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10 CFR 50.4(b)(5)

0CAN122002

December 2, 2020

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

Subject: Emergency Plan and Emergency Plan Implementing Procedure

Arkansas Nuclear One, Units 1 and 2
NRC Docket Nos. 50-313, 50-368, and 72-13
Renewed Facility Operating License Nos. DPR-51 and NPF-6

Reference: U.S. Nuclear Regulatory Commission (NRC) letter to Entergy Operations, Inc., "Arkansas Nuclear One, Units 1 and 2 – Issuance of Amendments Re: Revision to the Emergency Action Level Scheme (EPID L-2018-LLA-0082)," (0CNA011902) (ML18337A247), dated January 17, 2019.

In accordance with 10 CFR 50.4(b)(5), 10 CFR 50.54(q)(5), 10 CFR 72.4, and 10 CFR 72.44(f), the Arkansas Nuclear One (ANO) Emergency Plan (EPlan) has been revised and is included in Attachment 2 of this letter. A summary of the changes to the EPlan is included in Attachment 1 of this letter.

This revision of the ANO EPlan is largely focused on moving the ANO Joint Information Center (JIC) from the ANO Reeves E. Ritchie Training Center (RERTC) to the Fine Arts building at the University of Arkansas Community College (UACCM) at 1537 University Blvd. in Morrilton, Arkansas. Revision 46 of the EPlan was implemented at the site on December 1, 2020

In accordance with 10 CFR 50.54(q), a screening and/or evaluation of the changes to the EPlan was performed. The screening and/or evaluation concluded that the changes do not reduce the effectiveness of the EPlan, and the EPlan continues to meet the standards of 10 CFR 50.47(b) and 10 CFR 50, Appendix E.

This amendment request contains no new regulatory commitments. If there are any questions or if additional information is needed, please contact Riley Keele, Manager, Regulatory Assurance, Arkansas Nuclear One, at 479-858-7826.

Respectfully,

ORIGINAL SIGNED BY RILEY KEELE, JR.

Riley Keele, Jr.

RDK/dbb

Attachments:

1. Summary of Changes to the ANO Emergency Plan
2. Arkansas Nuclear One Emergency Plan Revision 46

cc: NRC Region IV Regional Administrator

NRC Senior Resident Inspector – Arkansas Nuclear One

NRC Project Manager – Arkansas Nuclear One

NRC Director, Division of Spent Fuel Storage and Transportation

NRC Region IV Senior Emergency Preparedness Inspector

Designated Arkansas State Official

Attachment 1 to

0CAN122002

Summary of Changes to the ANO Emergency Plan

SUMMARY OF CHANGES TO THE ANO EMERGENCY PLAN

The following tables provide a brief description or summary of changes made to the Arkansas Nuclear One (ANO) Emergency Plan (EPlan) included in Attachment 2 of this submittal. A detailed assessment of each change is maintained on site and is available upon request. This summary includes changes completed in Revision 46 of the EPlan.

Each change is preceded by either "screen" or "evaluation", indicating whether the change required a full evaluation in accordance with 10 CFR 50.54(q). Those not requiring a full evaluation are preceded by the term "screen". Note that editorial changes to the Table of Contents are made to support the changes described in the following summary table, where necessary. Table of Contents updates are not discussed further.

Arkansas Nuclear One Emergency Plan, Revision 46	
Section Revised	**Description of Change**
Pages 20, Definitions	(Screen) – Deleted the following text from the definition of EMERGENCY DIRECTION AND CONTROL.). *A pre-determined, site-specific, observable threshold for an INITIATING CONDITION that, when met or exceeded, places the plant in a given emergency classification level.* This statement was redundant to that of the following definition, Emergency Action Level (EAL). This is an administrative only change and does not involve a technical change to the EPlan.
Sections B and F, Figures B-10 and F-1	(Screen) – Replaced references to the London Fire Department with reference to the "Local" Fire Department. This change aligns the EPlan with the NRC approved submittal of OP-1903.010, "Emergency Action Level Classification." for EAL Revision 6 implementation. The references in the respective blocks of Figures B-10 and F-1 were inadvertently missed during the last EPlan revision; this change corrects the previous omission. The change does not change the meaning or the intent of a description, facilities or equipment, or a process related to a planning standard element.
Section F, Table F-1	(Evaluation) – Deleted service for Entergy/Plant Phone System and Public Address System with respect to the Joint Information Center (JIC). See information regarding the new JIC location following this summary table.
Section G, Step 1.1	(Screen) – Deleted references that referred to obtaining information via a mobile application or website. Public information will remain available via printed materials and electronic media. In addition, removed commas from the bulleted items and the word "and" from the end of Bullet d (administrative only change). This change is intended to accurately describe the method of communications used for the public. This change provides clarification in the type and delivery of communication materials. Public information is still made available in the form of printed materials and electronic media. This change does not change the meaning or the intent of a description, facilities or equipment, or a process related to a planning standard element.
Section G, Step 2.0	(Evaluation) – Removed the following statement with respect to News Media Facilities: *As appropriate to the incident, the JIC Manager may also activate the Alternate JIC in the Little Rock offices of Entergy Arkansas, Inc. or other locations as appropriate.* See information regarding the new JIC location following this summary table.

Arkansas Nuclear One Emergency Plan, Revision 46	
Section Revised	**Description of Change**
Section H, Step 1.4	(Evaluation) – Deleted the following text: *The Reeves E. Ritchie Training Center (RERTC) also serves as the location for the Joint Information Center for coordinating the release of information to the media.* See information regarding the new JIC location following this summary table.
Section H, Steps 1.8 and 2.0	(Screen) – Simplified the activation of response centers in Section 1.8 by stating activation can be initiated as deemed appropriate to the incident. Also changed "Entergy Corporate telephone system" to ANO Plant telephone system in Section 2.0. This change aligns Section H-4 of the EPlan with EAL procedure OP-1903.010, Tables 1[2]C-5 and 1[2]S-4 with respect to communication methods. This is a title only change of the phone system with no physical change in the phone system. This change does not change the meaning or the intent of a description, facilities or equipment, or a process related to a planning standard element.
Section H, Step 2.2	(Evaluation) – Deleted the following text: *In the event of a JIC evacuation, an Alternate Joint Information Center (AJIC) may be activated at the Entergy Arkansas, Inc. facilities in Little Rock.* See information regarding the new JIC location following this summary table.
Appendix 1	(Screen) – Capitalized “Letter of Agreement” in Item 20 and added Item 22 as a reference to the new JIC location at UACCM. This is an administrative only change and does not involve a technical change to the EPlan.
Appendix 3	(Screen) – Added the following Corporate procedure references: *EN-EP-401 – Public Use of Emergency Preparedness Owner Controlled Area* *EN-EP-601 – Corporate Emergency Center Operations* *EN-EP-603 – Emergency Notifications* *EN-EP-604 – Emergency Classifications* *EN-EP-606 – Pandemic Flu Response* This is an administrative only change and does not involve a technical change to the EPlan.

The above changes to the EPlan support moving the current JIC at the ANO training center to the Fine Arts building at the UACCM (University of Arkansas Community College, 1537 University Blvd. in Morrilton, Arkansas 72110) and eliminating the Alternate JIC located in Little Rock. The function of all JIC positions and the function of the JIC has not changed. The new JIC location is located approximately 30 miles from the ANO site and outside the 10-mile Emergency Planning Zone (EPZ); thereby eliminating the need for an Alternate JIC. An Alternate JIC is required when a primary JIC is located within the 10-mile EPZ. There is no longer a need to maintain an Alternate JIC since the new JIC is physically located outside the 10-mile EPZ vice located onsite in the exclusion area such as with the previous JIC. The travel time between the site and the new JIC is approximately 35 minutes. The EPlan states the goal for the JIC is to be operational within 120 minutes of an Alert, or higher, Emergency Class. Emergency Planning (EP) staff and EP training have verified the ability to staff the new JIC within the required time. Also, based on the Emergency Response Organization (ERO) quarterly augmentation response times conducted on September 24, 2020, the response times were well within the 120-minute requirement thus verifying that JIC personnel can respond to the new JIC location and make the facility operational within the required timeframe. The changes to the ANO EPlan continue to maintain the effectiveness of the EPlan and meet the planning standards outlined in 10 CFR 50.47(b)(2) because JIC personnel can respond and the new JIC made operational within 120 minutes to augment the on-shift staff in a timely manner.

The new JIC has dedicated commercial telephones, a satellite phone, and faxes to communicate with onsite Emergency Response Facilities (ERFs). Since the new JIC is located offsite, public address announcements that were available at the previous Alternate JIC will not be available at the new JIC. The previous JIC had dedicated communication systems installed. The capability of the phone system that exists in the new JIC (commercial vs. Plant) has been demonstrated to meet requirements of an ERF. The new JIC also has an InForm personal computer that can receive Offsite Response Organization (ORO) notifications sent from the Control Room and Emergency Operations Facility. Communication capabilities also exists at the new JIC via the internet, email, and WebEOC. The JIC communication capabilities to perform all JIC functions were successfully demonstrated during drills. The changes to the ANO EPlan continue to maintain the effectiveness of the EPlan and meet the planning standards outlined in 10 CFR 50.47(b)(6) because the new JIC has multiple methods to communicate with ERFs and organizations, maintains the same communication methods as those at the Alternate JIC, and these capabilities have been successfully demonstrated during drills using this facility.

The new JIC houses the current ERO and ORO JIC positions. The current JIC processes are employed at the new JIC to perform all JIC functions. JIC personnel have successfully conducted drills in the new JIC demonstrating the functionality and capability to disseminate public information during emergencies, including rumor processing. Walkthroughs and drills were conducted for all teams from February through November of 2020. JIC ORO personnel performed a facility walkthrough in November 2020. The final move from the current JIC at the RERTC to the new JIC at UACCM is scheduled for December 1, 2020. The new JIC is located outside the 10-mile EPZ thereby eliminating the need for an Alternate JIC. The changes to the ANO EPlan continue to maintain the effectiveness of the emergency plan and meet the planning standards outlined in 10 CFR 50.47(b)(7) because JIC personnel have demonstrated the functionality and capability to disseminate public information during emergencies, including rumor processing, using the new facility.

The function of all JIC positions and the function of the JIC has not changed. The new JIC continues to provide guidance for coordination and distribution of public information releases concerning emergencies or events of potential public interest at ANO. The new JIC maintains the standard to provide prompt, accurate, and understandable information and establish central control over information releases in order to minimize contradictions and confusion. The new JIC has ample space and equipment to perform all JIC functions. A License Agreement is in place to ensure the facility is available for use during a declared emergency and the facility can be scheduled for drills and training. State and County OROs have been notified, briefed and provided information on the new JIC location. State and County OROs concurred with the relocation and toured the facility in November 2020. JIC personnel have been trained on the use of the new JIC facility. The new JIC functionality has been demonstrated by performing drills in the new facility in February, September, October, and November of 2020. The move from the current JIC at the RERTC to the new JIC at UACCM is scheduled for December 1, 2020. The changes to the ANO EPlan continue to maintain the effectiveness of the EPlan and meet the planning standards outlined in 10 CFR 50.47(b)(8) because the new JIC has the capability to perform all necessary functions during an emergency response, JIC personnel have been trained on use of facility, and a License Agreement ensures the facility is available for emergencies, drills and training. In addition, drills have been successfully conducted to demonstrate functionality of the facility.

The changes to the ANO EPlan continue to meet the planning standards outlined in 10 CFR 50.47(b)(2) – Onsite Emergency Organization, 10 CFR 50.47(b)(6) – Emergency Communications, 10 CFR 50.47(b)(7) – Emergency Public Information, and 10 CFR 50.47(b)(8) – Emergency Facilities and Equipment. The effectiveness of the EPlan is not reduced. Therefore, these changes can be incorporated without prior NRC approval.

Attachment 2 to

0CAN122002

Arkansas Nuclear One Emergency Plan
Revision 46

(201 pages)

ARKANSAS NUCLEAR ONE

EMERGENCY PLAN

Revision 46

Facility Operating License Numbers DPR-51 and NPF-6

Docket Numbers 50-313 and 50-368

Effective: December 1, 2020

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DEFINITIONS

Listed below are terms used in this Emergency Plan and the definitions that should be applied to these terms when used in the context of this Emergency Plan.

Activation – Actions taken to staff and setup an emergency response facility to make it operational. Actions include but are not limited to notification of emergency personnel, equipment setup and equipment operability testing.

ALARA – (As Low As Reasonably Achievable) - The level at which Entergy Operations strives to maintain personnel radiation exposure.

Alternate Emergency Operations Facility – The Entergy Arkansas, Inc. Russellville Service Center located in Russellville, Arkansas.

Assessment Actions – Those actions taken during or after an accident to obtain and process information on which decisions to implement specific emergency measures will be based.

Collocation – The process by which counterparts from ANO, ADH, ADEM, NRC, FEMA, and other agencies work side by side (collocate) in order to more efficiently respond to an emergency.

Contamination – Any license or byproduct material that can be detected above background radiation levels for a particular counting system. Verified alarm on an automated personnel contamination monitor or have detectable activity from direct frisk.

Corrective Actions – Those emergency measures taken to mitigate or terminate an emergency situation in order to prevent an uncontrolled release of radioactive material or to reduce the magnitude of a release, e.g., shutting down equipment, fire-fighting, repair and damage control.

Design Basis Accident (DBA) – Malfunctions or failures of equipment postulated for purposes of analysis to select limiting conditions for operations, safety systems setting and design specifications for equipment, components and systems from the standpoint of protection of public health and safety.

Dose – A generic term which means absorbed dose (RAD) or dose equivalent (REM) and is the quantity of radiation absorbed, per unit of mass, by the body or by any portion of the body.

Dose Rate Projections – The calculated estimate of a radiation dose rate to individuals at a given location, determined from the rate of radioactive material release and the appropriate meteorological transport and dispersion parameters (units typically in millirem, i.e., mrem/hr).

Dose Projections – The calculated estimate of a radiation dose to individuals at a given location, determined from the Dose Rate Projection at that location and the Projected Exposure Time interval during which the dose rate is expected to exist (units typically in millirem, i.e., mrem).

DEFINITIONS (Continued)

Emergency Direction and Control – Overall direction of facility response which must include the non-delegable responsibilities for the decision to notify and to recommend protective actions to Arkansas Department of Health personnel and other authorities responsible for offsite emergency measures. The direction of facility operations to mitigate accident consequences remains with the Emergency Plant Manager in the Technical Support Center and/or the Shift Manager/ED in the Control Room.

Emergency Action Level (EAL) – A pre-determined, site-specific, observable threshold for an INITIATING CONDITION that, when met or exceeded, places the plant in a given emergency classification level.

Emergency Classification Level (ECL) – One of a set of names or titles established by the US Nuclear Regulatory Commission (NRC) for grouping off-normal events or conditions according to (1) potential or actual effects or consequences, and (2) resulting onsite and offsite response actions. The emergency classification levels, in ascending order of severity, are:

Unusual Event (UE)
Alert
Site Area Emergency (SAE)
General Emergency (GE)

Emergency Notification System (ENS) – Dedicated emergency phones to the Nuclear Regulatory Commission Operations Center used as the primary means for the site to report emergencies and other significant events to the NRC.

Emergency Operations Center (EOC) – An offsite location used by State, local, and other governmental agencies to coordinate their activities during a response to an emergency situation.

Emergency Operations Facility (EOF) – A near-site emergency facility located approximately 0.65 miles northeast of the reactor buildings (Figure J-4 indicates the location of the Emergency Operations Facility).

Emergency Director (ED) – The designated senior management position who assumes Emergency Direction and Control from the Shift Manager/ED to direct the overall emergency response. Duties are discussed in Section B.

DEFINITIONS (Continued)

Emergency Planning Zones (EPZ) – Those areas around the nuclear facility which form the basis for emergency planning activities.

a. 10-mile EPZ (Plume Exposure Pathway) – The area within a 10-mile radius of ANO in which the principal sources of exposure are whole body external exposure to gamma radiation from the plume and from deposited materials and/or inhalation exposure from the passing radioactive plume. The duration of principal potential exposures could range in length from hours to days. This area is also referred to as the "inhalation exposure pathway."

b. 50-mile EPZ (Ingestion Exposure Pathway) – The area within a 50-mile radius of the ANO reactor buildings that may be affected by deposition from a radiological release. The principle exposure would be from the ingestion of water or foods and the potential exposure time could range from hours to months.

Emergency Response Organization (ERO) – The emergency organization composed of the Initial Response Staff, the Emergency Operations Facility staff, the Technical Support Center Staff, the Operational Support Center Staff, and the Emergency Team members. It has the capability to provide manpower and other resources necessary for immediate and long-term response to an emergency situation.

Exclusion Area – That area surrounding Arkansas Nuclear One within a minimum radius of 0.65 miles of the reactor buildings and controlled to the extent necessary by Entergy Operations during an emergency. This area includes certain portions of the bed and banks of the Dardanelle Reservoir which are owned by the United States. An easement has been obtained from the U. S. Army Corps of Engineers which entitles Entergy Operations, as an agent of Entergy Arkansas, Inc., to exclude all persons from these areas during an emergency. A map of the Exclusion Area is provided in Figure J-1.

Health Physics Network (HPN) – The primary means of communicating radiological data (onsite and offsite measurements and dose assessment information) from the licensee to the Nuclear Regulatory Commission.

Hostile Action – An act toward ANO or its personnel that includes the use of violent force to destroy equipment, take HOSTAGES, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILEs, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. Hostile action should **not** be construed to include acts of civil disobedience or felonious acts that are **not** part of a concerted attack on ANO. Non-terrorism-based EALs should be used to address such activities (i.e., this may include violent acts between individuals in the SECURITY OWNER CONTROLLED AREA).

Hostile Force – One or more individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.

DEFINITIONS (Continued)

Initial Response Staff (IRS) – The emergency organization primarily composed of plant personnel which must be able to augment the onsite plant personnel in accordance with Table B-1 of the Emergency Plan.

Joint Information Center (JIC) – An offsite location used by Entergy Operations, the state, local, and other governmental agencies for the purpose of addressing the news media of conditions at ANO.

Nuclear Planning and Response Program (NP&RP) – Office of the Arkansas Department of Health located at the Entergy Arkansas, Inc. Russellville Service Center for the purposes of assistance to local government.

Operational – Status of an emergency facility declared by the appropriate facility manager upon determining that the facility is adequately staffed and equipment is setup and available to assume/perform the emergency functions assigned to that facility.

Operational Support Center (OSC) – Emergency response center within the ANO Maintenance Facility where support is coordinated for the following functions: Onsite radiological monitoring, maintenance, chemistry, emergency medical support, fire-fighting support. The OSC, located in the Maintenance Facility, serves as the briefing area for repair and damage control teams. The "OSC Assembly Area", located in the Maintenance Facility serves as the designated assembly area for the repair and damage control teams.

Owner Controlled Area (OCA) – The external area contiguous to the designated reactor site Protected Area over which site Security exercises control. The OCA extends outward to the Entergy site property lines.

Plant Evacuation – The orderly withdrawal of all personnel from the protected area except for those personnel required to respond to the situation.

Primary Access Point – The primary location at the plant protected area boundary for entry/exit of personnel at ANO.

Projected Exposure Time – The estimated period of time that the population in the area surrounding Arkansas Nuclear One may be exposed to radiation, as a result of an accidental radioactive release.

Protected Area – An area clearly demarcated by a fence or building wall with an entrance portal that is regulated by Security Personnel to control access.

Protective Actions – Those measures taken during and after an emergency situation to minimize or eliminate the hazard to the health and safety of the general public and plant personnel.

Protective Action Advisory (PAA) – Recommendations by the State TOCD (or authorized representative) to local government for actions to protect the health and safety of the general public.

DEFINITIONS (Continued)

Protective Action Guide (PAG) – Projected absorbed dose to individuals in the general population which warrants protective action.

Protective Action Recommendation (PAR) – Recommendations of actions to be taken by offsite authorities that are based on plant conditions/radiological releases and resulting Emergency Classes. PAR's are discussed in Section J.2.1.

Protective Action Zone (PAZ) – An area of the 10-mile EPZ with readily identifiable geographical or political boundaries used for control of protective actions for the general public.

Rad – A measure of the dose of any ionizing radiation to body tissues in terms of the energy absorbed per unit mass of the tissue. One rad is the dose corresponding to the absorption of 100 ergs per gram of tissue (one millirad (mrad) - 0.001 rad).

Radiological Response Team Leader – The emergency position in the Arkansas Department of Health emergency response organization that is responsible for dose assessment, notification of local governments, and offsite Protective Action Advisories.

Recovery Actions – Those actions taken after the emergency to restore the plant as nearly as possible to its pre-emergency condition, or to a safe shutdown condition.

Rem – A measure of the dose of any ionizing radiation to body tissues in terms of its estimated biological effect relative to a dose of one roentgen (r) of X-rays (one millirem (mrem) - 0.001 rem).

Route Alerting – The process used to notify persons in the 10-mile EPZ of the need to listen to local broadcast stations if those persons are in an area with a known siren failure or NOAA radio system failure.

Secondary Operational Support Center – Locations within the Emergency Operations Facility which serve as alternate locations for the OSC Staff in the event of an evacuation of the OSC.

Secondary Technical Support Center – A location within the Emergency Operations Facility equipped with instrumentation and communications systems which serves as an alternate location for the TSC staff in the event of an evacuation of the TSC.

Security Owner Controlled Area (SOCA) – The SOCA is the area demarcated as a Vehicle Barrier System (VBS) consisting of passive elements including a series of large concrete blocks on the inside of a delay fence with early warning capabilities. The SOCA is the area between the SOCA Fence and the PROTECTED AREA Boundary.

State Emergency Operations Facility (SEOF) – The designated location from which State offsite incident management is coordinated. The SEOF will house the TOCD and designated staff as well as representatives for the Arkansas Department of Emergency Management designated by the ADEM Director.

Supplemental Notification – The process used to notify persons in the 10-mile EPZ who may not have received an initial notification to listen to local broadcast stations.

DEFINITIONS (Continued)

Technical Operations Control Director (TOCD) – The Arkansas Department of Health official, or a designated alternate, who is authorized to exercise technical operational control of offsite emergency response to radiological incidents.

Technical Support Center (TSC) – A location within the Arkansas Nuclear One Plant Administration Building equipped with instrumentation and communication systems and facilities useful in monitoring the course of an accident.

Vital Area – Any area within a protected area containing any equipment, system or device which, by result of failure, destruction or associated release, could directly or indirectly endanger the health and safety of the public.

Warning Points – Communications contact points, usually at the County Sheriff Department, established by the State of Arkansas to relay initial notification information from ANO to local, State and Federal agencies, and to the general public.

ABBREVIATIONS

Listed below are abbreviations used in this Emergency Plan and the terms that should be applied to these abbreviations when used in the context of this Emergency Plan.

