear power reactor licensees shall submit exercise scenarios under § 50.4 at least 60 days before use in a full participation exercise required by this paragraph 2.a.	2.a  <del>A full participation <sup>4</sup> exercise which tests as much of the licensee, State, and local emergency plans as is reasonably achievable without mandatory public participation shall be conducted for each site at which a power reactor is located. Nuclear power reactor licensees shall submit exercise scenarios under § 50.4 at least 60 days before use in a full participation exercise required by this paragraph 2.a (Exemption Requested 6/20/12).</del>	Since the need for off-site emergency planning is relaxed due to the low probability of design-basis accidents or other credible events that would be expected to exceed the limits of EPA PAGs and the available time for event mitigation, no off-site emergency plans are in place to test.  The intent of submitting exercise scenarios at power reactors is to check that licensees utilize different scenarios in order to prevent the preconditioning of responders at power reactors. For defueled sites, there are limited events that could occur and the previously routine progression to General Emergency in power reactor site scenarios is not applicable to a decommissioning site.

		The licensee is exempt from F.2.a.(i)-(iii) because the licensee is exempt from the umbrella provision of F.2.a.
2(a)(i)  For an operating license issued under this part, this exercise must be conducted within 2 years before the issuance of the first operating license for full power (one authorizing operation above 5 percent of rated thermal power) of the first reactor and shall include participation by each State and local government within the plume exposure pathway EPZ and each state within the ingestion exposure pathway EPZ. If the full participation exercise is conducted more than 1 year prior to issuance of an operating licensee for full power, an exercise which tests the licensee's onsite emergency plans must be conducted within one year before issuance of an operating license for full power. This exercise need not have State or local government participation	2(a)(i)  <del>For an operating license issued under this part, this exercise must be conducted within 2 years before the issuance of the first operating license for full power (one authorizing operation above 5 percent of rated thermal power) of the first reactor and shall include participation by each State and local government within the plume exposure pathway EPZ and each state within the ingestion exposure pathway EPZ. If the full participation exercise is conducted more than 1 year prior to issuance of an operating licensee for full power, an exercise which tests the licensee's onsite emergency plans must be conducted within one year before issuance of an operating license for full power. This exercise need not have State or local government participation</del>	The licensee is exempt from F.2.a.(i)-(iii) because the licensee is exempt from the umbrella provision of F.2.a.  See 10 CFR Part 50, Appendix E, Section IV. F 2(a) Justification.
2.a.ii  For a combined license issued under part 52 of this chapter, this exercise must be conducted within two years of the scheduled date for initial loading of fuel. If the first full participation exercise is conducted more than one year	2.a.ii  <del>For a combined license issued under part 52 of this chapter, this exercise must be conducted within two years of the scheduled date for initial loading of fuel. If the first full participation exercise is conducted more</del>	The licensee is exempt from F.2.a.(i)-(iii) because the licensee is exempt from the umbrella provision of F.2.a.  See 10 CFR Part 50, Appendix E, Section IV. F 2(a) Justification.