ADEM	Arkansas Department of Emergency Management
ADH	Arkansas Department of Health
AEOF	Alternate Emergency Operations Facility
ALARA	As Low As Is Reasonably Achievable
ANO	Arkansas Nuclear One
ANS	American Nuclear Society
AWIN	Arkansas Wireless Information Network
CFR	Code of Federal Regulations
DLR	Dosimeter of Legal Record
DOE	Department of Energy
EAL	Emergency Action Level
ED	Emergency Director
ENS	Emergency Notification System
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EP	Emergency Planner
EPIP	Emergency Plan Implementing Procedure
EPM	Emergency Plant Manager
EPRI	Electric Power Research Institute
EPZ	Emergency Planning Zone
ERO	Emergency Response Organization
ERON	Emergency Response Organization Notification
FEMA	Federal Emergency Management Agency
FSAR	Final Safety Analysis Report
HPN	Health Physics Network
I&C	Instrument & Control
I&E	Inspection and Enforcement Office of the NRC

ABBREVIATIONS (Continued)

INPO	Institute of Nuclear Power Operations
IRS	Initial Response Staff
JIC	Joint Information Center
NP&RP	Nuclear Planning and Response Program
NRC	Nuclear Regulatory Commission
NUMARC	Nuclear Management and Resources Council
NUREG-0654	Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants
NUREG-0728	NRC Incident Response Plan (IRP)
OSC	Operational Support Center
PAA	Protective Action Advisory
PAG	Protective Action Guide
PAP	Primary Access Point
PAR	Protective Action Recommendation
PAZ	Protective Action Zone
PSC	Public Service Commission of the State of Arkansas
RAC	Radiological Assessment Coordinator
RDACS	Radiological Dose Assessment Computer System
SAG	Staff Augmentation Group
SE/STA	Shift Engineer / Shift Technical Advisor
SEOF	State Emergency Operations Facility
SOCA	Security Owner Controlled Area
STSC	Secondary Technical Support Center
TLD	Thermoluminescent Dosimeter
TOCD	Technical Operations Control Director
TSC	Technical Support Center
UAMS	University of Arkansas for Medical Sciences Hospital
10 CFR 20	Title 10 of the Code of Federal Regulations, Part 20
10 CFR 50	Title 10 of the Code of Federal Regulations, Part 50

CROSS REFERENCE INDEX NUREG-0654 / EMERGENCY PLAN

NUREG-0654 PLANNING STANDARD	EMERGENCY PLAN REFERENCE
A.1.a	A.2.0; C
A.1.b	A.1.0; C
A.1.c	Figure B-5, B-6, B-8, B-9, B-10
A.1.d	B; Table B-1; Figures B-4, B-6, B-11
A.1.e	B.4.0; F.1.0, F.2.0
A.2.a	N/A
A.2.b	N/A
A.3	A; C; Appendix 1
A.4	B.2.0, B.3.0, B.4.0; Figures B-2, B-4, B-5, B-6
B.1	B.1.0, B.2.0, B.3.0; Table B-1; Figures B-2, B-3, B-11
B.2	B.2.0, B.2.1; Figures B-2, B-11
B.3	B
B.4	B.2.1, B.3.1
B.5	B.2.0, B.3.0, B.4.0; Table B-1 Figures B-5, B-6, B-11, B-12; M.2.0
B.6	A; B.4.0; Figures B-5, B-7, B-8; C
B.7	B.2.0, B.3.0, B.4.0; Table B-1; Figures B-2, B-4, B-8, B-9, B-10; M.2.0
B.7.a	B.3.1.11; M.2.4; Figure B-5
B.7.b	B.3.2, B.3.3; M.2.1, M.2.2, M.2.5, M.2.6, M.2.7
B.7.c	B.3.0, B.4.0; Figures B-3, B-8, B-10
B.7.d	B.3.4; G.2.0, G.3.0; Figure B-12
B.8	A.2.7, C.6.0; Figure B-9
B.9	A.2.3, A.2.4, A.2.5; C.3.0; Figure B-8; Appendix 1

CROSS REFERENCE INDEX NUREG-0654 / EMERGENCY PLAN (Continued)

NUREG-0654 PLANNING STANDARD	EMERGENCY PLAN REFERENCE
C.1.a	C.1.0
C.1.b	C.2.0
C.1.c	C.5.0
C.2.a	N/A
C.2.b	A.2.1.1; C.3.0
C.3	C.4.0
C.4	A.2.6, A.2.7; C.2.0, C.6.0; Appendix 1
D.1	D.1.0, D.2.0, D.3.0, D.4.0, D.5.0, D.6.0; Table D-1
D.2	D.6.0; Table D-1
D.3	N/A
D.4	N/A
E.1	E.1.0
E.2	E.1.0; F.3.0
E.3	E.2.0
E.4	E.2.0
E.5	N/A
E.6	E.3.0, E.4.0; H.2.4
E.7	E.4.0; G.1.0, G.2.0, G.3.0; J.2.0; Appendix 6
F.1.a	E.1.0; F.1.0; Figure F-1
F.1.b	F.2.1; Figure F-1; Table F-1
F.1.c	F.2.1; Figure F-1; Table F-1
F.1.d	F.2.1, F.2.2, F.2.4; Table F-1; H.2
F.1.e	E.1.0; F.1.0; Figure F-1

CROSS REFERENCE INDEX NUREG-0654 / EMERGENCY PLAN (Continued)

NUREG-0654 PLANNING STANDARD	EMERGENCY PLAN REFERENCE
F.1.f	F.2.0; Table F-1; H.2.0
F.2	F.2.3, Table F-1; Figure F-1
F.3	E.3.0; F.2.1; H.2.0
G.1	INTRO; G.1.1, G.1.2
G.2	G.1.2
G.3.a	G.2.0
G.3.b	G.2.0
G.4.a	G.3.0
G.4.b	G.3.0
G.4.c	G.3.0
G.5	G.4.0
H.1	H.1.2, H.1.3
H.2	H.1.4
H.3	N/A
H.4	B; E; F; H.1.0
H.5	H.3.1, H.6.0; I.2.0
H.5.a	H.3.1; I.2.1.2
H.5.b	H.3.1; I.2.2
H.5.c	H.3.1; I.2.2
H.5.d	H.6.0; I.2.1.1
H.6.a	I.2.1.2
H.6.b	I.2.2.3.c, I.2.3.3; K.1.2
H.6.c	H.3.2

CROSS REFERENCE INDEX NUREG-0654 / EMERGENCY PLAN (Continued)

NUREG-0654 PLANNING STANDARD	EMERGENCY PLAN REFERENCE
H.7	H.3.2; J.2.5
H.8	H.3.1; I.2.2.4
H.9	H.1.3, H.1.4; Appendix 4
H.10	H.3.2
H.11	Appendix 4
H.12	H.1.4, H.3.2; I.2.3.2
I.1	D.6.0, D.7.0
I.2	I.2.2.2, I.2.2.3, I.2.2.6
I.3.a	I.2.2.7
I.3.b	I.2.2.7
I.4	I.3.0
I.5	I.2.2.4
I.6	I.2.2.3, I.2.2.6, I.2.2.7
I.7	I.2.3
I.8	E; F; H.2.1, H.3.2, H.7.0; I.2.3
I.9	I.2.3.3
I.10	I.3.1
I.11	N/A
J.1	J.1.1, J.1.2, J.1.3, J.1.4, J.2.2, J.2.3
J.2	J.1.2, J.1.3, J.1.7
J.3	J.1.3.1, J.1.7.1
J.4	J.1.1, J.1.3.1; K.3.1.1
J.5	J.1.6.2

CROSS REFERENCE INDEX NUREG-0654 / EMERGENCY PLAN (Continued)

NUREG-0654 PLANNING STANDARD	EMERGENCY PLAN REFERENCE
J.6	J.1.7
J.7	J.2.1, J.2.2
J.8	J.2.3
J.9	N/A
J.10.a	J.2.1.3
J.10.b	J.2.1.3
J.10.c	J.2.2, J.2.3
J.10.d through J.10.e	NA
J.11	N/A
J.12	N/A
K.1	K.1.1; M.3.5
K.2	K.1.1; M.3.5
K.3.a	K.1.2
K.3.b	K.1.2
K.4	N/A
K.5.a	K.3.0
K.5.b	K.3.0, K.4.0
K.6.a	K.2.1
K.6.b	K.2.3
K.6.c	K.3.0
K.7	K.3.1
L.1	L.3.0
L.2	L.1.0; O.2.4

CROSS REFERENCE INDEX NUREG-0654 / EMERGENCY PLAN (Continued)

NUREG-0654 PLANNING STANDARD	EMERGENCY PLAN REFERENCE
L.3	N/A
L.4	L.2.0
M.1	M.1.0, M.3.0
M.2	M.2.0
M.3	M.1.0
M.4	I.3.1
N.1.a	N.1.0
N.1.b	N.1.0
N.2.a	N.2.1
N.2.b	N.2.2
N.2.c	N.2.3
N.2.d	N.2.4
N.2.e	N.2.5
N.3	N.3.0
N.4	N.3.0, N.4.0
N.5	N.4.0
O.1.a	O.3.0
O.1.b	N/A
O.2	N; O.1.0, O.2.0,
O.3	O.2.4
O.4	O.1.0, O.2.0, O.3.0
O.5	O.1.0, O.2.0, O.3.0
P.1	P.4.0

CROSS REFERENCE INDEX NUREG-0654 / EMERGENCY PLAN (Continued)

NUREG-0654 PLANNING STANDARD	EMERGENCY PLAN REFERENCE
P.2	P.1.0
P.3	P.1.0
P.4	P.2.0
P.5	P.2.0
P.6	INTRO - 2.2
P.7	Appendix 3
P.8	Table of Contents Cross Reference Index
P.9	P.2.0
P.10	P.3.0

INTRODUCTION

1.0 STATEMENT OF EMERGENCY PLANNING POLICY

It is the policy of Entergy Operations, Incorporated that unusual events or accidents which may occur at its nuclear facilities are responded to in an organized and planned manner in order that potential hazards and concerns of the public as a result of the event or incident may be minimized. This response is based on the best understanding of the actual situation, with prudent actions and defined plans for possible complications. It is an essential part of this policy to provide prompt and publicly understandable information about these events to the nearby community and the public at large so that theirs may be an informed response.

The Arkansas Nuclear One Emergency Plan implements this Entergy Operations policy by establishing a company-wide organization for emergency response and planned response program to be activated should incidents at the Company's nuclear facilities have the potential for an external impact. Because these incidents may range from minor events requiring only a public information release to major events involving serious offsite consequences, the Emergency Plan was prepared with consideration to this variance. The Emergency Plan incorporates an orderly and timely decision-making process which ensures that the response is appropriate to the situation. The Emergency Plan creates a foundation of required information and guidelines for responsive decision-making, and, in addition, ensures the availability of the necessary facilities, equipment, supplies, services and personnel to handle emergency situations.

The Emergency Plan provides assurance that an effective interface between Entergy Operations and the Federal, State and local government agencies responsible for radiological response planning has been established. The Plan assures that appropriate measures are taken promptly to protect the health, safety, and property of the public for situations involving potential radiological hazards.

The Emergency Plan includes by reference the Arkansas Nuclear One Emergency Plan Implementing Procedures; defines the division of responsibilities and the support of site and corporate groups; and serves as a preparedness document for site and corporate response guidance. Details of implementation of the Emergency Plan such as step-by-step instructions, checklists, and telephone numbers are contained in the Emergency Plan Implementing Procedures and the Emergency Telephone Directory.

2.0 SCOPE AND APPLICABILITY

This section of the Emergency Plan defines the unit, station, and area to which the Plan applies and presents a summary of the Plan's interrelationships with (1) its implementing procedures; (2) plant operating, radiological control, and industrial security procedures; and (3) emergency plans of participating agencies, particularly the Arkansas Comprehensive Emergency Management Plan (ARCEMP), Annex V - Arkansas Nuclear One Radiological Incident Response Plan and the individual County Plans for Pope, Johnson, Yell, Conway, and Logan Counties which are discussed in Section A.

2.1 PHYSICAL AREA INVOLVED

This Emergency Plan is for incidents which may occur at either Unit 1 or Unit 2 of Arkansas Nuclear One located in Pope County, Arkansas, approximately five miles west-northwest of the town of Russellville. This Emergency Plan is primarily applicable to the Arkansas Nuclear One Exclusion Area and the Emergency Planning Zones within a ten mile and fifty mile radius of Arkansas Nuclear One as shown on Figures J-1, J-2, and J-3, respectively, although provisions exist for extending these areas in the unlikely event this coverage is necessary. Figure J-2 is divided into sixteen 22½-degree sectors (designated as sectors 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16) and ten lettered radial zones at one mile radii from the center of the plant in order to identify the area surrounding the plant by sector and zone nomenclature. Figure J-4 depicts the location of the Arkansas Nuclear One Emergency Operations Facility and the site evacuation routes. The location of thermoluminescent dosimeters (TLDs) in the area surrounding the plant is provided in Figure J-5.

2.2 PLANS AND IMPLEMENTING PROCEDURES SUMMARY

Entergy Operations, Incorporated is responsible for overall emergency response planning and implementation. The Emergency Plan describes the provisions made by Entergy Operations to respond to emergency situations within the Exclusion Area, and establishes the interfaces between Entergy Operations and local, State and Federal organizations capable of responding to plant-related emergencies which may extend outside the Exclusion Area. Details concerning implementation of the Emergency Plan which are reasonably expected to change from time-to-time (e.g., names and telephone numbers, specific items of equipment and supplies, inventory lists, and step-by-step procedures or checklists that may be altered as a result of experience or exercises) are contained in the Emergency Plan Implementing Procedures maintained at Arkansas Nuclear One and other designated emergency response facilities.

The titles of these Emergency Plan Implementing Procedures are provided in Appendix 3. In the event of an emergency, the normal plant operating and radiological procedures are followed unless superseded by one of the Emergency Plan Implementing Procedures.

The local and state governmental agency response to plant-related emergencies which may extend outside the Exclusion Area is coordinated by the Arkansas Department of Health/Arkansas Department of Emergency Management and is described in the State of Arkansas Emergency Operations Plan, Annex V, a summary of which is included in Section A. Like the Arkansas Nuclear One Emergency Plan, details concerning implementation of the State Emergency Operations Plan are contained in implementing procedures which are maintained in the appropriate government offices. A summary of the individual plans for Pope, Johnson, Yell, Conway, and Logan counties are included in Section A.

Arkansas Nuclear One Emergency Instructions are made available to Pope, Yell, Logan and Johnson Counties. The Emergency Instructions are prepared and distributed by the state and local governments and Entergy Operations. Distribution of these instructions within the 10-Mile Emergency Planning Zone is made by one of three means. First, communication media are mailed annually to each rural and urban postal patron for use by the permanent population. Second, communication media are posted in public use areas such as State and Federal parks for use by the transient population. Third, communication media is distributed to public facilities and businesses. Dissemination of Public Information and its' content is further explained in Section G.

The Emergency Plan includes security threats to the plant as emergency situations. The responses to these situations are described in the Arkansas Nuclear One Security Plan. Security during emergency situations is maintained in accordance with the Security Plan which is implemented by separate Security Plan Implementing Procedures.

Fire-fighting equipment installed at Arkansas Nuclear One is described in the Fire Hazards Analysis. Fire-fighting activities during emergency situations are conducted in accordance with the Pre-Fire Plans and the Plant Procedures. Additional fire-fighting support may be provided by the Local Fire Department.

Arrangements have been made for local assistance from medical, law enforcement, fire-fighting and other support organizations in the event such assistance should be required to supplement the plant organization. These arrangements include letters of agreement/contracts between Entergy Operations and the individual support organizations and the development of Emergency Plan Implementing Procedures for the coordination of any assistance which may be requested. These letters of agreement/contracts are summarized in Appendix 1.

3.0 SUMMARY OF EMERGENCY PLAN

This section summarizes the objectives of the Emergency Plan and describes the principal elements of the overall emergency planning logic.

3.1 EMERGENCY PLAN OBJECTIVES

The objectives of the Emergency Plan are to:

a. establish an emergency organization to cope with emergency situations,

b. identify personnel and delineate their duties and responsibilities in the emergency organization,

c. identify emergency conditions, establish criteria for classifying emergency situations, implement prompt corrective and mitigating actions, perform dose assessment and issue appropriate Protective Action Recommendations,

d. establish a system for reporting emergency situations to local, State, and Federal governmental agencies in compliance with the criteria for notification,

e. establish a system for requesting emergency assistance,

f. establish procedures which coordinate the response of local, State, and Federal governmental agencies for emergency situations,

g. establish a system of communications for use during emergencies, and

h. identify the equipment and facilities available to respond to emergency conditions.

3.2 SUMMARY OF THE EMERGENCY PLANNING LOGIC

3.2.1 Graded Classification System

This Emergency Plan is based on a system of classification of unusual or emergency situations that present, or have the potential for creating, a hazardous condition. The classification system divides these situations into four subgroups, each of an increasingly hazardous nature, and provides specific criteria, responsibilities, and actions for each of these subgroups. The subgroups are referred to as Emergency Classes. As emergency situations develop or continue, they might be upgraded or downgraded from one Emergency Class to another. This graded classification system is described in Section D.

3.2.2 Emergency Organizations

This Emergency Plan describes emergency organizations which are capable of assembling and effectively utilizing sufficient resources in response to each of the four Emergency Classes. These organizations consist of the Initial Response Staff, which can quickly respond to the immediate needs of the situation, and the Emergency Response Organization, which can provide sufficient resources to respond to the more long-term needs of the situation. These emergency organizations are described in Section B.

3.2.3 Emergency Measures

This Emergency Plan describes the measures that are taken in response to each Emergency Class, and assigns specific duties to members of the emergency organization. These measures are categorized as assessment actions, protective actions, corrective actions and recovery actions. These actions are directed toward the following:

a. termination of the incident;

b. establishment of channels of information;

c. limitation of the area of effect;

d. protection of equipment and facilities;

e. care of directly involved personnel;

f. definition of the boundaries of the emergency area; and

g. establishment of access control.

When control of the incident has been attained and there is no further danger to personnel and the emergency phase is at an end, recovery and restoration operations are then carried out. The emergency measures for each Emergency Class and for recovery measures are described in Section D and Section M, respectively.

3.2.4 Equipment and Facilities

This Emergency Plan describes the equipment and facilities which have been provided for the protection of plant personnel and the public, and the responsibilities for using the equipment and facilities for each Emergency Class. Additional equipment is assembled at the time of an emergency as is appropriate to the situation. Equipment and facilities available are described in Section H.

3.2.5 Training

In order for this Emergency Plan to be effective and to maintain a high level of effectiveness, training of plant personnel, support groups and the public must be performed periodically. Section O describes the training provided for plant personnel and support groups to maintain their emergency preparedness. Public education is discussed in Section G.

A ASSIGNMENT OF RESPONSIBILITY

This section describes the agreements between Entergy Operations and other organizations on assignments of responsibilities for the overall response to emergency situations at Arkansas Nuclear One (ANO). The functions and responsibilities of the Company, offsite support organizations, and State, Federal, and local governments are specifically discussed.

1.0 ENTERGY OPERATIONS, INCORPORATED

Entergy Operations, Incorporated has overall responsibility for all emergency planning associated with Arkansas Nuclear One. Therefore, Entergy Operations has entered into agreements with the State of Arkansas, local organizations, and Federal organizations to establish an emergency plan which delineates the roles of Entergy Operations and other response organizations. The response role of the State of Arkansas is described in detail in the Arkansas Emergency Operations Plan, Annex V.

The Emergency Plan describes the provisions to activate an emergency response organization to manage the emergency response within the Exclusion Area; coordinate mutual support activities between ANO and offsite response organizations; provide recommendations to the State on emergency actions; and assure communications between response organizations.

Once the Emergency Response Organization (ERO) is activated, Entergy Operations contacts with senior management of State agencies responding to the incident are coordinated by the EOF Emergency Director (ED) or his designee. Initial notification of and continued coordination with the Governor of the State of Arkansas is the responsibility of the Chief Executive Officer of Entergy Operations, Incorporated and the ED. In general, Entergy Operations coordinates its response with the Arkansas Department of Health (ADH), and this agency, in conjunction with the Arkansas Department of Emergency Management (ADEM), coordinates the support of other State agencies which may be required to respond.

During the initial response, notification of, and coordination with local support services (fire, medical, police), when their support is required at ANO, is the responsibility of ANO personnel.

1.1 RESPONSIBILITIES

The responsibilities of Entergy Operations are described within the Emergency Plan as follows:

		Section(s)
a.	establish an emergency organization;	B
b.	identify personnel and delineate their duties and responsibilities in the emergency organization;	A, B
c.	establish criteria for classifying emergency situations;	D
d.	establish a system for reporting emergency situations to local, State, and Federal governmental agencies in compliance with the criteria for notification;	E, F
e.	establish a system for requesting emergency assistance;	C, F
f.	establish procedures which coordinate the response of Entergy Operations and local, State, and Federal governmental agencies for emergency situations;	B, C, F, G, H, J, K, L, M
g.	establish a system of communications for use during emergencies; and	F
h.	identify possible emergency conditions and the equipment and facilities available to respond to such conditions.	H, I

1.2 ENTERGY OPERATIONS/ENTERGY OFFSITE DEPARTMENT/SECTION CAPABILITIES

This section of the Emergency Plan summarizes the capabilities of major offsite departments within the Company. Generally these services are not required except for events which require extended ERO activation (greater than 24 hours). Interface between the ERO and offsite organizations are discussed in the appropriate subsection and/or implementing procedure. Details for implementing responsibilities and actions which are interdepartmental in nature are contained in implementing procedures for this Plan.

The effectiveness of Entergy Operations in rapidly and effectively responding to an emergency condition at ANO is predicated upon having defined methods to obtain the service capabilities within the organization and being able to appropriately utilize these capabilities in a coordinated effort with other emergency response agencies in specific emergency situations. Certain capabilities already designated as sectional or departmental responsibilities under normal company-wide activities are available, including:

- Engineering Services
- Government Liaison
- Public Relations
- Financial, Regulatory and Legal Services
- Administering Nuclear Property Insurance
- Safety, Health, and Claims
- Transportation
- Communications
- Offsite Security
- Computer Technical, Analytical, and Programming Assistance
- Quality Assurance

Other specialized capabilities which exist in the corporate organization are available to the plant operating staff and emergency response agencies to assist their efforts in coping with the emergency situation, including:

- Coordination of Emergency Response Efforts
- Transient and Accident Analyses
- Radiological Monitoring and Analyses
- Area Logistical Support
- Materials Procurement
- Construction Services Meteorology

The release of information within Entergy Operations and Entergy regarding an incident is approved by the ED and coordinated by the JIC Manager. The JIC Information Coordinator provides approved updates to Entergy Operations and Entergy employees through Entergy Information Center and the Customer Services Department.

2.0 OFFSITE SUPPORT ORGANIZATIONS

Entergy Operations has overall responsibility for establishing and implementing emergency planning. Entergy Operations has agreements with other organizations to provide offsite support to implement emergency actions. This section discusses the State, local, federal, and private sector organizations that are a part of the overall response organization. The following areas are discussed: 1) primary responsibilities of the various supporting organizations for emergency response; 2) the operational role of the various organizations; and 3) the interface of these organizations with the ANO emergency response staff and other organizations, as applicable.

2.1 ARKANSAS PRIMARY GOVERNMENTAL SUPPORT ORGANIZATIONS

Local and State government have the responsibility for implementation of the State and local emergency plans for the ten and fifty mile emergency planning zones. The general concept of operations used to insure the health and safety of the public is to carry out emergency actions at the lowest level of government having adequate resources to do so.

Under this concept it has been recognized that the local jurisdictions ordinarily will not have the capability for assessing the radiological impacts of an incident. This function is therefore performed by the State and ANO. ANO provides offsite Protective Action Recommendations (PAR). The State has the capability to assess ANO's recommendations and issue protective action advisories to the public.

Local authorities implement initial logistical support activities in coping with emergencies and request relief from the next higher level of government or ANO if resources at that level prove inadequate.

The total offsite State of Arkansas radiological emergency response plan is composed of five county plans for Johnson, Logan, Yell, Conway, and Pope Counties, and the State Emergency Operations Plan. The interfaces between the state and county response plans are defined in Annex V of the State Emergency Operations Plan. Within this plan are provisions for warning and notification of local government and the public, radiological accident assessment, offsite Protective Action Advisories, and State resource assistance for local government. Annex V, being part of the State Emergency Operations Plan, interfaces with all emergency plans for State agencies with response roles in all types of emergencies. This allows considerable resources to become available to protect the public health and safety.

The Arkansas Department of Emergency Management coordinates requests for additional assistance to support the offsite emergency response and recovery efforts of State, county, and municipal agencies and departments as provided in the Arkansas Emergency Operations Plan. The Arkansas Department of Health (ADH) coordinates with ANO on assessment and provides advisories for the emergency precautions and recovery precautions needed to protect the general public. The five county response plans contain the mechanism for local government to implement the protective actions recommended. The plans for local governments follow the same format, modified to conform to the resource limitations of a given jurisdiction.

The responsibilities of the various participating agencies are described in this section. Interfaces between the Initial Response Staff, the Emergency Response Organization, and participating government agencies are shown in Figures B-3, B-8, and B-10.

2.1.1 Local Government

The Arkansas Emergency Services Act 511 of 1973, as amended, requires the highest elected official of political subdivisions to be responsible for pre-emergency logistical planning and response actions to a radiological incident affecting the lives and property within their political jurisdictions. County Radiological Emergency Response Plans have been established for those counties within the 10-mile Emergency Planning Zone. Each county judge has appointed a local Emergency Management Coordinator to administer the emergency preparedness program.

Responsibilities of local governments include providing citizens of the affected area with protection to minimize adverse health effects and a plan of action for orderly response to an incident; specifying the means for immediate notification of the population at risk within the 10-mile Emergency Planning Zone; and upon receipt of notification that a radiological incident has occurred or is imminent, implementing the County Radiological Response Plan to a degree consistent with the magnitude of the incident.

The Technical Operations Control Director (TOCD) of the ADH acts as liaison between ANO and local officials. Upon notification of an emergency, the county officials activate the County Emergency Operations Center and implement the Radiological Emergency Response Plan as necessary. Local requests for additional assistance or equipment are coordinated through the TOCD with the Director of the Arkansas Department of Emergency Management. Examples of actions which can be taken by local officials upon the recommendation of the TOCD include:

a. Evacuation or sheltering of the public;

b. restriction of unnecessary movement of personnel into areas; and

c. discontinuance of use of contaminated food and water supplies.

ANO provides, upon request by the county, liaison personnel at each local Emergency Operations Center in Pope, Logan, Yell, Conway, and Johnson Counties.

2.1.2 State Government

Ultimate responsibility for the welfare of citizens and continuity of government of the State of Arkansas rests with the Governor. Under the emergency management system of the State of Arkansas, authorized by the Arkansas Emergency Services Act and the ARKANSAS EMERGENCY OPERATIONS PLAN which is published by directive of the Governor, each emergency function assigned to State and volunteer agencies requires that some agency assume primary responsibility for accomplishment of the task. In each instance, one or more other State agencies are assigned supporting roles to provide specialized assistance to the primary agency.

In keeping with the federal regulations and guidelines on which it is based, the responsibilities of "principal organization" for off-site radiological emergency response planning and preparedness in support of Arkansas Nuclear One are shared between two agencies:

a. The Arkansas Department of Health (ADH)

The ADH under State law has the primary responsibility for protecting the health and safety of the general public from radiological incidents. Therefore, it has the authority to recommend any precautions (such as evacuation or sheltering) which are required to protect the general public. Additionally, the ADH is responsible for the control of all agricultural products and agricultural production for the purpose of reducing the possible radiation health hazards. Responsibilities of the ADH include providing personnel and equipment to the Radiological Response Team, as outlined in Chapter 4 of Annex V of the Arkansas Emergency Operations Plan; and, coordinating with the Offsite Monitoring Section of the ANO Emergency Radiation Team through the Radiological Assessment Coordinator, or designee, for sharing information regarding:

1. monitoring
2. decontamination
3. determination of magnitude of release and radiation levels
4. dose assessment

The ADH coordinates the warning of, and communications with, the general public in affected areas.

Recommendation of precautionary actions to the public during and after an incident at Arkansas Nuclear One are made by the ADH. The ADH coordinates, to the extent possible, all information disseminated to the public regarding the severity and magnitude of an incident at Arkansas Nuclear One. The ADH is responsible for the initial notification and coordination of local services support to the public.

The individual with Emergency Direction and Control is responsible for the decision to notify the ADH and local officials of the declaration of an Emergency Class at Arkansas Nuclear One.

The ADH maintains a 24-hour communications center which receives the notification from ANO. Annex V of the State Emergency Operations Plan describes the activation of the State response organization and the interfaces and duties of these organizations.

Initial liaison during an incident at ANO is established through the Shift Manager/ED and the ADH Technical Operations Control Director (TOCD) or their respective designees. Upon formal turnover, the Shift Manager/ED transfers this responsibility to the EOF Emergency Director (ED). Coordination of the response during a protracted incident at ANO is between the ED and the Technical Operations Control Director or their respective designees. ANO recommendations are provided to the TOCD. The TOCD issues advisories to local government officials and activates the local broadcast stations and emergency warning systems as described in Annex V to the State Emergency Operations Plan as appropriate.

For a Notification of Unusual Event emergency class, the ADH may dispatch the State Radiological Response Team to the site.

For an Alert, Site Area Emergency, or General Emergency, the ADH dispatches the State Radiological Response Team to the site. Team members perform appropriate measurements and analyses in the vicinity of the site and the Accident Assessment Officer makes an assessment of the public health hazard. On the basis of that assessment, the team leader recommends implementation of protective actions as set forth in the Arkansas Comprehensive Emergency Management Plan (ARCEMP).

The Radiological Assessment Coordinator is responsible for direct interfaces with the Arkansas Department of Health at the working level regarding radiological releases and radiological monitoring activities in the vicinity of ANO.

In accordance with Section H of the ANO Emergency Plan, designated ADH personnel collocate in the EOF with ANO personnel. As a result, a direct communications link is established in the EOF between ADH and ANO personnel during emergencies at ANO.

The JIC Manager, or designee, coordinates press releases with the Arkansas Department of Health's Public Information Team. A Letter of Agreement between Entergy Operations, Inc. and the ADH is summarized in Appendix 1.

b. The Arkansas Department of Emergency Management (ADEM)

The Arkansas Department of Emergency Management is responsible for coordinating requests for additional assistance in the event of an emergency situation at Arkansas Nuclear One.

Responsibilities of the Arkansas Department of Emergency Management include coordinating requests for additional assistance to support the offsite emergency response and recovery efforts of State, county, and municipal agencies and departments as provided in the Arkansas Emergency Operations Plan; assuring mutual coordination with the Department of Health concerning an incident at Arkansas Nuclear One and providing backup communications to the ADH in accordance with procedures set forth in Annex V, Chapter 4 of the Arkansas Emergency Operations Plan; and assuring that the necessary/available State and local manpower and equipment as well as proper utilization of such resources provided to respond effectively to the situation.

A Letter of Agreement between Entergy Operations, Inc. and the Arkansas Department of Emergency Management is summarized in Appendix 1.

2.2 ARKANSAS SECONDARY GOVERNMENTAL SUPPORT ORGANIZATIONS

The Arkansas Department of Emergency Management (ADEM) coordinates requests for assistance from the following State agencies as discussed in the Letter of Agreement between Entergy Operations and ADEM summarized in Appendix 1.

Information on the response capabilities of these organizations is provided in detail in the State Emergency Operations Plan and Annex V to the State Emergency Operations Plan.

2.2.1 Arkansas Highway and Transportation Department (AHTD)

Provides backup communications and assists in setting up road blocks to control traffic in the vicinity of any area that is to be evacuated and any designated care center being activated. AHTD provides signs and barriers for traffic control points and provide personnel and equipment to ensure evacuation routes remain passable.

2.2.2 Arkansas Military Department (National Guard)

Supports the ADEM on a mission-type basis (e.g., physical security, emergency evacuations).

2.2.3 County Food and Agricultural Councils

County Food and Agricultural Councils provide information and advice to the Arkansas Department of Health concerning agricultural matters. Information is provided concerning the location of growing food crops, grain, forage, etc., so that samples may be taken by the ADH to determine if there is a hazard to persons or animals. If the ADH declares a particular area quarantined for cattle grazing, the County Food and Agricultural Councils provide farmers information concerning availability of uncontaminated feeds.

2.2.4 Arkansas Department of Parks and Tourism

Provides notification of the public within the park system and, when necessary, ensures the evacuation of the state parks within the ANO emergency planning zones.

2.2.5 Arkansas Game & Fish Commission

Provides backup communications and notification of the public in the national forests and on rivers and lakes. In addition, uniformed personnel are made available to assist in traffic control and law enforcement.

2.2.6 Local School Districts

The local school districts coordinate use of school resources for transportation, housing, and feeding of evacuees.

2.2.7 Arkansas Department of Human Services (DHS)

Makes USDA food available to satisfy the short-term requirements of the designated care centers. DHS arranges for delivery of USDA foods to designated care centers to replenish depleted stocks and provides supplies for feeding personnel who are sheltered in the designated care centers.

2.2.8 American Red Cross (ARC)

Arranges for registration of evacuees and perform other shelter management activities in accordance with the local EOP and/or Letters of Agreement executed between the ARC and the individual counties within the EPZ.

2.2.9 Civil Air Patrol (CAP)

Provides aerial reconnaissance, and logistic support for aerial monitoring and search and rescue activities.

2.2.10 Other State and Local Resources

For Federal agencies responding to an emergency at ANO, the Bill and Hillary Clinton National Airport/Adams Field located in Little Rock is the nearest airport with commercial flight service. The Russellville Airport can accommodate Falcon 10 jet traffic or its equivalent.

The Russellville Airport is the closer of the two located approximately 8 miles from the site. The State of Arkansas Backup SEOF is located at the Entergy Arkansas, Inc. Russellville Service Center. This facility is referenced in the State and county emergency plans.

2.3 LAW ENFORCEMENT SUPPORT ORGANIZATIONS

Support from local, State, and/or Federal law enforcement agencies may be required to supplement the Arkansas Nuclear One Emergency Response Organization and to direct emergency efforts conducted beyond the ANO property boundary. The agencies listed below assist in the event of an emergency at Arkansas Nuclear One. Letters of agreement with these agencies are contained in Appendix 1. Interfaces between the Initial Response Staff, the Emergency Response Organization, and support groups are shown in Figures B-3, B-8 and B-10.

2.3.1 Sheriff Departments (Pope, Yell, Johnson, and Logan Counties)

When requested, the Sheriff Departments aid in security, traffic control, evacuations, emergency transportation and provide backup communications as required. The support of the Pope, Yell, Johnson, and Logan County Sheriff Departments are coordinated through the Arkansas Department of Emergency Management.

2.3.2 Arkansas State Police

The Arkansas State Police provides traffic control, law enforcement, security and backup communications support where necessary.

2.4 FIRE SUPPORT ORGANIZATIONS

The local fire organization which has agreed to support the Arkansas Nuclear One Emergency Response Organization is listed below. A letter of agreement with this agency is contained in Appendix 1. Interfaces between the Initial Response Staff, Emergency Response Organization and the local fire department are shown in Figures B-3, B-8, and B-10.

2.4.1 Local Fire Department

When requested, the Local Fire Department dispatches men and equipment to assist in fighting fires. The Local Fire Department assists the Fire Brigade, as required. The Local Fire Department coordinates the support efforts of other fire departments in the area.

2.5 MEDICAL SUPPORT ORGANIZATIONS

Emergency medical services are available through the agencies listed below. Letters of Agreement with these agencies are summarized in Appendix 1. Interfaces between the Initial Response Staff, the Emergency Response Organization, and medical support organizations are shown in Figures B-3, B-8, and B-10.

2.5.1 Physicians

Monfee Medical Clinic has been retained by Entergy Operations to provide medical consultants for Arkansas Nuclear One. At least two of the licensed physicians on the staff have received training in the treatment of patients that are contaminated and/or overexposed to radiation. These physicians treat personnel from Arkansas Nuclear One, including patients who may be injured or contaminated.

2.5.2 Hospitals

The Saint Mary's Regional Medical Center treats individuals who are injured and/or contaminated with radioactive material. Procedures have been established between the Saint Mary's Regional Medical Center, the consulting physicians and Arkansas Nuclear One for the treatment of contaminated individuals at the Saint Mary's Regional Medical Center. Individuals may be transferred to the University of Arkansas for Medical Sciences Hospital for further tests, examinations, or treatment, as required, if they:

a. have received an overexposure to radiation sufficient to warrant special treatment or observation, or;

b. have, or are suspected of having, inhaled or ingested significant quantities of radioactive materials, or;

c. cannot be readily decontaminated at the Saint Mary's Regional Medical Center.

2.5.3 Pope County Emergency Medical Service

The Pope County Emergency Medical Service provides emergency transportation of injured or contaminated individuals as requested.

2.5.4 The University of Arkansas for Medical Sciences Hospital

The University of Arkansas for Medical Sciences Hospital is responsible for providing medical treatment for radiologically contaminated or overexposed individuals.

2.5.5 Other Medical Facilities

Entergy Operations Incorporated has written confirmation that the following medical facilities are willing to accept and have adequately trained personnel and facilities available to provide the required care for injured individuals, regardless of whether or not they are radioactively contaminated or overexposed:

a. The Saint Mary's Regional Medical Center

b. The University of Arkansas for Medical Sciences Hospital

c. Oak Ridge Associated University Medical Division

2.6 FEDERAL GOVERNMENT SUPPORT ORGANIZATIONS

Section C.2 discusses the support organizations available to provide assistance from the Federal government. These organizations include the Nuclear Regulatory Commission (NRC), the Federal Emergency Management Agency (FEMA), the Department of Energy, the National Weather Service, the National Earthquake Information Center, the U.S. Coast Guard, the U.S. Army Corps of Engineers, and the Environmental Protection Agency.

Initial notification and continued contact with the Arkansas Congressional delegation is the responsibility of the JIC Manager, or designee.

2.7 INDUSTRIAL SUPPORT ORGANIZATIONS

Section C.6 discusses the industrial support organizations that can be contacted for support services in the event of an emergency at Arkansas Nuclear One. These organizations include utilities, Entergy Services Inc., INPO, Areva NP, and Westinghouse Electric. These organizations are kept informed of the incident as appropriate.

B ORGANIZATIONAL CONTROL OF EMERGENCIES

Starting with the normal plant operating organization as a foundation, this section of the Emergency Plan describes the emergency organization at ANO. The Initial Response Staff (IRS), is augmented by the Emergency Response Organization (ERO) at an Alert, or higher, Emergency Class.

The responsibility for Emergency Direction and Control (ED&C) at ANO during an emergency event includes the overall direction of the facility response and the non-delegable responsibilities for the decision to notify and to recommend protective actions to the Arkansas Department of Health personnel and other authorities responsible for offsite emergency measures. This responsibility will be transferred from the Shift Manager/ED with ED&C to the EOF Emergency Director (ED) once the ED has received a formal turnover and the ED is staffed and capable to perform ED&C functions from the EOF, or other designated location.

1.0 NORMAL PLANT ORGANIZATION

The normal plant organization is shown in Figure B-1. During normal weekday, day shift hours, this entire organization and its staff are typically available on site. Outside normal weekday day shift hours the normal plant operating staff for Units 1 and 2 meets the minimum shift crew composition in the respective Technical Specifications for each unit and is supplemented by security personnel. The staff which is available to respond to the site within approximately 60 – 90 minutes is shown in Table B-1.

The Shift Manager for each unit is responsible for that unit and has the authority and responsibility for declaring an emergency at his unit in accordance with the guidelines in Section D of the Emergency Plan. Responsibility for emergency situations which are not specific to a unit is determined by a mutual agreement between the Shift Managers.

2.0 INITIAL RESPONSE STAFF

The Initial Response Staff (IRS) has the capability to provide manpower and other resources to assist the normal plant organization within approximately 60 – 90 minutes if an emergency situation arises. The emergency duties of the normal plant staff are transferred to the Initial Response Staff as the corresponding members arrive on site.

If an emergency situation arises, the Shift Manager/ED will activate the Initial Response Staff, as appropriate, to supplement the normal operating staff. Those members of the Initial Response Staff who are not on site at the time of the emergency will be able to augment the normal plant organization within approximately 60 – 90 minutes of an emergency. Figure B-2 provides a diagram of the Initial Response Staff and their onsite interfaces.

Figure B-3 provides a diagram of the interfaces between the IRS and offsite response organizations. Modifications to the IRS may be made as necessary by the Shift Manager as required by the situation.

Following are general descriptions of the duties of IRS personnel. Duties are discussed in more detail in the Emergency Plan Implementing Procedures.

2.1 SHIFT MANAGER / EMERGENCY DIRECTOR (ED)

The Shift Manager/ED has immediate responsibility for the unit to which he is assigned, and is responsible for recognizing and declaring the appropriate Emergency Class. Once an emergency classification is declared, the Shift Manager/ED is responsible for activating and directing the Initial Response Staff to the extent required by the emergency and assuming Emergency Direction and Control responsibilities until relieved of these duties through formal turnover. Once relieved, the Shift Manager's responsibilities are directed toward overseeing the operation of the unit.

Responsibilities of the Shift Manager/ED (until relieved by the EOF Emergency Director) include the following:

a. Initiating activation of the Emergency Response Organization and coordinating turnover of responsibility from the IRS to the ERO;

b. Issuing instructions directly to the plant emergency response personnel/teams;

c. Authorizing, requesting and coordinating assistance from outside groups and Federal agencies as required;

d. Initiating notification of and establishing communications with local, State, and Federal officials; and

e. Approving offsite Protective Action Recommendations (PARs) provided to State and local officials and other appropriate offsite authorities.

The Shift Manager/ED cannot delegate the responsibility to make decisions concerning notification of offsite authorities or the responsibility to make offsite Protective Action Recommendations. The Shift Manager/ED transfers these responsibilities to the EOF Emergency Director (ED) through a formal turnover when the EOF Emergency Director position is staffed and prepared to assume emergency direction and control responsibilities for the site.

Upon activation of the ERO, the Control Room Log Keeper will report to the Shift Manager/ED. The Control Room Log Keeper will communicate with the TSC Communicator and the EOF/OSC Log Keepers to promote information flow between the facilities.

2.2 SHIFT ENGINEER / SHIFT TECHNICAL ADVISOR

The primary duty of the Shift Engineer / Shift Technical Advisor is to assist the Shift Manager/ED in accident mitigation. There is a Shift Engineer / Shift Technical Advisor assigned on a shift basis to each unit.

2.3 CONTROL ROOM COMMUNICATOR

At least one person per unit per shift is trained to coordinate communications to and from the affected unit's Control Room.

2.4 PLANT EMERGENCY RESPONSE TEAMS/GROUPS

Members of the plant emergency response teams/groups are personnel assigned to the Arkansas Nuclear One staff. These personnel are trained in the respective procedures and practices which describe the performance of their duties as team/group members or leaders. The emergency teams/groups and brief descriptions of their functions are listed below. The plant emergency response team/group leaders initially report to the Shift Manager/ED. Team/group leaders and alternates are selected from plant personnel and are assigned as described in the Emergency Plan Implementing Procedures. As required by the emergency conditions, the Shift Manager/ED may temporarily assign other plant personnel to the emergency teams/groups to assist the regular team/group members during the emergency.

2.4.1 Staff Augmentation Group (SAG)

The capability exists to augment the on-shift staff through selective notification, depending upon the needs identified by the Shift Manager/ED, or by the Emergency Response Organization Notification (ERON) system if full ERO activation is necessary. An alternate notification method is available using a combination of pagers and telephone notifications, in the event of an ERON system failure. The on-shift staff can be augmented by one or all of the following groups:

2.4.1.A Emergency Radiation Team

This team is responsible for the determination of radiological hazards which result from fires, radioactive spills, or other unplanned radioactive releases. When activated, the Emergency Radiation Team functions in two sections, as follows:

1. Onsite Radiological Monitoring Section

   This section is responsible for determining and evaluating onsite radiological hazards and for conducting the required surveys, monitoring, and sampling. This section, as necessary, assists the emergency medical support personnel, the Fire Brigade, and Repair and Damage Control Teams.

2. Offsite Radiological Monitoring Section

   This section is responsible for determining offsite radiological hazards and for conducting the required offsite surveys, monitoring, and sampling in the field and at the EOF/Alternate EOF.

2.4.1.B Engineering Group

This group is responsible for providing engineering support to the TSC Engineering Coordinator in the areas of Mechanical, Electrical, Civil and Nuclear (Core Thermal/Hydraulics) Engineering. The TSC Reactor Engineer coordinates with the TSC Engineering Coordinator and the Engineering group as it relates to core assessments.

2.4.2 First Aid and Rescue Personnel

Emergency medical support personnel are responsible for providing first aid and coordinates onsite rescue operations.

2.4.3 Fire Brigade

The Fire Brigade, as provided for in the Unit 1 and Unit 2 SARs (Sections 9.8 and Appendix 9A, respectively), is responsible for assessment of fires and implementation of appropriate fire control measures.

2.4.4 Security Personnel

Security personnel are responsible for security at ANO and the evacuation of plant areas in the event of a Localized, Plant or Exclusion Area Evacuation. During an emergency they help maintain road blocks and perform personnel accountability duties.

2.4.5 Chemistry Group

This group provides chemistry/radiochemistry and post-accident sampling support. Chemistry performs offsite dose projections if a radiological release occurs.

2.4.6 Maintenance Group

This group is responsible for providing maintenance support in the areas of Instrumentation and Control, Electrical and Mechanical Maintenance. Initial repairs and corrective actions are performed by on-shift operations personnel with augmentation provided by maintenance personnel within 60 – 90 minutes (refer to Table B-1).

Initial repairs and corrective actions are defined as immediate actions intended to prevent or mitigate the consequences of an emergency. Actions anticipated within the first 60 – 90 minutes of an emergency are addressed in Abnormal Operating Procedures (AOPs) and Emergency Operating Procedures (EOPs).

2.4.7 Repair and Damage Control Teams

These teams are composed of personnel that are familiar with the disciplines necessary to respond during emergency conditions. The repair and damage control teams are formed as required for the existing emergency condition.

3.0 EMERGENCY RESPONSE ORGANIZATION

The Emergency Response Organization (ERO) has the capability to provide manpower and other resources to augment the IRS in an emergency situation. Emergency duties are transferred to ERO personnel in accordance with Emergency Plan Implementing Procedures.

When the ERO is activated, the EOF, TSC and OSC facilities are required to be operational within 60 – 90 minutes of the declaration of an Alert, or higher, Emergency Class. The goal for the offsite JIC is to be operational within 120 minutes of an Alert, or higher, Emergency Class. The EOF Emergency Director provides Emergency Direction and Control of the ERO. Figure B-4 provides a diagram of the ERO showing the reporting chain within the ERO. Figure B-8 provides a diagram of the interfaces between the ERO and offsite response organizations. Modifications to the ERO may be made by the EOF Emergency Director or Emergency Plant Manager (EPM) as required by the situation.

Following are general descriptions of the duties of ERO personnel. These descriptions are grouped according to the facility to which ERO personnel respond. Duties are discussed in more detail in the Emergency Plan Implementing Procedures.

3.1 EMERGENCY OPERATIONS FACILITY (EOF)

3.1.1 Emergency Director (ED)

The EOF Emergency Director position is an individual whose position in the normal organization is a senior management position. The ED is responsible for the direction of the total emergency response following turnover of Emergency Direction and Control from the Shift Manager/ED. The ED reports to Entergy Operations, Inc. management. The ED may request one or more assistants. These assistants are typically qualified as Emergency Directors. Assistants perform duties as assigned by the ED. The ED may release assistants if the assistance is no longer required. The Emergency Plant Manager, Radiological Assessment Coordinator, EOF Manager, EOF Offsite Communicator, EOF Technical Advisor and EOF Log Keeper report directly to the ED. The ED's responsibilities include:

A. Activation and operation of the EOF;

B. Classification and declaration of the emergency;

C. Makes Protective Action Recommendations (PARs) to the offsite agencies;

D. Directs and approves notification of the event to the offsite agencies;

E. Coordinates accident information with other offsite governmental agencies (NRC, etc.);

F. Requests assistance from offsite agencies excluding requests for offsite medical or fire-fighting assistance;

G. Authorizes radiation exposure in excess of 10 CFR 20 limits and issuance of Potassium Iodide (KI) for ERO members outside of the protected area;

H. Approves press releases;

I. Directs the activities of the EOF organization in support of the Technical Support Center and offsite agencies;

J. Ensures that Entergy Operations, Inc. executive management is kept informed of the emergency situation;

3.1.2 EOF Offsite Communicator

The EOF Offsite Communicator reports to the ED in the EOF. Responsibilities of the EOF Offsite Communicator include:

A. Completes and performs initial and follow-up offsite notifications, in accordance with site procedures and regulatory requirements, to State/Local/NRC relating to emergency classification events;

B. Verifies that State/Local agencies have received and understand all offsite notifications;

C. Initiates and/or verifies that ERDS data is being transmitted to the NRC.

D. Maintains records of all notifications and communications

3.1.3 EOF Technical Advisor

The EOF Technical Advisor reports to the ED in the EOF. Responsibilities of the EOF Technical Advisor include:

A. Maintains communications with the Control Room and TSC to obtain current plant and emergency status;

B. Monitors plant computer parameters for prompt identification of changing conditions;

C. Recommends actions to the Emergency Director on classification of emergencies;

D. Supports PAR decision making/determination.

3.1.4 EOF Communicator

The EOF Communicator reports to the EOF Manager in the EOF. Responsibilities of the EOF Communicator include:

A. Maintains communications with the Control Room, TSC and OSC for prompt identification of information that needs to be posted in WebEOC, or other acceptable method;

B. Ensuring that the EOF staff is informed of significant changes in plant conditions;

C. Assisting the EOF Manager with other non-regulatory notifications and communications.

D. Supports the ED / EOF Manager, as requested.

3.1.5 Radiological Assessment Coordinator (RAC)

The RAC reports to the ED in the EOF. The RAC is responsible for conducting assessment activities for offsite radiological conditions. The Offsite Team Coordinator and the EOF Dose Assessor report directly to the RAC. Responsibilities of the RAC include:

A. Evaluates dose assessment results and recommendations, determines dose consequences and communicates dose projection results to the ED to determine classification/PAR;

B. Provides overall liaison and coordination of efforts in the area of offsite monitoring teams with State Radiological personnel;

C. Briefs offsite authorities and supplemental/relief personnel responding to the EOF on radiological information;

D. As requested, ensures that communications on the NRC Health Physics Network (HPN) phone is assigned;

E. Monitors status of the emergency ventilation and habitability monitoring results in the EOF and keeps the EOF staff updated;

F. Recommends EOF relocation based on environmental conditions and provides radiological guidance for EOF evacuation;

G. As required, provides recommendations to the ED relating to extension of emergency exposure limits and the administration of KI for EOF ERO / offsite monitoring teams and coordinates the administration of KI.

3.1.6. Dose Assessor

The Dose Assessor reports to the RAC in the EOF. The Dose Assessor is responsible for conduct/oversight of offsite dose projection calculation activities performed in the EOF. Trained dose assessment personnel report to the OSC and can be dispatched to the EOF as needed to assist the Dose Assessor with this responsibility. Responsibilities of the Dose Assessor include:

A. Supports the radiological activities in the EOF by keeping informed of offsite monitoring team data results, plant data and current/forecasted meteorological conditions;

B. Performance of dose projection calculations using plant data and offsite monitoring team data;

C. Coordination with the Offsite Team Coordinator for offsite monitoring team data / dose projection comparison;

D. Support coordination of efforts in the area of dose projection calculations with State dose assessment personnel;

C. Provides offsite dose projection information to the RAC.

3.1.7 Offsite Team Coordinator (OTC)

The OTC coordinates offsite monitoring team activities and coordinates data from offsite monitoring teams with the Dose Assessor. The OTC reports to the RAC in the EOF. Responsibilities of the OTC include:

A. Assigns and maintains communication with offsite monitoring teams and EOF monitoring personnel;

B. Directs offsite monitoring teams based upon radiological/meteorological information and coordinates survey locations with the Dose Assessor;

C. Provides offsite monitoring team information to the Dose Assessor and the RAC;

D. Supports coordination of efforts in the area of offsite monitoring team data with State radiological personnel;

E. Briefs and coordinates the administration of KI for offsite monitoring teams.

3.1.8 EOF Manager

The EOF Manager coordinates emergency response efforts outside of the Protected Area and oversees operation of the EOF. The EOF Maintenance Coordinator, EOF Communicator, Admin & Logistics Coordinator, Public Information Liaison and Lead Offsite Liaison report to the EOF Manager in the EOF. The EOF Manager reports to the ED in the EOF. Responsibilities of the EOF Manager include:

A. Assures staffing and timely activation of the EOF;

B. Obtains additional resources through the Admin and Logistics Coordinator in support of the Site/EOF;

C. Briefs and assists offsite authorities reporting to the EOF;

D. Assists the RAC with facility habitability and emergency ventilation system operation;

E. Provides oversight for timely offsite notifications performed by the EOF Offsite Communicator

F. Ensures that WebEOC or status boards are maintained in the EOF;

G. Provides information to the Entergy Corporate Office and the Corporate Emergency Center (CEC).

H. As requested during a security-related event, provide a Security Management individual to staff the Pope County OEM Security Liaison function in the Incident Command Center.

3.1.9 EOF Maintenance Coordinator

The EOF Maintenance Coordinator coordinates the initial setup of work areas/equipment in the EOF. The EOF Maintenance Coordinator reports to the EOF Manager. Responsibilities of the EOF Maintenance Coordinator include:

A. Ensures that the EOF emergency ventilation system is in operation in the EOF, as required, and the appropriate EOF personnel have been notified of status.

B. Ensures that the EOF emergency diesel generator is in operation in the EOF, as required, and the appropriate EOF personnel have been notified of status.

C. Coordination for setup of the Secondary OSC/TSC, as requested.

D. Coordination for setup of the Alternate EOF, as requested.

E. Coordination of equipment setup with responding agencies (NRC, FEMA, etc.).

3.1.10 EOF Log Keeper

The EOF Log Keeper reports to the Emergency Director. Responsibilities of the EOF Log Keeper include:

A. Maintains a chronological log of emergency status and EOF activities;

B. Ensures timeliness of facility briefs by prompting the ED of the briefing schedule, if necessary.

C. Distributes Emergency Notification Forms.

3.1.11 Admin & Logistics Coordinator

The Admin & Logistics Coordinator provides support to the EOF Manager and the TSC staff, as requested. IT support for the EOF also reports to the Admin & Logistics Coordinator. The Admin & Logistics Coordinator reports to the EOF Manager. Responsibilities for the Admin & Logistics Coordinator include:

A. Management of 24 hour staffing for all of the emergency response facilities;

B. Management of logistics in support of the ERO involving requests for additional support personnel, equipment, meals, lodging, etc.;

C. Coordination of security access measures in the EOF, as required.

3.1.12 Public Information Liaison

The Pubic Information Liaison provides the primary interface between the JIC and EOF. The Public Information Liaison reports to the EOF Manager. Responsibilities of the Public Information Liaison include:

A. Ensuring that the JIC is provided with the current plant status information;

B. Ensuring that classification upgrades are communicated to the Company Spokesperson;

C. Perform reviews of press releases prior to ED review and approval.

3.1.13 Lead Offsite Liaison

The Lead Offsite Liaison reports to the EOF Manager. Offsite Liaisons will report to the Lead Offsite Liaison and are dispatched to County EOCs upon request by the EOC. Responsibilities of the Lead Offsite Liaison include:

A. Providing routine briefings on plant conditions with offsite agencies located in the EOF, with County EOC officials and with Offsite Liaisons that have been dispatched to the County EOCs.