<p>before the scheduled date for initial loading of fuel, an exercise which tests the licensee's onsite emergency plans must be conducted within one year before the scheduled date for initial loading of fuel. This exercise need not have State or local government participation. If FEMA identifies one or more deficiencies in the state of offsite emergency preparedness as the result of the first full participation exercise, or if the Commission finds that the state of emergency preparedness does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, the provisions of § 50.54(gg) apply.</p>	<p><del>than one year before the scheduled date for initial loading of fuel, an exercise which tests the licensee's onsite emergency plans must be conducted within one year before the scheduled date for initial loading of fuel. This exercise need not have State or local government participation. If FEMA identifies one or more deficiencies in the state of offsite emergency preparedness as the result of the first full participation exercise, or if the Commission finds that the state of emergency preparedness does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, the provisions of § 50.54(gg) apply.</del></p>	
2.a.iii <p>For a combined license issued under part 52 of this chapter, if the applicant currently has an operating reactor at the site, an exercise, either full or partial participation,<sup>5</sup> shall be conducted for each subsequent reactor constructed on the site. This exercise may be incorporated in the exercise requirements of Sections IV.F.2.b. and c. in this appendix. If FEMA identifies one or more deficiencies in the state of offsite emergency preparedness as the result of this exercise for the new reactor, or if the Commission</p>	<p><del>For a combined license issued under part 52 of this chapter, if the applicant currently has an operating reactor at the site, an exercise, either full or partial participation,<sup>5</sup> shall be conducted for each subsequent reactor constructed on the site. This exercise may be incorporated in the exercise requirements of Sections IV.F.2.b. and c. in this appendix. If FEMA identifies one or more deficiencies in the state of offsite emergency</del></p>	The licensee is exempt from F.2.a.(i)-(iii) because the licensee is exempt from the umbrella provision of F.2.a. See 10 CFR Part 50, Appendix E, Section IV. F 2(a) Justification.

finds that the state of emergency preparedness does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, the provisions of § 50.54(gg) apply.	<b>preparedness as the result of this exercise for the new reactor, or if the Commission finds that the state of emergency preparedness does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, the provisions of § 50.54(gg) apply.</b>	
b.  Each licensee at each site shall conduct a subsequent exercise of its onsite emergency plan every 2 years. Nuclear power reactor licensees shall submit exercise scenarios under § 50.4 at least 60 days before use in an exercise required by this paragraph 2.b. The exercise may be included in the full participation biennial exercise required by paragraph 2.c. of this section. In addition, the licensee shall take actions necessary to ensure that adequate emergency response capabilities are maintained during the interval between biennial exercises by conducting drills, including at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities. The principal functional areas of emergency response include activities such as management and coordination of emergency response, accident assessment,	b.  Each licensee at each site shall conduct a subsequent exercise of its onsite emergency plan every 2 years. Nuclear power reactor licensees shall submit exercise scenarios under § 50.4 at least 60 days before use in an exercise required by this paragraph 2.b. (Exemption Requested 6/20/12) The exercise may be included in the full participation biennial exercise required by paragraph 2.c. of this section. (Exemption granted by NRC 8/31/99) In addition, the licensee shall take actions necessary to ensure that adequate emergency response capabilities are maintained during the interval between biennial exercises by conducting drills, including at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities. The principal functional areas of emergency response include activities such as management and	See basis for section IV.F.2.a.

<p>event classification, notification of offsite authorities, assessment of the onsite and offsite impact of radiological releases, protective action recommendation development, protective action decision making, plant system repair and mitigative action implementation. During these drills, activation of all of the licensee's emergency response facilities (Technical Support Center (TSC), Operations Support Center (OSC), and the Emergency Operations Facility (EOF)) would not be necessary, licensees would have the opportunity to consider accident management strategies, supervised instruction would be permitted, operating staff in all participating facilities would have the opportunity to resolve problems (success paths) rather than have controllers intervene, and the drills may focus on the onsite exercise training objectives.</p>	<p>coordination of emergency response, accident assessment, event classification, notification of offsite authorities, assessment of the onsite <del>and offsite</del> (<i>Exemption Requested 6/20/12</i>) impact of radiological releases, <b>protective action recommendation development, protective action decision making, plant</b> system repair and mitigative action implementation. During these drills, activation of all of the licensee's emergency response facilities (Technical Support Center (TSC), Operations Support Center (OSC), and the Emergency Operations Facility (EOF))<del>Support Center (TSC), Operations Support Center (OSC), and the Emergency Operations Facility (EOF))</del> (<i>Exemption granted by NRC 8/31/99</i>) would not be necessary, licensees would have the opportunity to consider accident management strategies, supervised instruction would be permitted, operating staff in all participating facilities would have the opportunity to resolve problems (success paths) rather than have controllers intervene, and the drills may focus on the onsite exercise training objectives</p>	
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