3.2 TECHNICAL SUPPORT CENTER (TSC)

3.2.1 Emergency Plant Manager (EPM)

The EPM reports to the EOF Emergency Director (ED). The EPM has the responsibility for the command and control of all accident mitigation actions at the site and performs these duties from the TSC. The OSC Manager, TSC Manager and Security Coordinator report to the EPM. Responsibilities of the EPM include:

A. Directing the activation, operation and deactivation of the TSC;

B. Assuming command and control of the TSC and OSC and the onsite mitigation efforts;

C. Providing information and recommendations to the ED regarding classification of emergencies and core damage assessments;

D. Prepare and facilitate facility briefings;

E. Coordination of activities with the CR, TSC and OSC and prioritizing mitigation actions and the coordination of repair/damage control teams;

F. Ensuring timely ENS notifications in the TSC;

G. Directing onsite protective actions and personnel evacuation, assembly and accountability of non-essential personnel;

H. Authorizing emergency radiation exposure and issuance of KI to recommended personnel in the CR, TSC, OSC or Security personnel;

I. Implementing the severe accident management procedure strategies, as required;

J. Directing the relocation of the TSC/OSC to alternate locations, as required.

3.2.2 Security Coordinator

The Security Coordinator reports to the EPM. Responsibilities of the Security Coordinator include:

A. Overall coordination of the offsite assistance for a security related response;

B. Coordination of accountability and security officer support relating to plant and exclusion area evacuations;

C. Updating of the security force concerning the emergency status;

D. Coordination with the TSC Radiological Coordinator regarding protective actions for the security force;

E. Ensuring that the ED/EPM is informed of any security contingency event which may be occurring and the response in progress.

3.2.3 TSC Manager

The TSC Manager reports to the EPM. The TSC ENS Communicator, TSC Communicator, Reactor Engineer, Maintenance Coordinator, Engineering Coordinator, Radiological Coordinator, and Operations Coordinator report to the TSC Manager. Responsibilities of the TSC Manager include:

A. Oversight for the staffing and timely activation of the TSC and notification to the EPM when the TSC is considered operational;

B. Recognizing and implementing all technical aspects of accident mitigation for the emergency;

C. Performing technical assessments and communicating the conclusions to the EPM;

D. Setting priorities for the TSC personnel;

E. Assisting the EPM to make operational decisions concerning the safety of the plant;

F. Overseeing the activities for relocation to an alternate location;

G. Directing the tracking of plant configuration changes;

H. Deactivating the TSC when the emergency is terminated.

3.2.4 TSC ENS Communicator

The TSC ENS Communicator in the TSC reports to the TSC Manager. Responsibilities of the TSC ENS Communicator include:

A. Establishing and maintaining communications with the NRC via the ENS phone;

B. Monitoring plant computer parameters and providing plant status to the NRC;

3.2.5 TSC Communicator

The TSC Communicator reports to the TSC Manager. Responsibilities of the TSC Communicator include:

A. Establishing communications with the CR, TSC, OSC and EOF counterparts for obtaining plant status reports and significant events;

B. Maintaining the TSC status boards in WebEOC or other acceptable method;

C. Supporting the EPM and TSC Manager as requested.

3.2.6 Reactor Engineer

The Reactor Engineer reports to the TSC Manager. Responsibilities of the Reactor Engineer include:

A. Determining and providing estimation of core damage assessment information;

B. Assisting in Severe Accident Management Guideline implementation;

C. Providing core parameter information results to the TSC Manager.

3.2.7 Operations Coordinator

The Operations Coordinator reports to the TSC Manager. Operations support personnel report to the Operations Coordinator to assist with accident assessment relating to plant conditions. Responsibilities of the Operations Coordinator included:

A. Coordination of TSC efforts in determining the nature and extent of emergencies pertaining to equipment and plant facilities in support of Control Room actions;

B. Providing interface between the TSC and Control Room;

C. Providing technical assistance to the Shift Manager and coordinating requests from the Control Room for operations activities and additional staffing needs;

D. Recommending strategies and actions to prevent severe core damage, containment failure and the reducing radiological releases;

E. Perform accident assessment activities and recommending changes in plant priorities.

3.2.8 Maintenance Coordinator

The Maintenance Coordinator reports to the TSC Manager. The Maintenance Coordinator, with input from the Engineering Coordinator and Operations Coordinator is responsible for the development of rescue/ repair and damage control plans. The Maintenance Coordinator works closely with the OSC Manager and the Work Control Coordinator to ensure that these plans are carried out in a timely manner. Additional responsibilities of the Maintenance Coordinator include:

A. Assisting in the development and prioritization of repair and corrective actions with other TSC staff personnel;

B. Communicating requests for rescue/repair and damage control teams corrective actions to the OSC Manager and/or Work Control Coordinator;

C. Providing corrective action status to the TSC staff for rescue/repair and damage control teams dispatched from the OSC.

3.2.9 Engineering Coordinator

The Engineering Coordinator reports to the TSC Manager. TSC Support Engineers and IT support personnel report to the Engineering Coordinator. Responsibilities of the Engineering Coordinator include:

A. Providing technical guidance to support repair activities;

B. Coordinating the Engineering work requests with the Engineering support team;

C. Tracking of plant configuration changes and directing development of emergency repair procedures to support emergency teams.

3.2.10 Radiological Coordinator

The Radiological Coordinator reports to the TSC Manager. The Radiological Coordinator is responsible for providing Radiation Protection coverage for the site during an emergency event The Radiological Coordinator is responsible for directing onsite monitoring and decontamination activities, for overseeing radwaste processing and monitoring activities, and for ensuring that personnel exposures are maintained As Low As is Reasonably Achievable (ALARA). Additional responsibilities of the Radiological Coordinator include:

A. Keeping the TSC Manager informed of the radiological conditions;

B. Recommending authorization of personnel emergency exposure limits;

C. Advising the TSC Manager when use of KI should be considered and coordinating the issuance of KI, if approved;

D. Advising the TSC Manager and EOF RAC of changes in radiological release status;

E. Coordinating with the Security Coordinator to determine the routes to be used for evacuation of non-essential personnel and BRE's;

F. Advising the RAD/Chem Coordinator in the OSC of changes in plant conditions or equipment that may change radiological conditions onsite.

3.3 OPERATIONAL SUPPORT CENTER (OSC)

3.3.1 OSC Manager

The OSC Manager reports to the EPM in the TSC. The OSC Log Keeper, Work Control Coordinator and Operations Support positions report to the OSC Manager. The OSC Manager may request one or more assistants. These assistants are typically qualified as OSC Managers. Assistants perform duties as assigned by the OSC Manager. The OSC Manager may release assistants if the assistance is no longer required. The OSC Manager is responsible for the implementation of rescue/repair and damage control plans. He provides additional support to the Shift Manager for problems directly related to plant operations, such as a fire or medical emergency. The plant Fire Brigade and the Emergency Medical Team report to the Shift Manager in the normal organization. Upon activation of the OSC, medical response personnel onsite will

report to the OSC and the OSC Manager can, upon mutual agreement with the Shift Manager, assume the responsibility for offsite fire and medical response. Responsibilities of the OSC Manager include:

A. Directing the activation, operation and deactivation activities of the OSC;

B. Supporting the formation, briefing, and debriefing of rescue/repair and damage control teams and onsite monitoring teams;

C. Ensuring the timely dispatch of the rescue/repair and damage control teams, onsite monitoring teams and mobilization of other required support personnel;

D. Ensuring work task priorities are being maintained;

E. Maintaining OSC accountability and coordination of the OSC facility to an alternate facility, as necessary.

3.3.2 Work Control Coordinator

The Work Control Coordinator reports to the OSC Manager. Responsibilities of the Work Control Coordinator include:

A. Coordinating the formation, briefing and debriefing of rescue/repair and damage control teams and onsite monitoring teams;

B. Maintaining communications with the TSC;

C. Ensuring timely dispatch of rescue/repair and damage control teams and assist with the mobilization of other required support personnel.

D. Tracking rescue/repair and damage control teams.

3.3.3 Operations Support

The Operations Support position in the OSC reports to the OSC Manager. Responsibilities of the OSC Operations Support position include:

A. Supporting the OSC in locations of plant equipment;

B. Ensuring that the Shift Manager is informed of the formation of OSC teams and other activities;

C. Identifying and assisting with potential operational support needs including assistance with briefings for rescue/repair and damage control teams and keeping the OSC Manager updated on changing plant parameters.

3.3.4 OSC Log Keeper

The OSC Log Keeper reports to the OSC Manager. Responsibilities of the OSC Log Keeper include:

A. Maintaining facility status boards on WebEOC of other acceptable method;

B. Supporting the OSC Manager as requested.

3.3.5 RAD/Chem Coordinator

The RAD/Chem Coordinator reports to the Work Control Coordinator. The RAD/Chem Coordinator is responsible for directing the Onsite Section of the Emergency Radiation Team and for providing an up-to-date status of the site radiological conditions to the TSC and Control Room. Additional responsibilities of the RAD/Chem Coordinator include:

A. Coordinating RP activities, including on-site radiological assessment, personnel exposure control and Radiation Protection programs;

B. Ensuring habitability of the TSC, OSC and Control Room;

C. Conducting and providing assistance for the radiological briefings to support the dispatch of rescue/repair and damage control teams and Chemistry/RP sampling;

D. Communicating radiological and chemistry sample/survey results to the TSC and/or Control Room;

E. Coordinating the transport of potentially contaminated or highly exposed personnel to offsite medical facilities;

F. Determining the necessity for emergency exposure limits and KI issuance and communicating conditions to the TSC;

G. Providing radiological support for evacuations, medical response, fire response and search and rescue;

H. Participate in team dispatch and field operations;

I. Direct and support chemistry sampling.

3.3.6 Electrical / I&C Coordinator

The Electrical / I&C Coordinator reports to the Work Control Coordinator. Responsibilities of the Electrical / I&C Coordinator include:

A. Assigning team members to the repair and damage control teams;

B. Conducting or participating in the pre-job briefing for the assigned tasks;

C. Ensuring repair and damage control teams are tracked;

D. Ensuring communication with the teams is maintained.

3.3.7 Mechanical Coordinator

The Mechanical Coordinator reports to the Work Control Coordinator. Responsibilities of the Mechanical Coordinator include:

A. Assigning team members to the repair and damage control teams;

B. Conducting or participating in the pre-job briefing for the assigned tasks;

C. Ensuring repair and damage control teams are tracked;

D. Ensuring communication with the teams is maintained.

3.4 JOINT INFORMATION CENTER (JIC)

3.4.1 Company Spokesperson

The Company Spokesperson is responsible for overall public information. The JIC Manager and the Technical Advisor report to the Company Spokesperson. Responsibilities of the Company Spokesperson include:

A. Obtaining a briefing from the ED to ensure timely development of press releases and serving as the spokesperson at media briefings;

B. Ensuring that news media briefings are held regularly during the course of the event;

C. Keeping the Entergy Vice President, Nuclear Communications, or designee, informed throughout the emergency;

D. Resolving any known rumors or misinformation to the Media.

3.4.2 Technical Advisor

The Technical Advisor reports to the Company Spokesperson. Responsibilities include:

A. Answering technical questions from the news media regarding the emergency situation;

B. Advising the Inquiry Response Coordinator on questions about radiation or nuclear technology to respond to phone questions from the public and media.

3.4.3 JIC Manager

The JIC Manager reports to the Company Spokesperson. The Information Coordinator, Media Liaison, Logistics Coordinator and JIC Log Keeper report to the JIC Manager. Responsibilities of the JIC Manager include:

A. Directing the activation, operation and deactivation of the JIC;

B. Obtaining ED approval for all developed press releases;

C. Ensuring that press releases are coordinated with and communicated to offsite agencies;

D. Ensuring appropriate timing, content and distribution of press releases;

E. Establishing media briefing schedule and ensuring the activation of the rumor control/public inquiry activities in response to questions from the general public.

3.4.4 Information Coordinator

The Information Coordinator reports to the JIC Manager. Responsibilities include:

A. Providing press releases for distribution;

B. Supervising media monitoring and response activities and public response activities;

C. Establishing and maintaining frequent contact with the communications personnel in the Entergy CEC and corporate offices.

3.4.5 JIC Technical Assistant

The JIC Technical Assistant reports to the Information Coordinator. Responsibilities include assisting the Press Release Writer for technical accuracy.

3.4.6 Press Release Writer

The Press release writer reports to the JIC Manager and coordinates information with the Information Coordinator. Responsibilities include:

A. Coordinates with the Information Coordinator to ensure that press releases include the latest information for the event;

B. Delivering copies of the press releases to the CEC/Corporate Communications.

3.4.7 Media Liaison

The Media Liaison reports to the JIC Manager. Responsibilities include:

A. Verifying the readiness of the JIC briefing area;

B. Ensuring the media is informed of protocol and schedules established for media briefings;

C. Receive and distribute press release information to the media in the JIC briefing area.

3.4.8 JIC Log Keeper

The JIC Log Keeper reports to the JIC Manager. Responsibilities include: Maintaining a JIC facility log on WebEOC or other acceptable method and supporting the JIC Manager, as requested.

3.4.9 Logistics Coordinator

The Logistics Coordinator reports to the JIC Manager. JIC Credentialing personnel report to the Logistics Coordinator. Responsibilities of the Logistics Coordinator include:

A. Activating facility security actions and facility briefing area and maintaining access control to the JIC;

B. Ensuring distribution of all press releases to the offsite agencies, JIC/EOF facilities and to the Media Liaison.

3.4.10 Credentialing

Credentialing personnel report to the Logistics Coordinator. Responsibilities include:

A. Establishing security to restrict access to the JIC to authorized Utility and Government JIC responders and to restrict access to the JIC media/briefing areas to individuals with media credentials.

3.4.11 Inquiry Response Coordinator

The Inquiry Response Coordinator reports to the Information Coordinator. Public Inquiry Responders report to the Inquiry Response Coordinator. Responsibilities include:

A. Ensuring the activation of rumor control activities for response to questions from the general public and the media;

B. Monitoring and responding to the pubic/media inquiry calls and tracking trends;

C. Referring questions on radiation or nuclear technology received by the Inquiry Responders to the Technical Advisor.

3.4.12 Inquiry Responders

The Inquiry Responders report to the Inquiry Response Coordinator. Responsibilities include:

A. Responding to telephone inquiries from the general public and the media;

B. Logging questions that require a callback and logging rumors and providing rumors to the Inquiry Response Coordinator.

3.4.13 Media Monitoring

Media Monitoring personnel report to the Information Coordinator. Responsibilities include monitoring TV and radio broadcasts for inaccuracies and reporting the inaccuracies to the Information Coordinator to ensure that they are addressed in the media briefings.

4.0 EMERGENCY RESPONSE ORGANIZATION INTERFACES WITHIN THE ORGANIZATION AND WITH OFFSITE ORGANIZATIONS

The EOF Emergency Director provides the management level interface with Federal, State, and local officials. The Emergency Director interfaces with the State Health Officer and the Technical Operations Control Director (TOCD) of the Arkansas Department of Health (ADH) and with representatives of the NRC. The Emergency Director also interfaces with representatives of other Federal agencies responding to the ANO site. The Emergency Director interfaces with local officials upon request or, as required, by the situation.

Interfaces are also maintained at the working level within the ERO (interfaces through the normal chain of command are not described). Refer to Figures B-4, B-5, B-6, B-7, B-11 and B-12 for ERO member assignments within the assigned facilities. Although key ERO members will communicate with each other as necessary, the following interfaces are key facility reporting

paths between the emergency response facilities: (1) the Operations Coordinator receives information about plant status from the Shift Manager or the Assistant Operations Manager in the Control Room, (2) the TSC Radiological Coordinator communicates with the OSC RAD/Chem Coordinator to obtain onsite radiological conditions, (3) the Maintenance Coordinator confers with the OSC Work Control Coordinator concerning repair planning and the status of repairs in progress, (4) the TSC Reactor Engineer and/or the Engineering Coordinator consult with the OSC RAD/Chem Coordinator to obtain post-accident sample results, (5) the EOF Admin & Logistics Coordinator receives and processes requests from the TSC Manager or TSC Communicator for additional personnel, material, etc., (6) the EOF Radiological Assessment Coordinator (RAC), or designee, interfaces with the designated laboratory if their services are required, (7) an interface is maintained between the RAC/Dose Assessor and the TSC Radiological Coordinator to exchange data on onsite radiological conditions affecting dose assessment, (8) interfaces are maintained among the managers/coordinators in the TSC to assure a coordinated response to the incident by onsite personnel, and (9) interfaces are maintained between the EOF/TSC Manager positions and the Admin & Logistics Coordinator to allow the Admin & Logistics Coordinator to provide technical and non-technical support to the ERO, as approved by the Emergency Director.

Working level interfaces are maintained between ERO positions and offsite agencies and response organizations. These interfaces operate upon the approval of the ED and/or as described in the Emergency Plan Implementing Procedures. The Radiological Assessment Coordinator maintains an interface with the ADH Radiological Response Team Leader to coordinate information on offsite monitoring and dose assessment. The RAD/Chem Coordinator maintains interfaces with the representatives of Areva NP, as necessary, in the event post-accident sample analyses are requested. The Emergency Plant Manager, or designee, maintains interfaces as necessary with local law enforcement officials, medical and hospital personnel, and fire department officials when these organizations are requested to respond on site. The Emergency Plant Manager, or designee, maintains an interface with the U.S. Coast Guard if assistance is requested from this organization.

The Admin & Logistics Coordinator maintains interfaces with consultants, INPO, the Entergy Operations Corporate Emergency Center, and other utilities to provide information and coordinate support, as requested, from these organizations. Based on emergency conditions, and as deemed necessary, other employees of Entergy may be requested to assist in a response to an emergency based on their normal day-to-day expertise. These other employees will perform duties under the direct supervision of qualified ERO personnel.

The Company Spokesperson, JIC Manager, JIC Information Coordinator, JIC Media Liaison and Lead Offsite Liaison (or their designees) maintain interfaces with the media, local officials, government officials, utilities, and internal Entergy communication services to assure that information concerning the incident is disseminated appropriately.

TABLE B-1

MINIMUM STAFFING REQUIREMENTS

(ANO On-Shift Staffing Analysis Final Report Revision 2 (OSRC Approved: 07/24/2017)
(Including Capability for Additional Staffing)

Major Functional Area	Position/Title or Expertise	On-Shift[1] U-1	On-Shift[1] U-2	Available[3] In 60 Min	Available[3] In 90 Min
Plant Operations	Manager, Shift Ops (SRO)	1	1	-	-
	Supervisor, Control Room (SRO)	1	1	-	-
	Control Room Operators	2	2	-	-
	Auxiliary Operators	2	2	-	-
	Shift Technical Advisor (Shift Engineer)	1	1	-	-
	Waste Control Operator (Radwaste)	1	1	-	1
Emergency Direction & Control (Emerg. Director)		1[4]	1[4]	-	1
Notification/ Communication	Communicator	1	1	-	-
	Control Room/EOF Communications Personnel	-	-	-	1
Radiological Accident Assessment and Support Operational Accident Assessment, and Protective Actions (in plant)	EOF Dose Assessor	-	-	-	1
	Chemist (Offsite Dose Projections)	1[9]	1[9]	1	
	Radiation Protection Technician (In-Plant Surveys)	1[10]	1[10]	1	1
	Radiation Protection Technician (Onsite Out-of-Plant Surveys)	-	-	1	1
	Radiation Protection Technicians (Protective Actions – In Plant)	3[2]	3[2]	2	2
	Radiation Protection Technicians (Offsite Surveys)	-	-	2	2
Chemistry/Radiochemistry	Chemists	1[9]	1[9]	-	1
Repair and Corrective Actions	Electrical Maintenance	3[2,12]	3[2,12]	1[5]	1[5]
	I&C Technician	-	-	1[6]	1[6]
	Mechanic	3[2,12]	3[2,12]	-	2[13]
System & Component Engineering	Core/Thermal Hydraulics	1[8]	1[8]	1	-
	Electrical Engineer	-		-	1
	Mechanical Engineer	-		-	1
Firefighting	---	5[2,11]		Local Support (30 Minute Response)	
Rescue Operations and First-Aid	---	2[2]		Local Support (30 Minute Response)	
Site Access Control and Personnel Accountability	Security Personnel	All per Security Plan			

The Total Number of Personnel on Shift is 23.

[1] These ERO positions may be vacant for not more than two hours in order to provide for unexpected absences, provided immediate action is taken to fill the require position.
[2] May be provided by shift personnel assigned other functions.
[3] Once notified, emergency responders are to report to their assigned facility as soon as possible and without delay.
[4] The Manager, Shift Ops initially assumes the responsibility for Emergency Direction and Control, then is relieved by the EOF Emergency Director.
[5] Electrical Maintenance personnel.
[6] I&C Maintenance personnel.
[7] Deleted.
[8] STA duties encompass the Core/Thermal Hydraulics function.
[9] There are two Chemists on shift qualified to perform offsite dose projections and chemistry/radiochemistry functions for either unit.
[10] On-Shift Radiation Protection Technicians are qualified to perform Protective Actions In-Plant and In-Plant Surveys.
[11] Includes an additional Operator not counted elsewhere in the table.
[12] ANO Nuclear Plant Operators are trained to perform the actions associated with Repair and Corrective Action. This an acceptable collateral duty per the guidance of NEI 10-05 section 2.5 (On-Shift Staffing Analysis Final Report section II.D).
[13] Mechanical Maintenance personnel.

FIGURE B-1

NORMAL PLANT ORGANIZATION

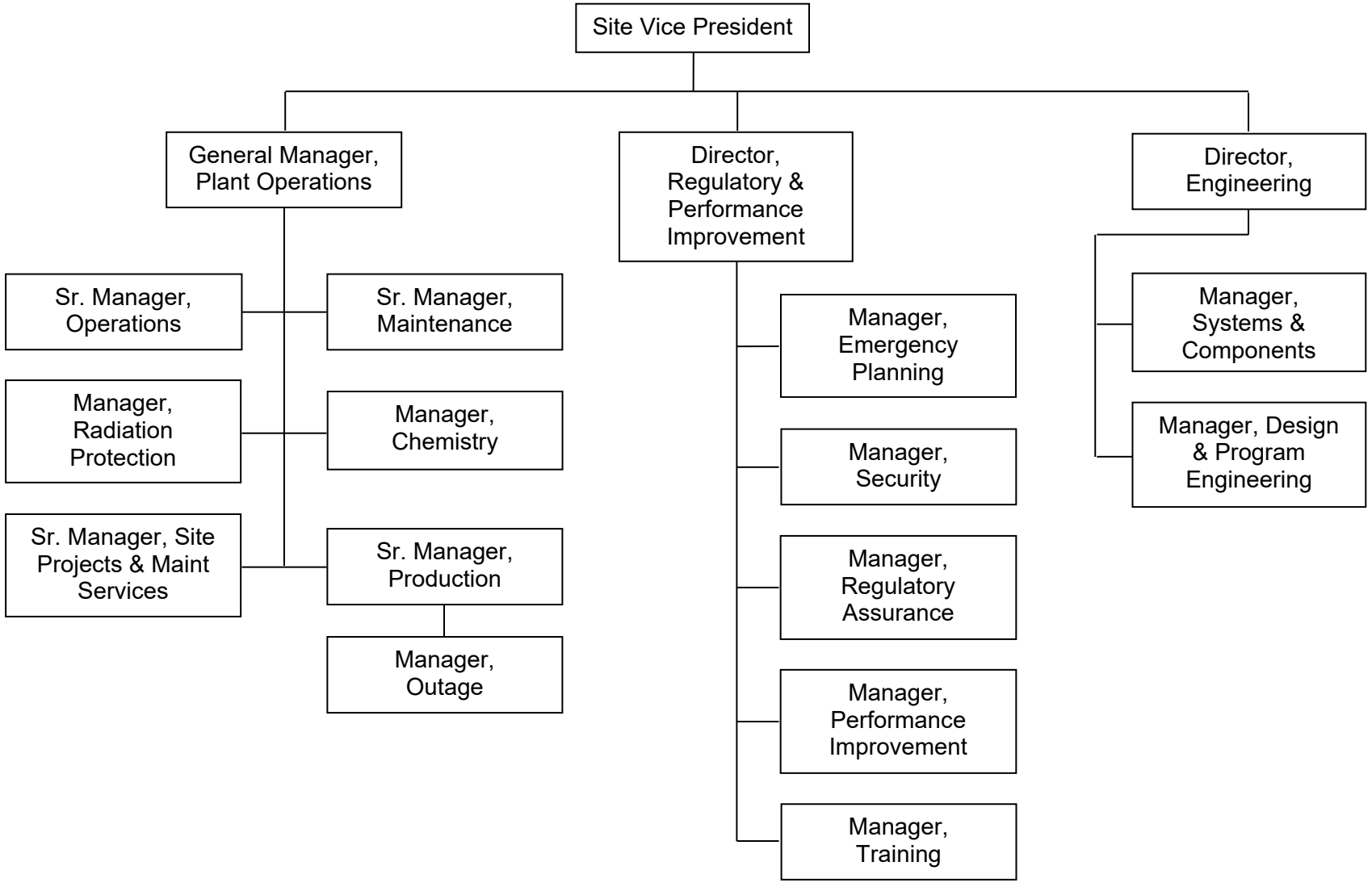
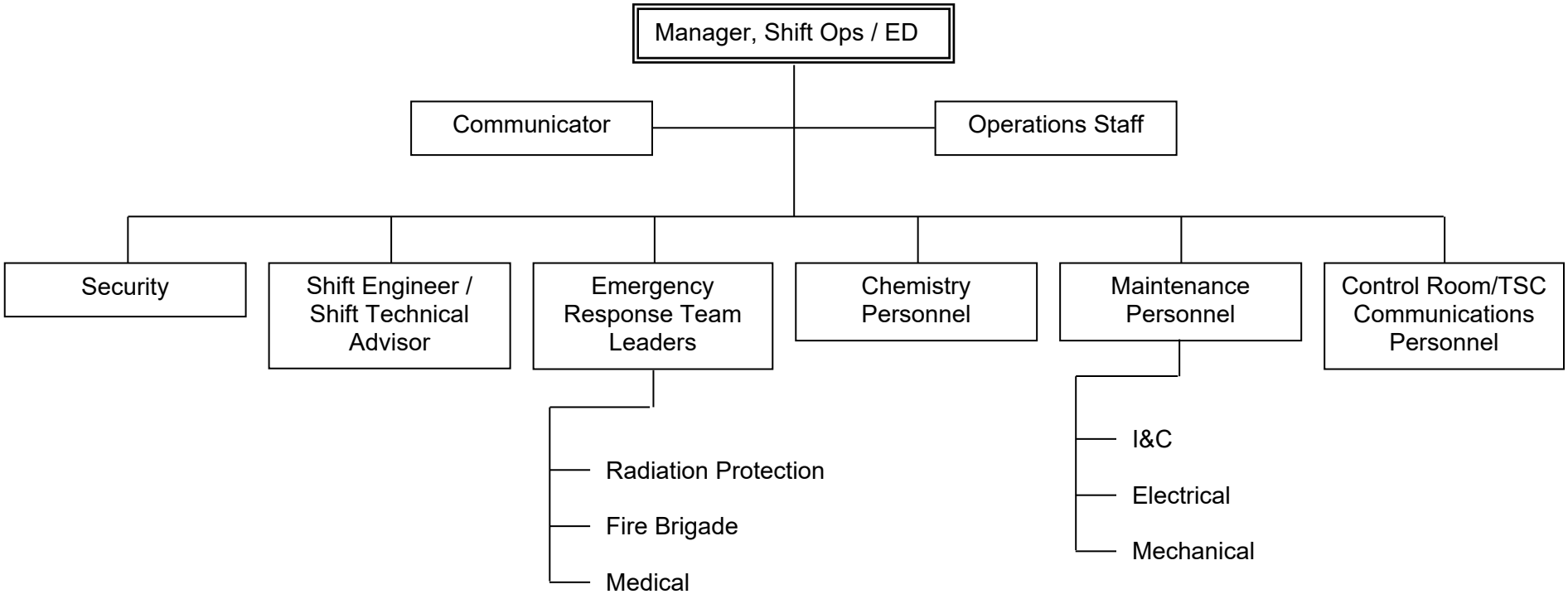


FIGURE B-2

INITIAL RESPONSE STAFF*
(IRS)



* This organization is available to respond within approximately 60 – 90 minutes to any emergency class.

FIGURE B-3

INITIAL RESPONSE STAFF

Interfaces With Offsite Agencies

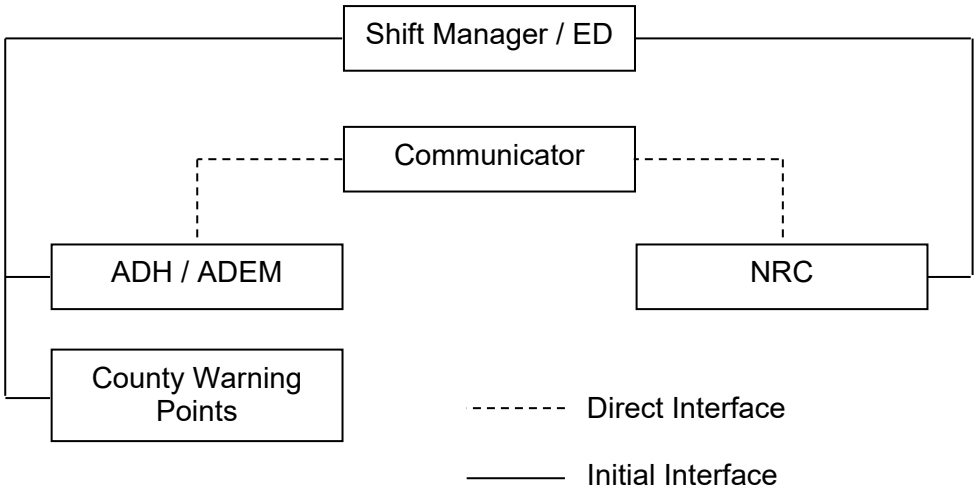


FIGURE B-4

ERO KEY FACILITY REPORTING CHAIN

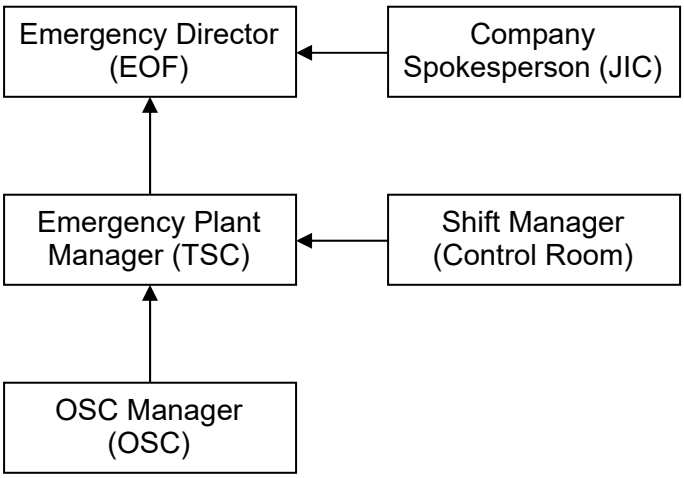
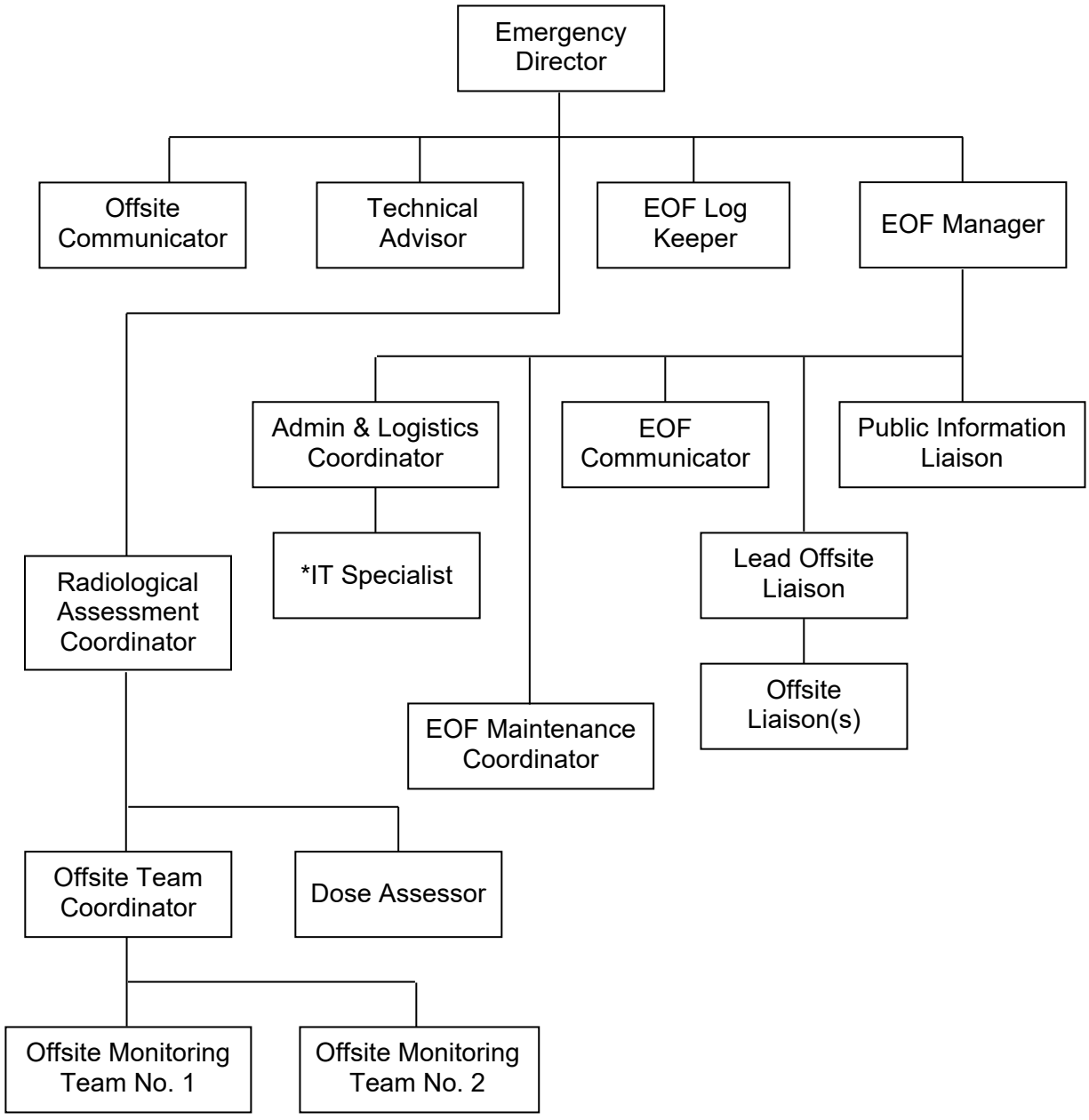


FIGURE B-5

EOF EMERGENCY DIRECTOR'S STAFF



* One IT Specialist required for Standard ERO, may be in TSC or EOF

FIGURE B-6

TSC EMERGENCY PLANT MANAGER'S STAFF

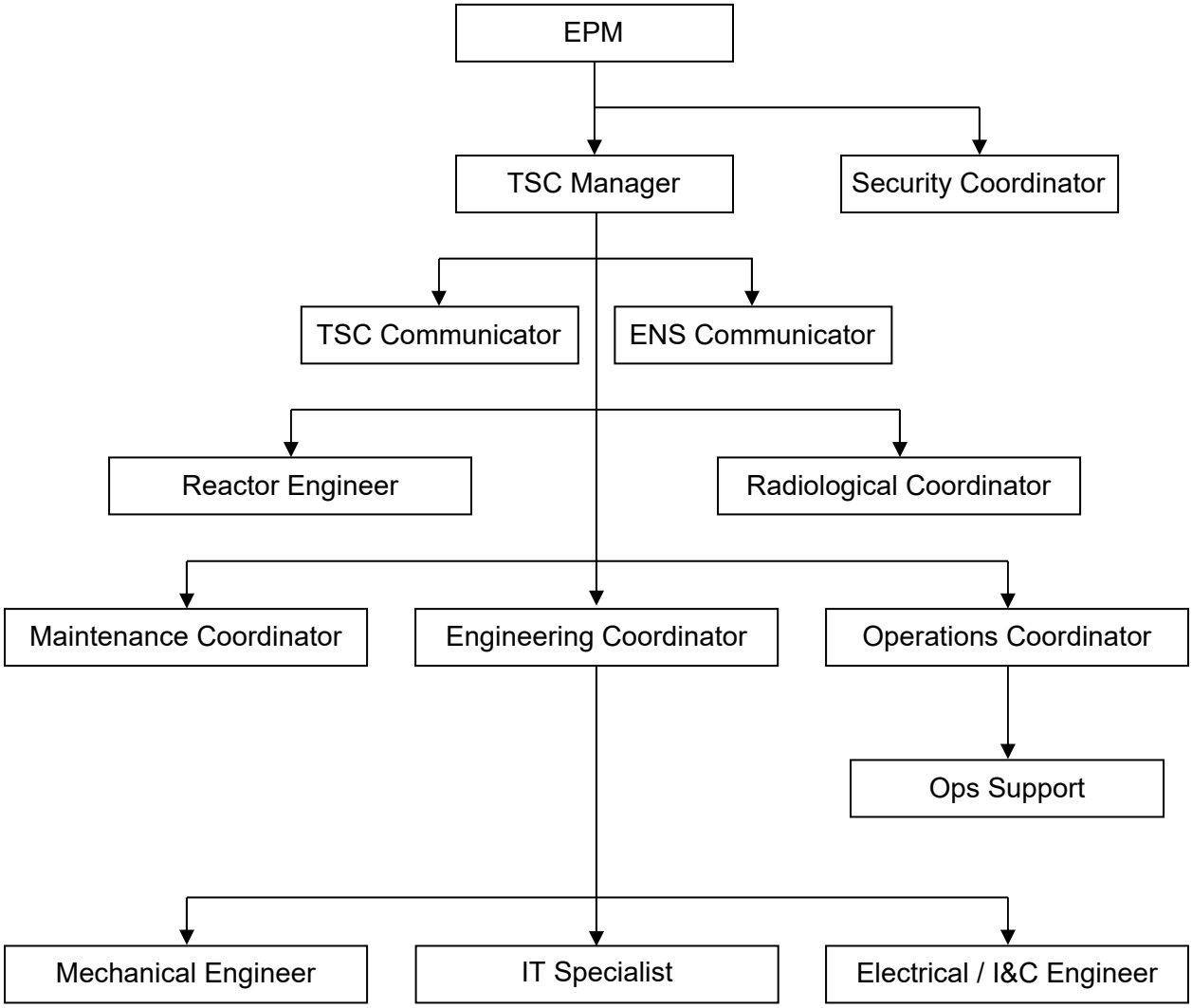


FIGURE B-7

OSC MANAGER'S STAFF

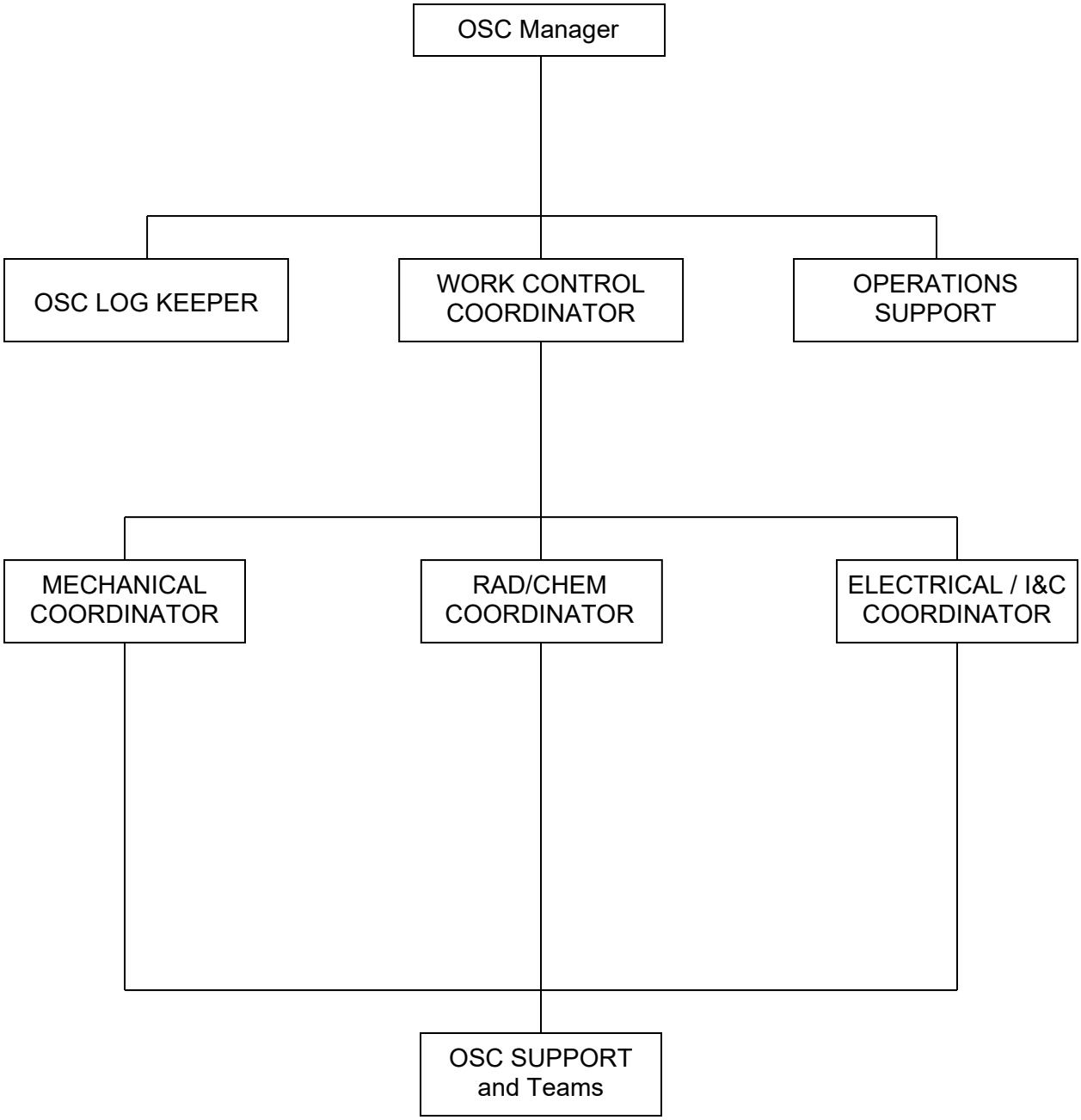


FIGURE B-8

EMERGENCY RESPONSE ORGANIZATION OFFSITE INTERFACES

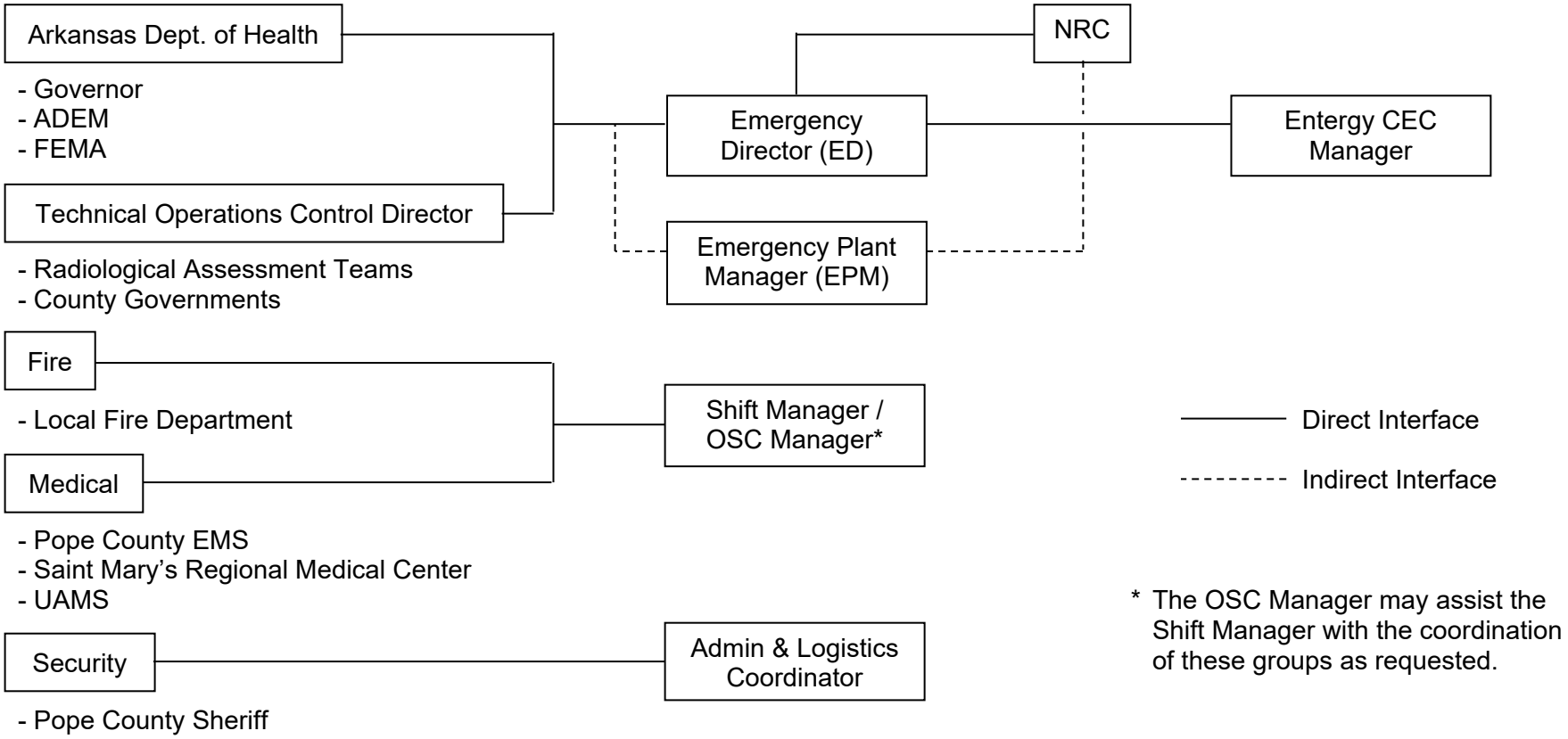
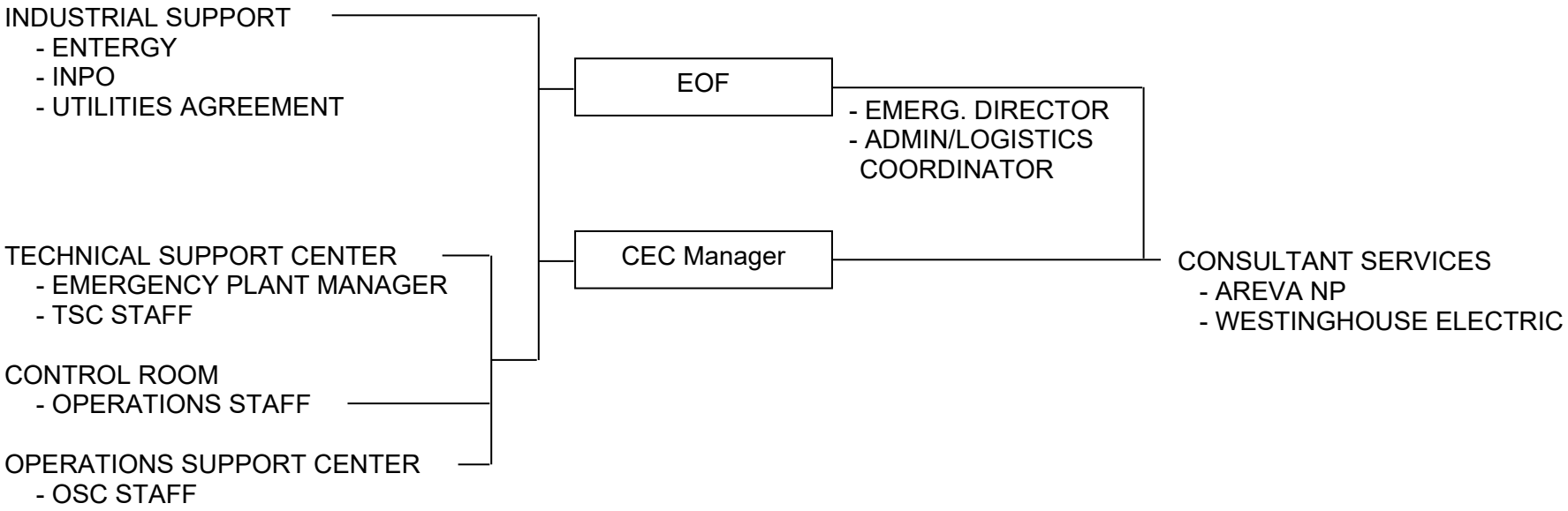


FIGURE B-9

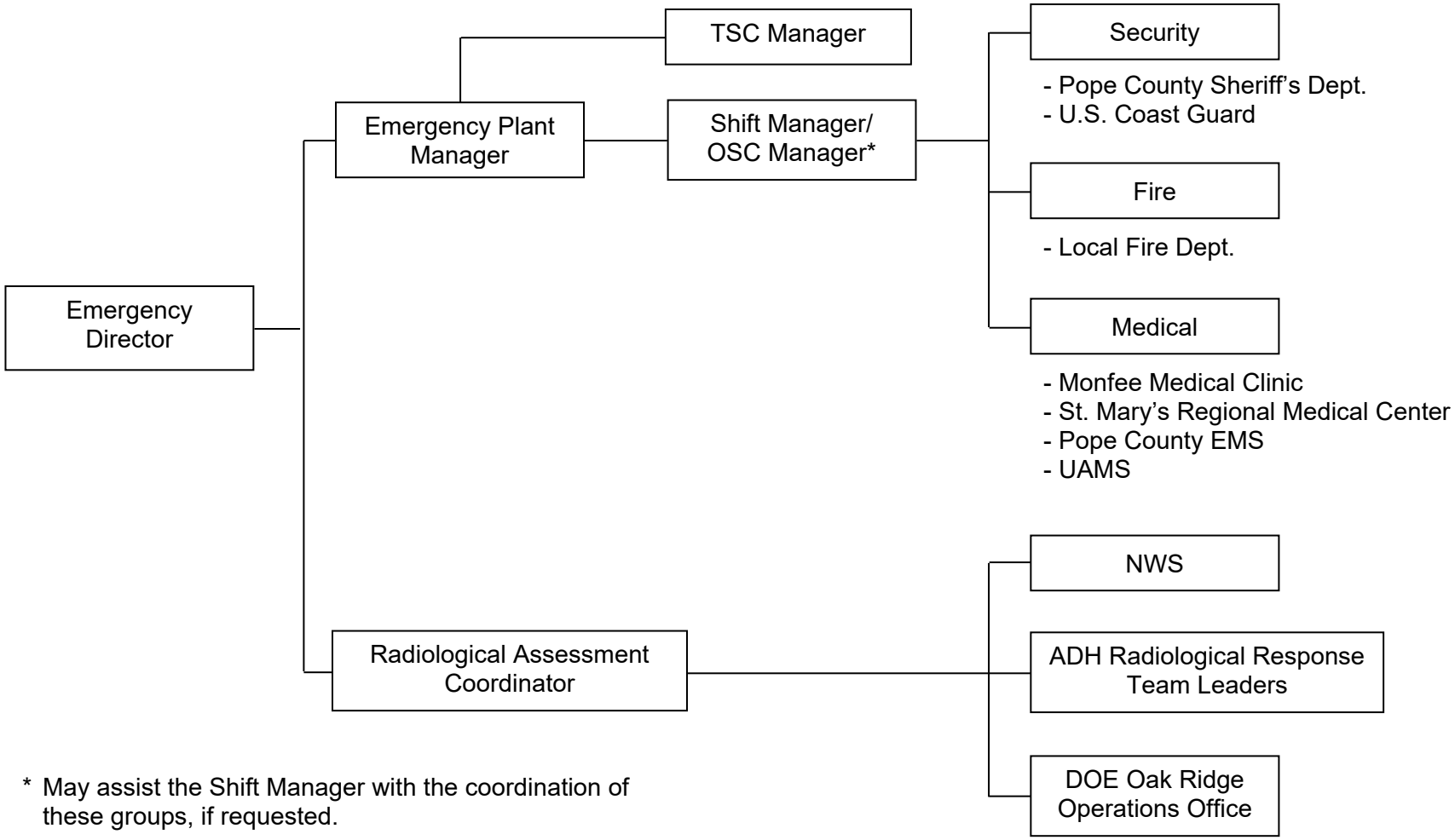
MANAGEMENT INTERFACES* BETWEEN RESPONSE CENTERS AND SUPPORT RESOURCES



* AFTER INITIAL CONTACT AND APPROVAL BY THE EMERGENCY DIRECTOR, SUPPORT PERSONNEL INTERFACE DIRECTLY WITH THE MANAGER REQUESTING ASSISTANCE.

FIGURE B-10

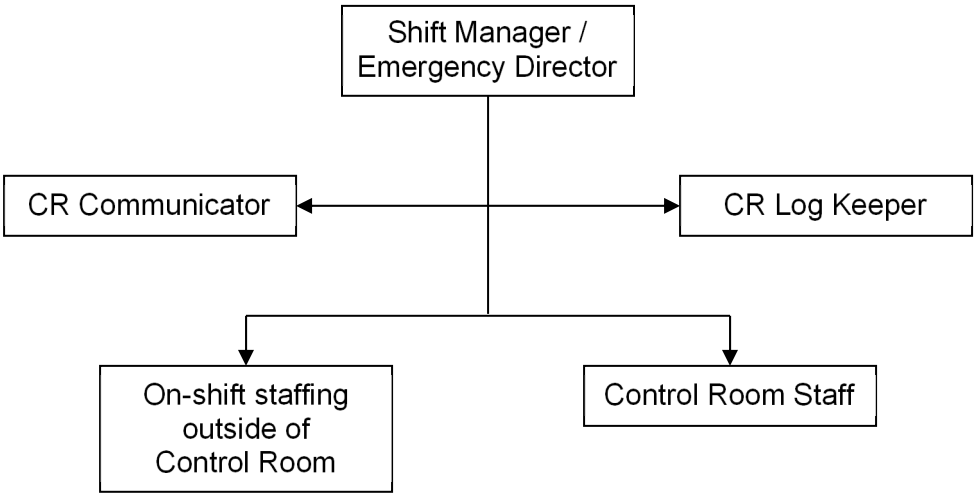
**WORKING LEVEL INTERFACES
WITH FEDERAL, STATE, AND LOCAL AGENCIES**



* May assist the Shift Manager with the coordination of these groups, if requested.

FIGURE B-11

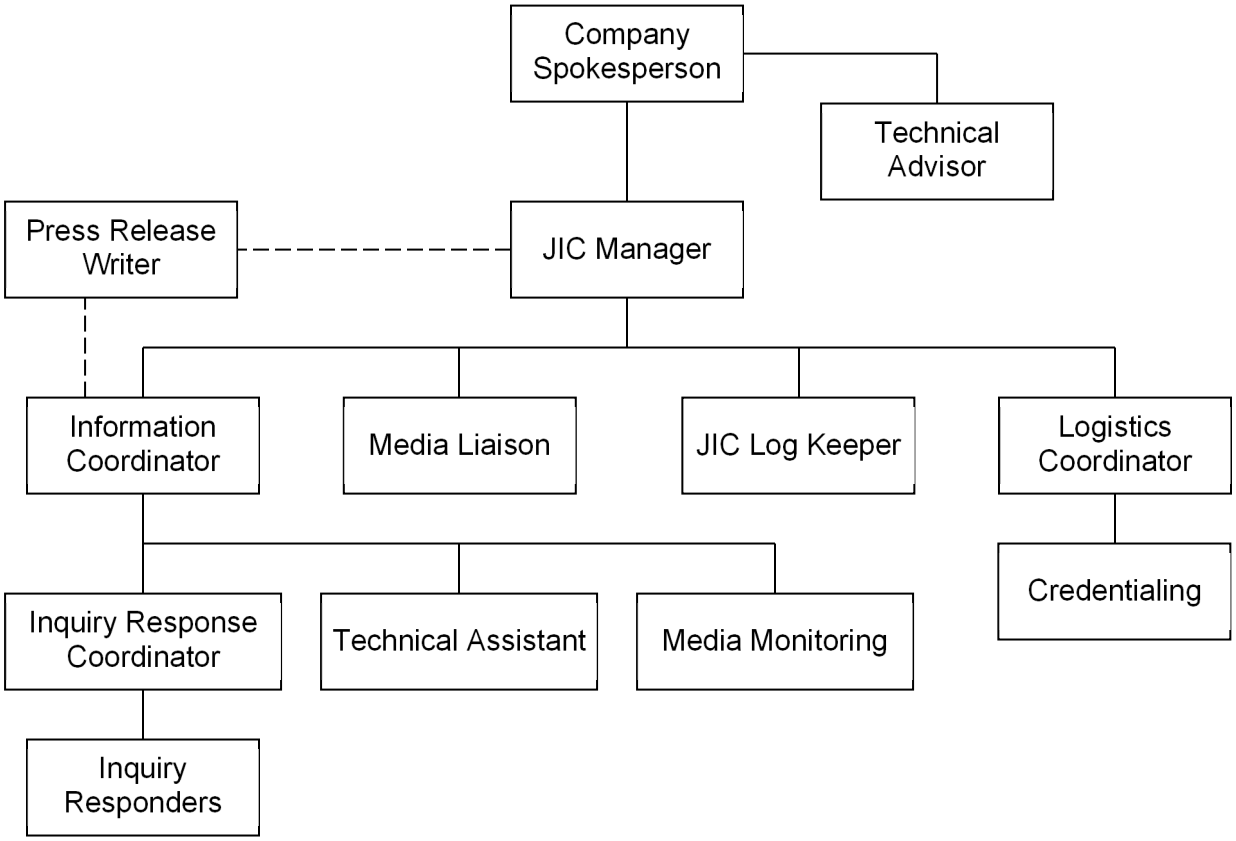
CONTROL ROOM SHIFT MANAGER'S STAFF*



* The ANO Emergency Plan Table B-1 describes the on-shift staffing.

FIGURE B-12

JOINT INFORMATION CENTER (JIC) STAFF



C EMERGENCY RESPONSE SUPPORT AND RESOURCES

This section describes the arrangements for requesting and effectively using the resources of Federal, State, and local response organizations and offsite radiological analysis facilities. The mutual agreements in regard to the accommodation of State and local staffs and of ANO staff at the various response centers are also addressed.

1.0 PERSONNEL AUTHORIZED TO REQUEST AID

Requests for assistance from Federal organizations are the responsibility of the individual with Emergency Direction and Control. This individual has the authority to request any assistance deemed necessary to respond to an incident at ANO.

Requests for assistance from State agencies, interfaces with State radiological field monitoring teams, and requests for assistance from offsite radiological laboratories shall be coordinated by the Radiological Assessment Coordinator. These requests are approved by the Emergency Director.

2.0 FEDERAL RESPONSE ORGANIZATIONS

The Federal government maintains considerable resources that may be utilized in response to needs arising from an emergency situation at a fixed nuclear facility. Within the framework of the National Incident Management System (NIMS), the National Response Plan (NRP), and associated annexes govern the Federal Government's overall response to an incident. Interfaces between the Initial Response Staff, the Emergency Response Organization and the Federal government support organizations are shown in Figures B-3, B-8, and B-10.

The following description of Federal resources is not a complete inventory of assistance capabilities but represents those resources most likely to be involved should an incident occur at Arkansas Nuclear One.

2.1 NUCLEAR REGULATORY COMMISSION (NRC)

The role of the NRC during a radiological emergency is that of verifying that emergency plans and procedures have been implemented, assuring that the public health and safety are protected, and conducting investigative activities associated with the incident. The NRC assists in the coordination of federal response resources and provides to the licensee, state, and local agencies advisory assistance associated with assisting and mitigating hazards to the public. The NRC's actions are governed by NUREG-0728, "NRC Incident Response Plan" (IRP) and the NRP's Nuclear/Radiological Incident Annex, which supersedes the Federal Radiological Emergency Response Plan (FRERP). The NRC IRP uses a flexible system to tailor its response to the significance of an incident. In the different modes of the system, NRC responders' activities change in order to best support the event. If necessary, personnel from the Region IV office in Texas can be at the ANO site within 4 hours following the notification of a radiological emergency. Notifications and continuing communications between ANO and the NRC are described in other sections of this Plan and are detailed in the Emergency Plan Implementing Procedures.

2.2 DEPARTMENT OF HOMELAND SECURITY (DHS) / FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

For incidents below the threshold of an Incident of National Significance, the NRC, as the Coordinating Agency, performs the federal-level functions and coordinates the overall federal response as provided in the NRP's Nuclear/Radiological Incident Annex. For incidents of National Significance, DHS is responsible for the overall coordination of federal response activities and the NRC, as the Coordinating Agency, performs the federal-level functions in concert with DHS. DHS/FEMA, in consultation with the Coordinating Agency, coordinates the provision of the

Resources and Assistance to affected state/local/tribal governments under the Stafford Act. In addition, DHS/FEMA maintains integrated and coordinated information regarding the status of all support activities.

2.3 DEPARTMENT OF ENERGY (DOE)

The responsibilities of other Federal departments/agencies such as DOE, Environmental Protection Agency (EPA), and U.S. Department of Agriculture (USDA), pertaining to nuclear/radiological incidents are delineated in the Nuclear/Radiological Incident Annex. For a nuclear/radiological incident in which the NRC is designated the Coordinating Agency, these departments/agencies serve as Cooperating Agencies and provide technical assistance and support to the NRC. During a radiological incident, DOE can provide trained personnel with expertise in onsite/offsite radiological monitoring.

2.3.1 Department of Energy, Oak Ridge Operations

The Department of Energy (DOE) operates the Radiation Emergency Assistance Center/Training Site (REACTS) in Oak Ridge Tennessee. In conjunction with the Oak Ridge Institute for Science and Education (ORISE), REACTS maintains equipment and trained staff to evaluate and treat individuals who have excessive radioactive materials ingestion or significant overexposures to external radiation in conjunction with severe trauma. This assistance is usually only available to commercial nuclear facilities when the magnitude or uniqueness of the radiological emergency exceeds commercially available resources.

2.4 NATIONAL WEATHER SERVICE

The National Weather Service operates on a twenty-four (24) hour per day basis. Upon request, this organization can provide Arkansas Nuclear One with meteorological conditions.

2.5 MEMPHIS UNIVERSITY EARTHQUAKE INFORMATION CENTER / NATIONAL EARTHQUAKE INFORMATION CENTER

The Memphis University Earthquake Information Center and the National Earthquake Information Service provide, upon request, information concerning major seismic activity occurring near Arkansas Nuclear One.

2.6 U.S. COAST GUARD

Upon notification, the U.S. Coast Guard controls traffic on the Arkansas River/Lake Dardanelle in the area of Arkansas Nuclear One. They provide waterborne patrols for extended periods if contamination levels persist.

2.7 U.S. ARMY CORPS OF ENGINEERS

The U.S. Army Corps of Engineers assists the United States Coast Guard in controlling boat traffic on the Arkansas River should an evacuation of the area be required.

2.8 ENVIRONMENTAL PROTECTION AGENCY

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

3.0 LIAISON WITH STATE, LOCAL AND FEDERAL RESPONSE ORGANIZATIONS

During an emergency, utility, State, and Federal personnel operate from a common emergency response facility, the Emergency Operations Facility. Counterparts from ANO, the Arkansas Department of Health (ADH), the Arkansas Department of Emergency Management (ADEM), the Nuclear Regulatory Commission (NRC), the Department of Homeland Security (DHS), the Federal Emergency Management Agency (FEMA), and other agencies work side by side (collocate) in order to more efficiently respond to an emergency.

The process of collocation allows ANO's EOF Emergency Director to interface directly with ADH's Technical Operations Control Director, ADEM's Director, the NRC's Director of Site Operations and the Senior FEMA Official to more quickly formulate and issue protective action recommendations for the general public.

ANO also dispatches, upon request by the State or counties, an ANO representative to each of Pope, Yell, Logan, Johnson, and Conway County EOC's.

4.0 OFFSITE RADIOLOGICAL/ANALYTICAL ASSISTANCE

Facilities for analysis of low-level offsite samples are presently available in at least one of the following locations:

- Arkansas Nuclear One, Russellville, Arkansas
  -Gamma Spectroscopy
- The Qualified Offsite Laboratory Facility
  -Gamma Spectroscopy
  -Low background beta counting
  -Gross alpha/beta counting
- The Arkansas Department of Health Radiochemistry Laboratory, Little Rock, Arkansas
  -Gamma Spectroscopy
  -Alpha Spectroscopy
  -Low background beta counting
  -Gross alpha/beta counting

These facilities are expected to be available during an emergency for analysis of offsite environmental samples.

5.0 EMERGENCY RESPONSE RESOURCES

The following resources are either available in the local area or provided by ANO to support the response to an emergency at Arkansas Nuclear One:

a. Bill and Hillary Clinton National Airport / Adams Field located in Little Rock is the nearest airport with commercial flight service. The Russellville Airport can accommodate Falcon 10 jet traffic or its equivalent. The Russellville Airport is located approximately 8 miles from the site.

b. A laboratory for radioisotope analysis is available at Arkansas Nuclear One.

c. A boat is available to take river samples.

d. Electrical and communication access is available at the Emergency Operations Facility for the NRC's mobile analytical laboratory.

e. In addition to the NRC Resident Inspector's office, the following command posts are available for NRC use:

- Control Room (ENS and Commercial telephone service)
- TSC (ENS, HPN, Reactor Safety Counterpart Link (RSCPL), Protective Measures Counterpart Link (PMCL), Management Counterpart Link (MCL), a LAN circuit and commercial service; additionally, offices adjacent to the TSC are available with commercial telephone service)
- OSC (HPN and commercial service)
- EOF (ENS, HPN, RSCPL, PMCPL, MCL, and commercial service available in the command room; additionally, an adjacent office is available with ENS, a LAN circuit and commercial service)

f. The Arkansas Department of Emergency Management located in North Little Rock, Arkansas (approximately 80 miles east of Russellville on I-40) operates a mobile communications van with a variety of communications capabilities.

Resources for FEMA have been provided by the State as indicated in Annex V of the Arkansas Comprehensive Emergency Management Plan (ARCEMP).

6.0 ADDITIONAL ASSISTANCE

This section discusses the industrial support organizations that can be contacted for support services in the event of an emergency at Arkansas Nuclear One. These organizations will be kept informed of the incident as appropriate.

The initial ANO request for assistance and/or personnel from other utilities and industry is made by the EOF Admin & Logistics Coordinator. Once communications are established with these groups, their assistance is coordinated by the Emergency Plant Manager, Radiological Assessment Coordinator, or Admin & Logistics Coordinator, as appropriate.

The release of information regarding the incident to other utilities and to utility groups is coordinated via the Corporate Emergency Center (CEC). All requests for information from these groups are directed to the CEC. Releases are approved by the Emergency Director before being distributed.

The release of information regarding the incident within Entergy Operations and Entergy Arkansas, Inc. is coordinated by the JIC Manager. The JIC Manager or designee provides updates to Entergy Operations and Entergy Arkansas, Inc. employees through Inside Entergy and the Customer Services Department.

6.1 UTILITIES/INDUSTRY GROUPS

6.1.1 Entergy Corporation

Entergy Operations notifies Entergy Corporation of emergencies at ANO. Periodic status updates are also provided throughout the emergency. Provisions have been established to notify Entergy Corporation on a 24 hour per day basis.

Assistance may be requested in accordance with the Corporate Emergency Response Plan. Support is available from Entergy Corporation in the areas of communications, risk management, nuclear engineering, quality assurance, power engineering, system fuels, information systems, governmental affairs and finance.

6.1.2 Institute of Nuclear Power Operations

ANO participates in the activities of the Institute of Nuclear Power Operations (INPO) and is a beneficiary of INPO's emergency services. The support that INPO is prepared to provide includes: (1) assistance in locating technical expertise; (2) assistance in obtaining industry experience relating to plant components or systems; and (3) facilitation of the flow of technical information from the affected utility to the nuclear industry. ANO provides accommodations at the EOF for a representative from INPO who serves as a liaison to our Emergency Response Organization during a Site Area or General Emergency.

ANO notifies INPO of Alert or higher emergency declarations at ANO. Provisions have been established to notify INPO on a 24 hour per day basis. Periodic status updates are also provided throughout the emergency. INPO's estimated response time is within 24 hours.

Details on the specific support available from INPO and information on how to request support are described in the INPO Emergency Resources Manual.

6.1.3 Miscellaneous Industry Groups

Information is made available to industry groups such as the Institute of Nuclear Power Operations (INPO), Electric Power Research Institute (EPRI), and the Nuclear Energy Institute (NEI). The JIC Manager is responsible for ensuring that information is provided to these groups.

6.2 CONTRACTORS

Entergy Operations has various engineering service contracts with the nuclear steam supply system suppliers, architect-engineers, and several consultants for both routine and emergency services. The organizational structure and communications arrangements for such services presently exist to assure that these services can be obtained in a timely manner.

Requests for contractor assistance by the Emergency Plant Manager, the Radiological Assessment Coordinator or the JIC Manager are coordinated through the Admin & Logistics Coordinator or his designee. Coordination of contractor assistance is performed at the level in the Emergency Response Organization to which the support is provided. Personnel requests from contractors are coordinated with the Admin & Logistics Coordinator or his designee.

D EMERGENCY CLASSIFICATION SYSTEM

1.0 CLASSIFICATION SYSTEM BACKGROUND

ANO maintains 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. Additionally, personnel are trained to promptly declare the emergency condition as soon as possible following identification of the appropriate emergency classification level.

For the purposes of classifying emergencies, ANO and the State of Arkansas utilize a method outlined in NEI 99-01, in which emergencies are grouped into a four-level response scheme. This approach to classification has been expanded and detailed to encompass the entire spectrum of possible emergency situations that may arise at ANO. Each of the four classifications is associated with a particular set of immediate actions to be taken. The ANO Emergency Action Levels are reviewed with State and County authorities on an annual basis.

The spectrum of possible emergency situations at Arkansas Nuclear One is categorized into the following Emergency Classes:

a. Notification of Unusual Event

b. Alert

c. Site Area Emergency

d. General Emergency

The severity of the Emergency Classes increases in the order as they are listed above from a Notification of Unusual Event to a General Emergency. Each classification is characterized by Initiating Conditions (ICs). ICs consist of plant conditions and specific plant parameters (i.e., instrument readings and system status indications, etc.) that are used to denote the emergency classification and require the implementation of emergency measures, such as notifications and mobilization of resources. Since the severity of the emergency situation may change with time, an emergency situation may be reclassified from one Emergency Class to another. After the initial declaration of an Emergency Class, the individual responsible for Emergency Direction and Control performs a continuing assessment of the situation to determine whether the Emergency Class must be upgraded. Emergency Class ICs and associated Emergency Action Levels (EALs) that apply to both Unit 1 and Unit 2, are listed in OP-1903.010, “Emergency Action Level Classification.”

The rationale for the Notification of Unusual Event and Alert classes is to provide early and prompt notification of minor events which could lead to more serious consequences given operator error or equipment failure or which might be indicative of more serious conditions which are not yet fully realized. The Site Area Emergency Class reflects conditions where some significant releases are likely or are occurring, but where a core melt situation is not indicated based on current information. In this situation full mobilization of emergency personnel in the near site environs is indicated as well as dispatch of monitoring teams and associated communications. The General Emergency class involves actual or imminent substantial core degradation or melting with the potential for loss of containment integrity.

2.0 NOTIFICATION OF UNUSUAL EVENT

Events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

3.0 ALERT

Events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline (PAG) exposure levels.

4.0 SITE AREA EMERGENCY

Events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA PAG exposure levels beyond the site boundary.

5.0 GENERAL EMERGENCY

Events are in progress or have occurred which involve actual or IMMINENT substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA PAG exposure levels off-site for more than the immediate site area.

6.0 EMERGENCY CLASS CRITERIA

Table D-1 provides a summary of EAL Categories used to determine the Emergency Class. OP-1903.010 Emergency Action Level Classification provides details on initiating conditions. It is noted that most of the listed initiating conditions for the Notification of Unusual Event class are events that can be expected to be terminated quickly, and therefore, the notification process may occur after the event has already been corrected.

The examples of initiating conditions found under the various emergency classifications are intended as general guidelines. Examples represent the types of conditions that may be evaluated to determine the extent of emergency response initiated by the plant operating staff. However, whether the event is a Notification of Unusual Event, an Alert, a Site Area Emergency, or a General Emergency; there are many variables involved in going from plant instrument readings of a pre-accident situation to significant exposures to the public. Such readings may usefully serve as conservative criteria for determining when to mobilize various emergency organizations, but final decisions to notify and alert the public by the early warning siren system are the decisions of governmental officials.

In utilizing the emergency class criteria as the basis for initiating emergency response activity there may be instances when the plant operating staff cannot determine quickly which of two emergency classes is appropriate for a particular occurrence. In those cases, the occurrence should be treated as the higher of the emergency classes and the appropriate response for that class should be initiated.

7.0 DESIGN BASIS ACCIDENT EMERGENCY CLASSES

A broad range of possible off-normal and accident conditions has been postulated and taken into consideration in deriving response actions to occur at the ANO site. These include radiological and non-radiological events that range from minor occurrences, which may be anticipated during the life of the plant, to highly improbable events, which could affect members of the general public.

Chapter 14 and 15 of the Unit 1 and Unit 2 Safety Analysis Report (SAR) contains a summary of the events that have been postulated for the site.

7.1 CLASSIFICATION OF POSTULATED ACCIDENTS

The events postulated in SAR may be categorized by one of the four emergency classifications. In many cases, the classification assigned initially may undergo escalation to the next higher classification depending on the severity of the accident. A complete discussion of these events may be found in the SAR.

The operating shift personnel under the direction of the Manager, Shift Ops perform the initial assessment and classification of potential in-plant and offsite consequences. These assessment times should last no longer than 15 minutes. The shift personnel then activate the Onsite Emergency Organization in accordance with the level of emergency response required, thereby providing additional manpower as the emergency evolves.

A list of all radiological-related design basis accidents, addressed in Chapters 14 and 15, respectively, of the Unit 1 and Unit 2 Safety Analysis Reports is provided in Tables D-3 and D-4.

TABLE D-1

SUMMARY OF EAL CATEGORIES

OP-1903.010, “Emergency Action Level Classification,” is an Emergency Action Level Basis Document and is considered part of the Emergency Plan.

OP-1903.010, “Emergency Action Level Classification,” provides an explanation and rationale for each Emergency Action Level (EAL). OP-1903.010 contains EAL technical bases for each EAL according to EAL group (Any, Hot, Cold), EAL category (A, C, E, F, H and S) and EAL subcategory. For each EAL the following information is provided – Category Letter/Title; Subcategory Letter/Title; Initiating condition; EAL Identifier; Classification; EAL; Mode Applicability; Definitions; Basis and References.

Further detail on Emergency Action Levels and Initiating Conditions is found in OP-1903.010, “Emergency Action Level Classification.”

Category A – Abnormal Radiation Levels/Radiological Effluents

EAL Group: ANY (EALS in this category are applicable to any plant condition)

Many EALs are based on actual or potential degradation of fission product barriers because of the elevated potential for offsite radioactivity release. Degradation of fission product barriers though is not always apparent via non-radiological symptoms. Therefore, direct indication of elevated radiological effluents or area radiation levels are appropriate symptoms for emergency classification.

At lower levels, abnormal radioactivity releases can be indicative of a failure of containment systems or precursors to more significant releases. At higher release rates, offsite radiological conditions can result which require offsite protective actions. Elevated area radiation levels in plant can also be indicative of the failure of containment systems or preclude access to plant vital equipment necessary to ensure plant safety.

Events of this category pertain to the following subcategories:

- Radiological Effluent – Direct indication of effluent radiation monitoring systems provides a rapid assessment mechanism to determine releases in excess of classifiable limits. Projected offsite doses, actual offsite field measurements or measured release rates via sampling indicate doses or dose rates above classifiable limits.

- Irradiated Fuel Event – Conditions indicative of a loss of adequate shielding or damage to irradiated fuel can preclude access to vital plant areas or result in radiological releases that warrant emergency classification.

- Area Radiation Levels – Sustained general area radiation levels which can preclude access to areas requiring continuous occupancy also warrant emergency classification.

TABLE D-1 (continued)

SUMMARY OF EAL CATEGORIES

CATEGORY C – Cold Shutdown/Refueling System Malfunction

EAL Group: Cold Conditions (RCS temperature less than or equal to 200 °F); EALs in this category are applicable only in one or more cold operating modes

Category C EALs are directly associated with cold shutdown or refueling system safety functions. Given the variability of plant configurations (e.g., systems out-of-service for maintenance, containment open, reduced AC power redundancy, time since shutdown) during these periods, the consequences of any given initiating event can vary greatly. For example, a loss of decay heat removal capability that occurs at the end of an extended outage has less significance than a similar loss occurring during the first week after shutdown. Compounding these events is the likelihood that instrumentation necessary for assessment might also be inoperable. The cold shutdown and refueling system malfunction EALs are based on performance capability to the extent possible with consideration given to RCS integrity, CONTAINMENT CLOSURE and fuel clad integrity for the applicable operating modes (5 – Cold Shutdown, 6 – Refueling, DEF – Defueled).

Events of this category pertain to the following subcategories:

- RCS Level – RCS water level is directly related to the status of adequate core cooling and, therefore, fuel clad integrity.

- Loss of Vital AC Power – Loss of vital plant electrical power can compromise plant SAFETY SYSTEM operability including decay heat removal and emergency core cooling systems which can be necessary to ensure fission product barrier integrity. This category includes loss of onsite and offsite power sources for 4.16 KV vital buses.

- RCS Temperature – Uncontrolled or inadvertent temperature or pressure rises are indicative of a potential loss of safety functions.

- Loss of Vital DC Power – Loss of emergency plant electrical power can compromise plant SAFETY SYSTEM operability including decay heat removal and emergency core cooling systems which can be necessary to ensure fission product barrier integrity. This category includes loss of power to or degraded voltage on the 125V DC vital buses.

- Loss of Communications – Certain events that degrade plant operator ability to effectively communicate with essential personnel within or external to the plant warrant emergency classification.

- Hazardous Event Affecting Safety Systems – Certain hazardous natural and technological events can result in VISIBLE DAMAGE to or degraded performance of safety systems warranting classification.

TABLE D-1 (continued)

SUMMARY OF EAL CATEGORIES

CATEGORY E – Independent Spent Fuel Storage installation (ISFSI) Malfunction

EAL Group: ANY (EALS in this category are applicable to any plant condition)

An ISFSI is a complex that is designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel storage. A significant amount of the radioactive material contained within a canister must escape its packaging and enter the biosphere for there to be a significant environmental effect resulting from an accident involving the dry storage of spent nuclear fuel.

An Unusual Event is declared on the basis of the occurrence of an event of sufficient magnitude that a loaded cask CONFINEMENT BOUNDARY is damaged or violated.

The ANO ISFSI is located wholly within the plant PROTECTED AREA. Therefore, any security event related to the ISFSI is classified under Category H1 security event related EALs.

CATEGORY F – Fission Product Barrier Degradation

EAL Group: Hot Conditions (RCS temperature > 200 °F); EALs in this category are applicable only in one or more hot operating modes

EALs in this category represent threats to the defense in depth design concept that precludes the release of highly radioactive fission products to the environment. This concept relies on multiple physical barriers any one of which, if maintained intact, precludes the release of significant amounts of radioactive fission products to the environment. The primary fission product barriers are:

- Fuel Clad Barrier (FCB): The Fuel Clad Barrier consists of the cladding material that contains the fuel pellets.

- Reactor Coolant System Barrier (RCB): The RCS Barrier includes the RCS primary side and its connections up to and including the pressurizer safety and relief valves, and other connections up to and including the primary isolation valves.

- Containment Barrier (CNB): The Containment Barrier includes the Reactor Building and connections up to and including the outermost containment isolation valves. This barrier also includes the main steam, feedwater, and blowdown line extensions outside the Reactor Building up to and including the outermost secondary side isolation valve. Containment Barrier thresholds are used as criteria for escalation of the Emergency Classification Level (ECL) from an Alert to a Site Area Emergency or a General Emergency.

TABLE D-1 (continued)

SUMMARY OF EAL CATEGORIES

CATEGORY F – Fission Product Barrier Degradation (continued)

The EALs in this category require evaluation of the loss and potential loss thresholds listed in the fission product barrier matrix of Table F-1. "Loss" and "Potential Loss" signify the relative damage and threat of damage to the barrier. "Loss" means the barrier no longer assures containment of radioactive materials. "Potential Loss" means integrity of the barrier is threatened and could be lost if conditions continue to degrade. The number of barriers that are lost or potentially lost and the following criteria determine the appropriate emergency classification level:

- Alert – Any loss or any potential loss of either Fuel Clad or RCS Barrier
- Site Area Emergency – Loss or potential loss of any two barriers
- General Emergency – Loss of any two barriers and loss or potential loss of third barrier

The logic used for emergency classification based on fission product barrier monitoring should reflect the following considerations:

- The Fuel Clad Barrier and the RCS Barrier are weighted more heavily than the Containment Barrier.

- Unusual Event ICs associated with RCS and Fuel Clad Barriers are addressed under System Malfunction ICs.

- For accident conditions involving a radiological release, evaluation of the FISSION PRODUCT BARRIER THRESHOLDS is performed in conjunction with dose assessments to ensure correct and timely escalation of the emergency classification. For example, an evaluation of the FISSION PRODUCT BARRIER THRESHOLDS might result in a Site Area Emergency classification while a dose assessment might indicate that an EAL for General Emergency IC AG1 has been exceeded.

- The FISSION PRODUCT BARRIER THRESHOLDS specified within a scheme reflect plant-specific ANO design and operating characteristics.

- As used in this category, the term RCS leakage encompasses not just those types defined in Technical Specifications but also includes the loss of RCS mass to any location--inside the containment, an interfacing system, or outside of the containment. The release of liquid or steam mass from the RCS due to the as-designed/expected operation of a relief valve is not considered to be RCS leakage.

- At the Site Area Emergency level, maintaining cognizance of how far present conditions are from meeting a threshold that would require a General Emergency declaration is vital for EAL users. For example, if a "loss" of both Fuel Clad and RCS fission product barriers exists, frequent assessments of containment radioactive inventory and integrity are necessary. Alternatively, if a "potential loss" of both the Fuel Clad and RCS fission product barriers exists, the Emergency Director has more assurance that there was no immediate need to escalate to a General Emergency.

TABLE D-1 (continued)

SUMMARY OF EAL CATEGORIES

CATEGORY H – Hazards and Other Conditions Affecting Plant Safety

EAL Group: ANY (EALs in this category are applicable to any plant condition, hot or cold)

Hazards are non-plant, system-related events that can directly or indirectly affect plant operation, reactor plant safety or personnel safety.

- Security: Unauthorized entry attempts into the PROTECTED AREA, bomb threats, sabotage attempts, and actual security compromises threatening loss of physical control of the plant.

- Seismic event: Natural events such as earthquakes have potential to cause plant structure or equipment damage of sufficient magnitude to threaten personnel or plant safety.

- Natural or technological hazard: Other natural and non-naturally occurring events that can cause damage to plant facilities include tornados, FLOODING, hazardous material releases and events restricting site access warranting classification.

- Fire: FIRES can pose significant hazards to personnel and reactor safety. Appropriate for classification are FIRES within the plant PROTECTED AREA or which can affect operability of equipment needed for safe shutdown.

- Hazardous gas: Toxic, corrosive, asphyxiant or flammable gas leaks can affect normal plant operations or preclude access to plant areas required to safely shutdown the plant.

- Control Room evacuation: If the Control Room is evacuated, additional support for monitoring and controlling plant functions is necessary through the emergency response facilities.

- Emergency Director judgment: The EALs defined in other categories specify the pre-determined symptoms or events that are indicative of emergency or potential emergency conditions and thus warrant classification. While these EALs have been developed to address the full spectrum of possible emergency conditions which can warrant classification and subsequent implementation of the Emergency Plan, a provision for classification of emergencies based on operator/management experience and judgment is still necessary. The EALs of this category provide the Emergency Director the latitude to classify emergency conditions consistent with the established classification criteria based upon Emergency Director judgment.

TABLE D-1 (continued)

SUMMARY OF EAL CATEGORIES

CATEGORY S – System Malfunction

EAL Group: Hot Conditions (RCS temperature greater than 200 °F); EALs in this category are applicable only in one or more hot operating modes

Numerous system-related equipment failure events that warrant emergency classification have been identified in this category. They can pose actual or potential threats to plant safety.

- Loss of Vital AC Power: Loss of vital electrical power can compromise plant safety system operability including decay heat removal and emergency core cooling systems which may be necessary to ensure fission product barrier integrity. This category includes loss of onsite and offsite sources for vital 4.16 KV buses.

- Loss of Vital DC Power: Loss of emergency electrical power can compromise plant safety system operability including decay heat removal and emergency core cooling systems which may be necessary to ensure fission product barrier integrity. This category includes loss of vital plant 125V DC power sources.

- Loss of Control Room Indications: Certain events that degrade plant operator ability to effectively assess plant conditions within the plant warrant emergency classification. Losses of indicators are in this subcategory.

- RCS Activity: During normal operation, reactor coolant fission product activity is very low. Small concentrations of fission products in the coolant are primarily from the fission of tramp uranium in the fuel clad or minor perforations in the clad itself. Any significant rise from these base-line levels (2% - 5% clad failures) is indicative of fuel failures and is covered under the Fission Product Barrier Degradation category. However, lesser amounts of clad damage may result in coolant activity exceeding Technical Specification limits. These fission products will be circulated with the reactor coolant and can be detected by coolant sampling.

- RCS Leakage: The reactor vessel provides a volume for the coolant that covers the reactor core. The reactor pressure vessel and associated pressure piping (reactor coolant system) together provide a barrier to limit the release of radioactive material should the reactor fuel clad integrity fail. Excessive RCS leakage greater than Technical Specification limits indicates potential pipe cracks that may propagate to an extent threatening fuel clad, RCS and containment integrity.

- RPS Failure: This subcategory includes events related to failure of the Reactor Protection System (RPS) to initiate and complete reactor trips. In the plant licensing basis, postulated failures of the RPS to complete a reactor trip comprise a specific set of analyzed events referred to as Anticipated Transient Without Scram (ATWS) events. For EAL classification, however, ATWS is intended to mean any trip failure event that does not achieve reactor shutdown. If RPS actuation fails to assure reactor shutdown, positive control of reactivity is at risk and could cause a threat to fuel clad, RCS and containment integrity.

- Loss of Communications: Certain events that degrade plant operator ability to effectively communicate with essential personnel within or external to the plant warrant emergency classification.

TABLE D-1 (continued)

SUMMARY OF EAL CATEGORIES

CATEGORY S – System Malfunction (continued)

- Containment Failure: Failure of containment isolation capability (under conditions in which the containment is not currently challenged) warrants emergency classification. Failure of containment pressure control capability also warrants emergency classification.

- Hazardous Event Affecting Safety Systems: Various natural and technological events that result in degraded plant safety system performance or significant VISIBLE DAMAGE warrant emergency classification under this subcategory.

TABLE D-3

CORRELATION OF DESIGN BASIS ACCIDENTS TO EMERGENCY CLASSES

ARKANSAS NUCLEAR ONE UNIT 1

The following table lists the design basis accidents discussed in the Final Safety Analysis Reports.

DESIGN BASIS ACCIDENT

Uncompensated operation reactivity changes

Startup accident

Rod withdrawal accident at rated power operation

Moderator dilution accident

Cold water accident

Loss of coolant flow

Stuck-out, stuck-in, or dropped control rod accident

Loss of electric power (loss of load)

Complete loss of all Unit AC power

Turbine overspeed

Fuel loading errors

Steam line failure

Steam generator tube failure

Fuel handling accident

Rod ejection accident

Loss of coolant accident

Core flood line break

Maximum hypothetical accident

Waste gas tank rupture

Uncontrolled CEA withdrawal from a subcritical condition

Uncontrolled CEA withdrawal from critical conditions

TABLE D-4

CORRELATION OF DESIGN BASIS ACCIDENTS TO EMERGENCY CLASSES

ARKANSAS NUCLEAR ONE UNIT 2

The following table lists the design basis accidents discussed in the Final Safety Analysis Reports.

DESIGN BASIS ACCIDENT
CEA misoperation
Uncontrolled boron dilution incident
Total and partial loss of reactor coolant forced flow
Idle loop startup
Loss of external load and/or turbine trip
Loss of normal feedwater flow
Loss of all normal preferred A-C power to the station auxiliaries
Excess heat removal due to secondary system malfunction
Failure of the regulating instrumentation
Internal and external events including major and minor fire, floods, storms and earthquakes
Major rupture of pipes containing reactor coolant up to and including double-ended rupture of largest pipe in the reactor coolant system (loss of coolant accident)
Major secondary system pipe breaks with or without a concurrent loss of A-C power
Inadvertent loading of a fuel assembly into the improper position
Waste gas decay tank leakage or rupture
Failure of air ejector lines (BWR)
Steam generator tube rupture with or without a concurrent loss of A-C power
Failure of charcoal or cryogenic system (BWR)
Control element assembly ejection
The spectrum of rod drop accidents (BWR)
Break in instrument line or other lines from reactor coolant pressure boundary that penetrate containment

TABLE D-4 (continued)

DESIGN BASIS ACCIDENT

Fuel handling accident

Small spills or leaks of radioactive material outside containment

Fuel cladding failure combined with steam generator leak

Control Room uninhabitability

Failure or overpressurization of low-pressure residual heat removal system

Loss of condenser vacuum

Turbine trip with coincident failure of turbine bypass valves to open

Loss of service water system

Loss of one D-C system

Turbine trip with failure of generator breaker to open

Loss of instrument air system

Malfunction of turbine gland sealing system

E NOTIFICATION METHODS AND PROCEDURES

This section describes those methods which have been established for notification, by Entergy Operations, of State and local response organizations and for notification of the emergency personnel of all response organizations. The content of initial and follow-up messages to response organizations and the public are discussed. The means to provide early notification and clear instruction to the public within the affected areas are outlined. More information on notification methods is provided by the Emergency Plan Implementing Procedures.

1.0 NOTIFICATION

Entergy Operations has established communications links among the ANO emergency response centers and between the ANO centers and Federal, State, and local emergency response organizations. The notification of response organizations is based on the response criteria developed for each emergency class as discussed in Section D, subsection 6.0. Detailed information on the ERO personnel contacted for each Emergency Class is provided in Emergency Plan Implementing Procedures. Table F-1 shows the various communication links and the redundant communication equipment available to assure that communication channels are maintained. A description of the communications equipment is provided in Section H.2.

Initial notification is made to the State and local authorities within fifteen (15) minutes after declaring an emergency. Verification methods are used to authenticate messages to the State. The NRC is notified immediately following notification of State and local authorities and within one (1) hour of the declared emergency.

The Shift Manager and the Operations staff monitor the Control Room instruments and alarms for any changes in the plant conditions. Upon noticing any unusual or abnormal change, the Shift Manager determines if the change or event corresponds to one of the Emergency Class categories as defined by Table D-1. If the event or change corresponds to one of the Emergency Classes he takes further actions as described below. Abnormal events or changes at the power plant are brought to the attention of the Shift Manager of the affected unit by the plant personnel. Situations not unique to a specific unit are brought to the attention of either unit's Shift Manager.

1.1 NOTIFICATION OF UNUSUAL EVENT

For a Notification of Unusual Event, the Shift Manager/ED initiates notifications in accordance with Emergency Plan Implementing Procedures. In general, notifications include the Emergency Plant Manager, EOF Emergency Director, NRC, ADH, ADEM, local authorities, and site support personnel, as needed. Additional emergency response personnel are then contacted, as needed. The purpose of this Emergency Class is to provide current information on abnormal events to State and Federal governmental agencies and to test the communications links with offsite groups.

If the incident involves a fire, security, a radiological or medical emergency, the Fire Brigade, appropriate emergency response teams/groups, and local support services are notified in accordance with Emergency Plan Implementing Procedures. These local support services may include the Local Fire Department, the Pope County Sheriff, the Pope County Emergency Medical Service, the Saint Mary’s Regional Medical Center, University of Arkansas for Medical Sciences Hospital, and Monfee Medical Clinic. These local support services activate other local services in their individual areas of support if additional support is required.

1.2 ALERT

For an Alert, the individual with Emergency Direction and Control immediately initiates notifications in accordance with Emergency Plan Implementing Procedures. In general, notifications include the Emergency Response Organization, NRC, ADH, ADEM, local authorities, and plant emergency response team/group leaders. Additional emergency response personnel are then contacted as needed and may be directed to remain in an alert status. Personnel are dispatched to make the emergency response centers ready should the situation become more serious.

The primary purpose of this Emergency Class is to provide early and prompt notification of minor events which could lead to more serious consequences given operator error or equipment failure or which might be indicative of more serious conditions which are not yet fully realized. If a fire, security, radiological, or medical emergency is involved; appropriate emergency response teams and local support services report to the plant as required.

The ADH may activate the State Emergency Operations Facility (located in the ANO EOF) and dispatch the State Radiological Response Team to the site to perform radiological monitoring.

1.3 SITE AREA EMERGENCY

For a Site Area Emergency the individual with Emergency Direction and Control immediately initiates notifications in accordance with Emergency Plan Implementing Procedures. In general, notifications include the Emergency Response Organization, NRC, ADH, ADEM, local authorities, and plant emergency response team/group leaders. Personnel are dispatched to make the emergency response centers ready. This Emergency Class reflects conditions where full mobilization of emergency personnel in the near site environs is indicated as well as the dispatch of monitoring teams and associated communications. Members of the Emergency Response Organization report to Arkansas Nuclear One and other response centers to take appropriate corrective and recovery actions.

The ADH may activate the Early Warning System within the 10-mile Emergency Planning Zone.

The ADH activates State Emergency Operations Facility (located in the ANO EOF) and dispatches the Radiological Response Team to the site to perform radiological monitoring and environmental impact assessment. The ADEM also activates its Emergency Operations Center upon notification and provides a Mobile Support Unit to the State Emergency Operations Center at North Little Rock.

1.4 GENERAL EMERGENCY

For a General Emergency the individual with Emergency Direction and Control immediately initiates notifications in accordance with Emergency Plan Implementing Procedures. In general, notifications include the Emergency Response Organization, NRC, ADH, ADEM, local authorities, and plant emergency response team/group leaders. The entire Emergency Response Organization is activated. Personnel are dispatched to make the emergency response centers ready. This Emergency Class reflects conditions requiring immediate implementation of appropriate predetermined protective actions. Members of the Emergency Response Organization report to Arkansas Nuclear One and other response centers.

The ADH also activates the Early Warning System within the 10-mile Emergency Planning Zone.

The ADH activates its State Emergency Operations Facility (located in the ANO EOF) and dispatches the Radiological Response Team to the site to perform radiological monitoring and environmental impact assessment. The ADEM also activates its Emergency Operations Center upon notification and provides a Mobile Support Unit to the State Emergency Operations Center at North Little Rock.

2.0 EMERGENCY MESSAGES

The forms for messages sent from Arkansas Nuclear One to offsite agencies are included in ANO implementing procedures for the Arkansas Comprehensive Emergency Management Plan (ARCEMP), Annex V. These forms are utilized for both initial and follow-up messages. In general the message forms allow information pertinent to the Emergency Classes to be supplied to the off-site authorities in a consistent manner. Information provided to offsite response centers via these forms include: the class of the emergency; details of the onsite situation; radiological release data including meteorological parameters for making dose projections and determining affected populations; and recommendations of offsite protective actions.

3.0 EARLY WARNING SYSTEM

The Early Warning System for the 10-mile radius Emergency Planning Zone (EPZ) around Arkansas Nuclear One consists of a mixture of sirens and National Oceanic and Atmospheric Administration (NOAA) Weather Radios. The system is essentially designed to notify the individuals in the 10-mile EPZ within 15 minutes of the issuance of recommendations by the State of Arkansas for radiological emergencies at Arkansas Nuclear One.

Sirens are used to alert the more densely populated areas shown on Figure E-1. The siren system is divided into five zones: Russellville, London, Dardanelle, Johnson County, and Logan County. Each of these zones can be activated independently or in conjunction with each other. The locations of the sirens were determined by field studies conducted by the siren manufacturer taking into account ambient noise measurements, terrain and rural and suburban areas. This system was designed considering the Federal Emergency Management Agency's Outdoor Warning Systems Guide (CPG-17) and the Nuclear Regulatory Commission's guidance presented in NUREG-0654. Tests of the Early Warning System are conducted by the ADH.

The siren system is activated by radio signal. The primary activation point for the siren system is the ADH office in Little Rock, Arkansas. This office is manned 24 hours per day to accommodate day or night activation. The secondary activation points for the siren system are located in the State Emergency Operations Facility at the ANO EOF and the Nuclear Planning and Response Program office.

The public is instructed to tune to local radio stations for emergency instructions when the sirens are activated. Local radio stations have the capability to broadcast emergency messages on a 24-hour basis to the general public.

For those residents of the 10-mile EPZ who live outside the siren coverage area, NOAA Weather Radios are made available. Additionally, these receivers are made available to the rural population, large businesses, hospitals, schools, and other applicable groups, within the 10-mile EPZ.

The NOAA radio program is administered by the Arkansas Department of Health's Nuclear Planning and Response Program staff and operated by the National Weather Service. The NP&RP staff issues radios to new residents in the 10 mile EPZ. Recipients of NOAA radios are tracked on a master list by the NP&RP staff and needed repair and/or replacement of NOAA radios identified as defective is also carried out by the NP&RP staff.

The National Weather Service is a 300-watt station, with a 300-watt backup transmitter, which broadcasts 24 hours per day to the 10-mile EPZ. Entergy Operations has provided backup generator capability for the transmitter site. A summary of the NWS agreement with Entergy Operations to cooperate as a part of the Early Warning System can be found in Appendix 1 of this Plan.

The NWS is contacted by the ADH staff and informed of the intent to activate the Early Warning System. The NWS is notified in advance of the sirens being activated such that, in conjunction with the siren activation, the NWS activates the NOAA tone which automatically turns the receivers on. A loud tone is activated on the radio to alert the user. Following activation of the receivers, live or pre-recorded emergency messages are broadcast to instruct the public.

Supplemental notification to the EPZ population is provided by local fire departments in the EPZ. Also, in the event of siren or NOAA radio system failures, route alerting is provided by local fire departments in the EPZ.

Special provisions have been developed by the Nuclear Planning and Response Program and Entergy Operations for the alerting of identified handicapped individuals. These individuals, depending upon their handicap, are notified appropriately.

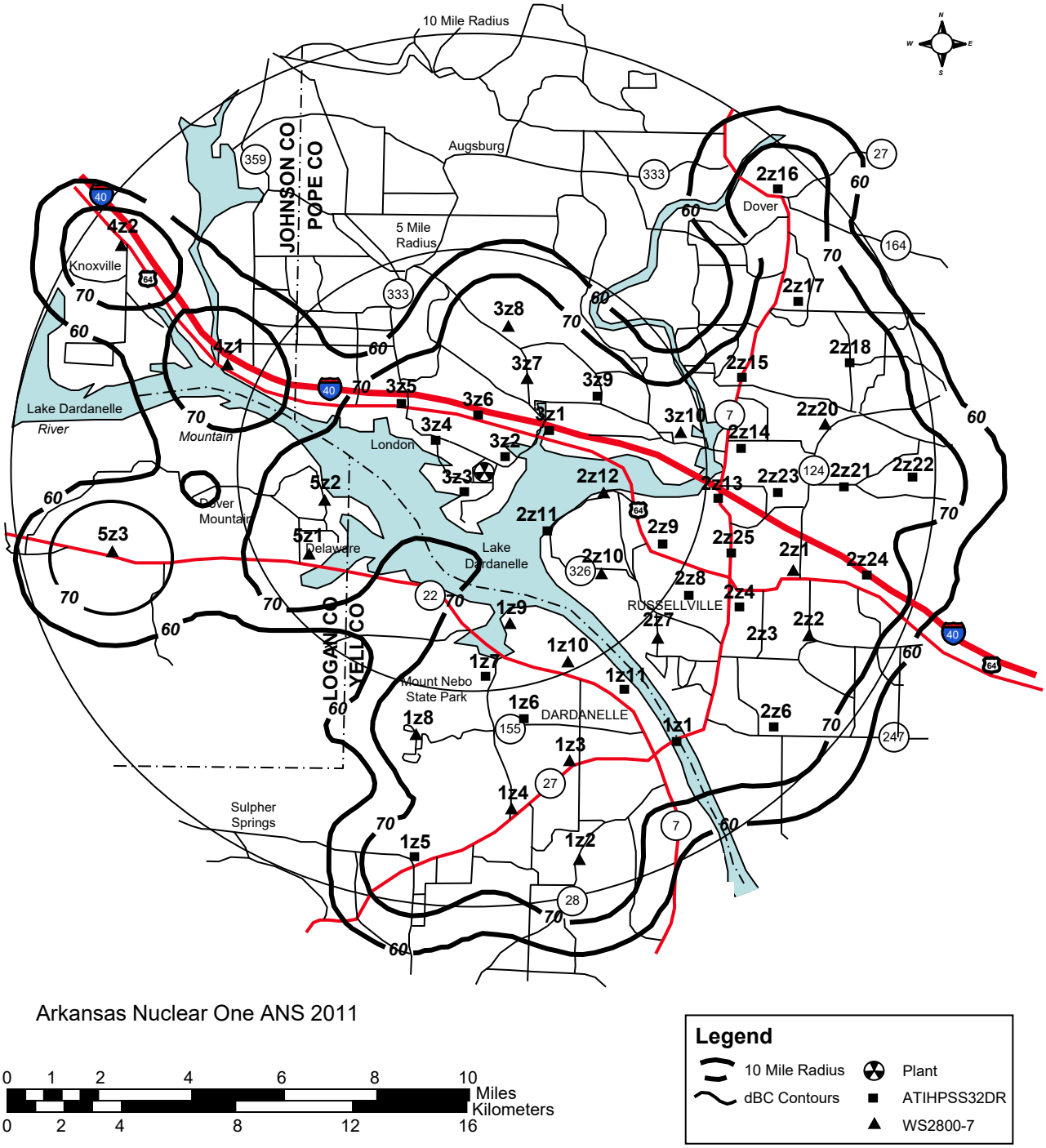
Activation of the system for emergencies not related to an incident at Arkansas Nuclear One is upon local government request.

4.0 PUBLIC WARNING MESSAGES

The State of Arkansas has formulated messages which instruct the public with regard to specific protective actions to be taken by occupants of affected areas in the event of an incident at Arkansas Nuclear One. The messages are provided in Appendix 6 of this Plan and in attachments to the Arkansas Emergency Operations Plan, Annex V. ANO has established notification methods and provides information as discussed in Section E, subsection 2.0, which allows officials of the State of Arkansas to make decisions on the appropriate public warning messages which are broadcast via the local broadcast stations. The ANO staff reviews revisions and provides comments on the formulation of emergency messages, as necessary, so that the ANO Emergency Plan and Implementing Procedures remain consistent with the needs of the State of Arkansas in regard to public warning messages.

FIGURE E-1

Predicted Siren Coverage



F EMERGENCY COMMUNICATIONS

1.0 NOTIFICATION AND ACTIVATION OF STATE, LOCAL, AND SITE EMERGENCY RESPONSE NETWORKS

Figure F-1 of this Plan illustrates the methods used to notify the State, local, and site emergency response organizations. This process is initiated by the Shift Manager who is responsible for making the calls as shown on Figure F-1 in accordance with Emergency Plan Implementing Procedures. The Shift Manager is required to be present for each shift, 24 hours a day. Therefore, notification of organizations can be accomplished at any given time as required.

The ADH maintains a 24 hour per day communications center which is utilized to receive emergency notification from the site and activate State, local, and Federal response organizations, as necessary. The Arkansas Department of Emergency Management (ADEM) and the County Warning Points can also be contacted 24 hours per day. The ADH communications center and the Pope County Sheriff Department can be contacted by telephone or radio from the Control Room, TSC, and EOF. ADEM can also be contacted via radio using the Arkansas Wireless Information Network (AWIN) radio channel, as needed. The AWIN radio channel is available for use from the Control Rooms, the OSC, and the EOF. If normal communication systems are not accessible, use of the AWIN radio channel allows ANO to forward information to ADEM via AWIN, which can then be forwarded to ADH and the County Warning Points.

2.0 COMMUNICATIONS

2.1 COMMUNICATIONS WITH FEDERAL, STATE, AND LOCAL AGENCIES

Table F-1 illustrates the communication interface between the EOF and State and local response centers and the communications equipment available. Section H of this Plan outlines the communications hardware that is available for communications from ANO emergency response centers to State and local agencies within the emergency planning zone. The Emergency Plan Implementing Procedures provide information on the periodic testing of the equipment. During an emergency, communication links are maintained on a 24-hour basis.

2.2 ONSITE COMMUNICATIONS

Two-way radios are provided for communications between onsite facilities and the radiological monitoring teams.

2.3 COMMUNICATIONS BETWEEN THE SITE AND MEDICAL FACILITIES

Communications with offsite medical facilities are made by telephone. If telephone service is not available, information may be relayed via radio communication with the Arkansas Department of Emergency Management. Radio communications between Pope County Emergency Medical Service and the Saint Mary's Regional Medical Center are available via a private radio frequency. This system uses a repeater on Mt. Nebo to provide a 30 to 40-mile radius coverage.

2.4 COMMUNICATIONS BETWEEN ENTERGY OPERATIONS AND OTHER ORGANIZATIONS

Figure F-2 indicates communications made to other organizations for information and/or requests for emergency response support.

3.0 ACTIVATION OF EMERGENCY PERSONNEL

The Shift Manager/ED is responsible for initiation of the notification of emergency response personnel in accordance with Emergency Plan Implementing Procedures.

A computer-based, automated notification system referred to as the Emergency Response Organization Notification (ERON) system is used as the primary method for notification of Emergency Response Organization members. This system activates ERO pagers and begins telephone call-out of ERO personnel who do not carry pagers. The system uses several different types of communication pathways to contact ERO personnel and ERO support personnel (e.g. pagers, cell phone, telephone and internet).

ERO Pagers and the Emergency Telephone Directory / Call Out lists are used as a backup method for ERO notification.

TABLE F-1

COMMUNICATION LINKS AVAILABLE FOR ONSITE/OFFSITE EMERGENCY RESPONSE FACILITIES

Legend

- ● = **Location has indicated service**

	Control Room	Operational Support Center (OSC)	Technical Support Center (TSC)	Emergency Operation Facility (EOF)	Alternate EOF	Joint Information Center	Entergy CEC	ADH – State EOF (SEOF) and Communications Center (24/7)	Arkansas Dept. of Emerg. Mgmt. (ADEM) (24/7)	Pope County EOC Warning Point (24/7)	Johnson County EOC Warning Point (24/7)	Logan County EOC Warning Point (24/7)	Yell County EOC Warning Point (24/7)	Conway County EOC Warning Point (24/7)	NRC Headquarters	NRC Region IV	Local Fire Dept.	Saint Mary's Regional Medical Center	US DOE Oak Ridge
Commercial Phone	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Entergy Network (Includes WebEOC)	●	●	●	●	●	●	●												
Entergy/Plant Phone System	●	●	●	●	●		●	●											
Public Address System	●	●	●	●															
UHF Radio Console	●	●	●	●	●			●	●	●	●	●	●	●			●	●	
UHF Handheld Radios	●	●	●	●				●	●	●	●	●	●	●			●	●	
AWIN Radio Link	●	●		●	●			●	●	●	●	●	●	●			●		
NRC ENS Phone	●		●	●	●										●	●			●
NRC HPN Phone		●	●	●	●										●	●			
Satellite Phone	●	●	●	●		●	●		●	●	●	●	●	●					
Telephone Conference Lines	●	●	●	●	●	●	●												
Ring-Down Facility Line	●		●	●															
Dedicated Emergency Offsite Notifications System	●		●	●	●			●	●	●	●	●	●	●					
WebEOC (External Viewing)								●	●	●	●	●	●	●					
Facsimile Machine	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
ERDS Virtual Private Network	●		●	●												●			

Note: EP Implementing Procedures define ANO ERO personnel associated with ANO Communication Links.

FIGURE F-1

SCHEDULE FOR EMERGENCY NOTIFICATIONS

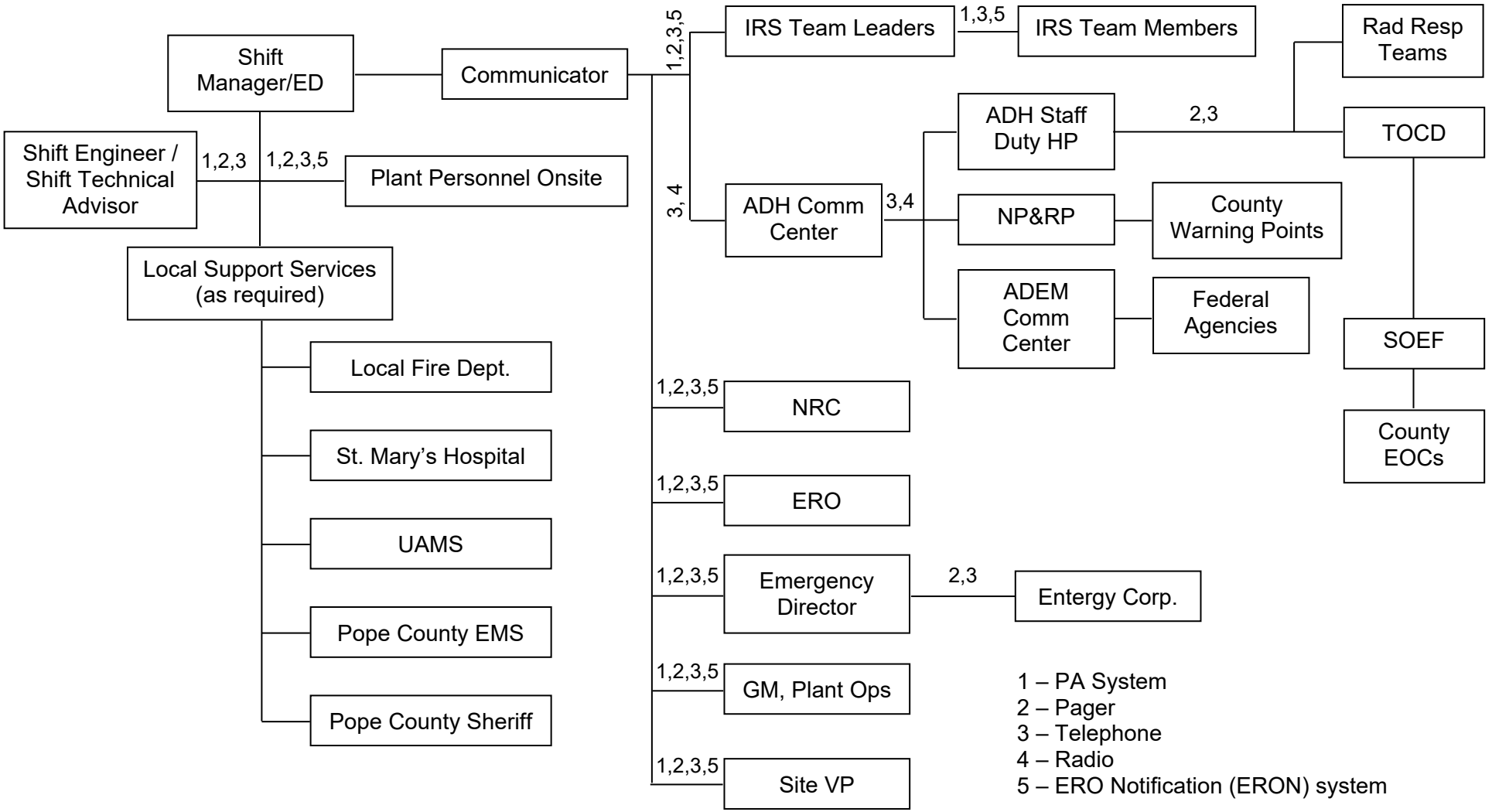
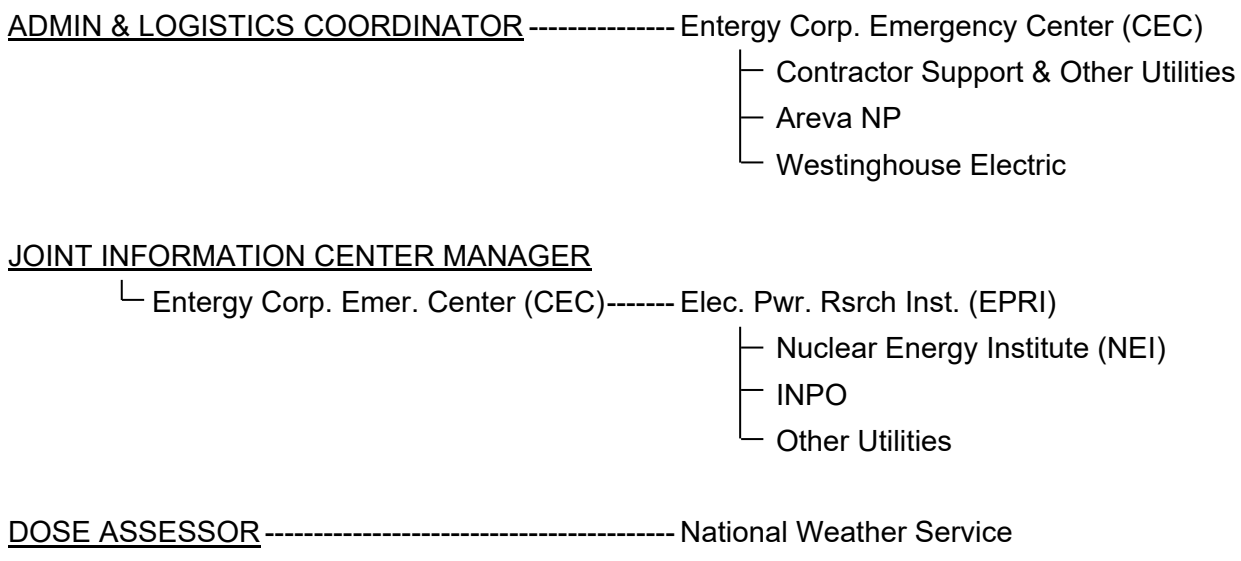


FIGURE F-2

COMMUNCIATIONS WITH INFORMATION AND SUPPORT SERVICES



G PUBLIC EDUCATION AND INFORMATION

1.0 PUBLIC INFORMATION CONTENT AND DISSEMINATION

1.1 PUBLIC INFORMATION CONTENT

Education of the public in the Russellville area on emergency planning for Arkansas Nuclear One and the proper response to an emergency is the responsibility of Entergy Operations and the Arkansas Department of Health. Annually, Entergy Operations and the Arkansas Department of Health disseminate information to the population within approximately 10 miles of the plant regarding the process by which they would be alerted in the event of an emergency and what their actions should be. This information is in the form of printed materials and electronic media. Printed materials are made available to each residence and business. This information may include, but is not necessarily limited to:

a. educational information on radiation
b. respiratory protection
c. sheltering
d. evacuation routes
e. a point of contact for additional information

1.2 PUBLIC INFORMATION DISSEMINATION

Emergency Instructions are provided periodically to the permanent adult population within a 10-mile radius of ANO. A general distribution to reach the transient population is achieved by posting information in public areas and by providing emergency instructions in places that transients or new residents might visit.

In addition to providing information to the public through the media, Entergy Operations can provide information directly to the public through Entergy's extensive customer service organization. For events of significant public interest, the ANO Communications Specialist is responsible for activating the Customer Services Department of the Company. Customer Services is responsible for distributing the information releases prepared under the direction of the JIC Manager to each Entergy local office and directly to the public through mailings, as appropriate.

2.0 NEWS MEDIA COORDINATION AND FACILITIES

The primary location of Entergy Operations' interface with the media is the JIC.

3.0 EMERGENCY CLASSIFICATION INFORMATION RELEASES

It is the policy of Entergy Operations to provide prompt, accurate, and understandable information to the public for events that may affect, or simply concern, the nearby community and the public at large.

If, in the judgment of the Shift Manager/ED, conditions warrant the release of information to the public prior to the activation of the EOF Emergency Director, the Shift Manager/ED is authorized to release such information.

After the EOF is activated, all ANO press releases regarding an incident are prepared under the direction of the JIC Manager and/or Public Information Liaison and approved by the Emergency Director. Incident Commander / FBI approval may also be required in the event of a Hostile Action Based Event. These press releases are the basis for information provided to ANO employees, government groups, other utilities, and industry groups. Requests for information are directed to the JIC Manager. The JIC Manager, along with the Inquiry Response Coordinator is responsible for rumor control as described in Emergency Plan Implementing Procedures.

The JIC Manager establishes communications with the NRC and State public information officials to ensure mutual review and coordination of press releases. Each State and Federal agency directly involved with the emergency response is also invited to participate in joint news conferences. Prior to these news conferences, as appropriate, the information to be released is reviewed by representatives of ANO and each State and Federal agency directly involved with the information being released.

The Company Spokesperson is responsible for overall public information. As appropriate, the Emergency Director may approve other individuals to serve as a Company Spokesperson. The JIC Manager and Public Information Liaison are responsible for the consistency of the press releases.

4.0 NEWS MEDIA EXPOSURE TO EMERGENCY PLANNING INFORMATION

At least annually, the news media are invited to participate in a program to acquaint them with emergency planning, information concerning radiation, and points of contact for release of information to the media in the event of an emergency. Additionally, Entergy Corporate Communications will respond to specific media requests for information regarding nuclear energy, Arkansas Nuclear One, and emergency planning.

H EMERGENCY FACILITIES AND EQUIPMENT

This section of the Emergency Plan describes the location of equipment and facilities maintained by ANO for use in the event of an emergency at Arkansas Nuclear One. The design of Arkansas Nuclear One's emergency response facilities meets the intent of Supplement 1 to NUREG-0737. Appendix 4 contains a list of general items contained within the Emergency Facilities at Arkansas Nuclear One.

1.0 EMERGENCY RESPONSE FACILITIES

1.1 CONTROL ROOMS

The Shift Operations staff functions from the Control Room for each class of emergency at Arkansas Nuclear One. The Control Rooms are radiologically protected and seismically designed to withstand all credible events which could occur at the power plant. The functions of the Shift Manager, Shift Engineer / Shift Technical Advisor, and the Operations staff are performed under the direction of the Operations Manager.

1.2 TECHNICAL SUPPORT CENTER

A Technical Support Center (TSC) is provided in the Arkansas Nuclear One Administration Building. This center is equipped with facilities to enable response personnel to monitor the course of an accident and plan corrective and recovery actions. It also serves as the primary location for coordinating the technical support activities in response to an incident. The radiation levels in and around the TSC are assessed using the following detection equipment or equivalent:

Type of Detector	Type of Radiation Monitored
GM	Direct Radiation and Radioiodine
Continuous	Particulates and air monitor gases

* If it becomes necessary to evacuate the Technical Support Center due to radiation or other hazards, a Secondary Technical Support Center is provided in the Emergency Operations Facility. The Secondary Technical Support Center is also equipped with facilities for monitoring the course of an accident. The TSC is required to be operational within 60 - 90 minutes of the declaration of an Alert, or higher, emergency classification.

1.3 OPERATIONAL SUPPORT CENTER

An Operational Support Center (OSC) is provided in the ANO Maintenance Facility from which ANO personnel function to assist the Operations staff in the Control Room. It is used for assembling the plant emergency response teams and other ANO personnel. If it becomes necessary to evacuate the Operational Support Center due to radiation or other hazards, a secondary OSC is provided in the Emergency Operations Facility.

The OSC is required to be operational within 60 – 90 minutes of the declaration of an Alert, or higher, emergency classification.

1.4 EMERGENCY OPERATIONS FACILITY

The Emergency Operations Facility is located approximately 0.65 miles northeast of the Reactor Buildings. It serves as the alternate location for the Technical Support Center and the Operational Support Center should these centers be evacuated. The location of the Emergency Operations Facility and evacuation routes from the plant to the Emergency Operations Facility are shown in Figure J-4.

The EOF is required to be operational within 60 – 90 minutes of the declaration of an Alert, or higher emergency classification.

The Emergency Operations Facility also serves as the primary location for the following functions:

1) Coordination between ANO and non-ANO groups, such as the Arkansas Department of Health;
2) A central point for coordinating all ANO offsite radiological monitoring activities at the time of an incident; and
3) The primary location for coordinating both technical and non-technical support activities of personnel brought in to assist ANO personnel.

The areas within the EOF designated as the Secondary TSC, Secondary OSC and Command Room are designed to the same radiological habitability as the Control Room. However, should the Emergency Operations Facility have to be evacuated, the Entergy Arkansas, Inc. Russellville Service Center serves as the Alternate EOF. The estimated time to transfer from the primary to the Alternate Emergency Operations Facility is approximately 1 – 2 hours. A map showing the location of this facility is contained in Figure H-1. The layout of the alternate EOF is provided in an Emergency Plan Implementing Procedure.

The Alternate EOF has the capability to:

- Communicate by contacting the EOF, the ANO Control Room, and site Security.
- Serve as a staging area for augmented emergency response staff, if the site is not accessible or under threat of, or experiencing hostile action.
- Perform offsite notifications.
- Engineering assessment activities, including damage control team planning and preparation.
- Begin planning mitigation actions in order to minimize the delay in overall site response.
- Access up-to-date plant technical documentation, such as general plant drawings, system information, and plant procedures, to enable engineers and maintenance supervisors to do adequate response planning.

1.5 FEDERAL GOVERNMENT EMERGENCY OPERATIONS CENTER

Depending on the severity of an incident at Arkansas Nuclear One, the Nuclear Regulatory Commission activates the NRC Operations Center in Rockville, Maryland and the Incident Response Center in Arlington, Texas. NRC personnel also arrive in the Russellville area. Provisions have been made for NRC personnel to collocate with ANO personnel. NRC personnel may respond to the Control Room, the Technical Support Center, the Operational Support Center, and the Emergency Operations Facility.

1.6 STATE GOVERNMENT EMERGENCY OPERATIONS CENTERS

State government emergency operations centers are established at the:

a. State Emergency Operations Center (EOC) located at the Arkansas Department of Emergency Management (ADEM) complex in North Little Rock, Arkansas.

b. Technical Operations Control Center (TOCC) at the ANO EOF. The State of Arkansas maintains a backup TOCC at the Entergy Arkansas, Inc. Russellville Service Center. This facility is the primary staging area for ADH field monitoring teams although the remainder of the ADH staff is located at the EOF.

c. Arkansas Department of Health (ADH) offices in Little Rock

1.7 COUNTY EMERGENCY OPERATIONS CENTERS

Local support services for ANO, such as fire, police, and ambulance services, are coordinated from the Pope County Emergency Operations Center. County Emergency Operations Centers are also established as necessary in Johnson, Yell, Logan, and Conway counties to coordinate any protective or response activities which may be required in their respective counties.

1.8 ENTERGY OPERATIONS/ENTERGY ARKANSAS, INC. CORPORATE OFFICES

Entergy Operations - ANO Corporate Offices are located in Jackson, Mississippi. The corporate functional group which responds to an emergency at ANO operates from the Corporate Emergency Center (CEC) located in Jackson.

The Entergy Arkansas, Inc. Corporate Offices are located in Little Rock, approximately 80 highway miles southeast of ANO. Entergy Arkansas, Inc. response centers may be established as appropriate to the incident.

1.9 ENTERGY ARKANSAS, INC. RUSSELLVILLE SERVICE CENTER

The Entergy Arkansas, Inc. Russellville Service Center (305 South Knoxville) is located approximately 7 miles from Arkansas Nuclear One. If the Emergency Operations Facility must be evacuated, the Entergy Arkansas, Inc. Russellville Service Center is used as an Alternate Emergency Operations Facility. This facility may also be used to prepare for press briefings during a Hostile Action Based Event.

2.0 COMMUNICATION SYSTEMS

During an emergency, contact with offsite ANO personnel and with other agencies is made by any of several communication systems. Personnel on site are notified of the emergency by the public address system, the ERO Notification (ERON) system and evacuation alarm systems when applicable. In addition, the Control Room, the Technical Support Center, the Operational Support Center, and the Emergency Operations Facility have radio communications with each other as well as with certain offsite support groups. Table F-1 and Emergency Plan Implementing Procedures identify the locations, and types of communications equipment available. Testing requirements for emergency communications systems are provided in Emergency Plan Implementing Procedures.

The communication systems available to ANO for use during an emergency consist of separate in plant communication systems; the ANO Plant telephone system, GAI-Tronics paging system, multichannel ultra-high frequency (UHF) radio network, Pope County Sheriff radio network, ADEM radio (Arkansas Wireless Information Network System – AWINS), direct phone lines (ENS/HPN) to the NRC, hand-held two-way radios and pagers. Both the onsite and offsite (EOF) telephone systems are provided with backup power supplies from batteries and diesel generators.

Communication links are available between the various centers involved in the response to an incident are shown in matrix form in Table F-1 of this Plan. In addition to these links, the capability exists to communicate indirectly between response centers by relaying information through several response centers.

2.1 COMMUNICATIONS WITHIN ENTERGY

The primary means of communications between ANO facilities is the ANO phone system which consists of a mixture of private lines, microwave lines, and commercial telephone system lines. Entergy supplies and maintains its own telephone system for use by Entergy Operations at Arkansas Nuclear One. This system is independent from and does not require the support of commercial telephones for internal service. The GAI-Tronics paging system, a public address system, consists of four independent channels which connect with stations located throughout the plant and can be used to communicate with onsite plant personnel who cannot be reached by telephone.

The Entergy radio network is used by ANO personnel primarily for mobile communications and as a backup to the telephone system. Arkansas Nuclear One is equipped with a multichannel two-way radio system. Each station, unless otherwise indicated, allows for radio communications over independent communication channels. The following units are contained in the system: 1) radio consoles (Unit One Control Room, Unit Two Control Room, Operational Support Center, Emergency Operations Facility, Technical Support Center, Entergy Arkansas, Inc. Russellville Service Center); 2) mobile units (ANO vehicles); and 3) portable (hand-held) units.

2.2 COMMUNICATIONS WITH GOVERNMENT AGENCIES

The primary means of communication with the Federal government are the dedicated phone lines provided by the NRC (ENS, HPN, etc.) through the ANO phone system and supplemented with the commercial telephone system. The primary means of communication with State and local groups is the commercial telephone system with the ADEM and Sheriff's Department radios as backup.

Control Room ENS phones are checked daily by the Nuclear Regulatory Commission. Communications with NRC, State government, and local governments within 10 miles of the power plant, are tested at least monthly. Communications between the plant, Federal, State, and local emergency operations centers and field assessment teams are tested annually. The Early Warning System for the 10-mile Emergency Planning Zone is tested by the Arkansas Department of Health and the National Weather Service (NWS) periodically to ensure its readiness.

2.3 COMMUNICATIONS WITH THE MEDIA

Communications with the media are normally made from the Joint Information Center. Information will be transmitted to the media by JIC Media Liaisons.

2.4 COMMUNICATIONS WITH THE PUBLIC

The primary means of communications to the public is through the news media and State and local government. An early warning system is provided by ANO to alert the public surrounding Arkansas Nuclear One of offsite Protective Action Advisories. This system consists of a mixture of NOAA tone alert radios and sirens to alert the public to tune in to local radio stations for further instruction. The early warning system is activated by the Arkansas Department of Health in accordance with Annex V of the Arkansas Emergency Operations Plan.

3.0 ASSESSMENT FACILITIES

3.1 ONSITE SYSTEMS AND EQUIPMENT

Systems and equipment which are available on site allow continuing assessment and monitoring of unusual or emergency situations. The following geophysical phenomena monitors are available at Arkansas Nuclear One:

a. A strong motion accelerometer for earthquake detection;

b. A meteorological tower equipped with thermometers, anemometers, wind vanes, etc., for assessment of weather conditions. Backup weather information is available in Russellville and Little Rock; and

c. Indicators for monitoring of hydrologic conditions.

In addition, Dardanelle Lake water level information can be obtained from the U. S. Army Corps of Engineers at the Dardanelle Dam.

Area, process, and effluent radiological monitors are provided in the plant for continuing assessment of radiological levels. These devices can be used to recognize emergency situations and perform continuing assessment. A more detailed description of this instrumentation is provided in Section I. These devices may be supplemented by portable radiological monitoring devices and periodic sampling and laboratory analysis.

Process instrumentation (e.g., reactor coolant system pressure and temperature, containment pressure, liquid levels, flow rates, and status or lineup of equipment) may be used to monitor the status of the plant and detect unusual conditions. Instruments providing useful information on vital systems are discussed in Section I.

3.2 FACILITIES AND EQUIPMENT FOR OFFSITE MONITORING

The routine offsite environmental radiation monitoring program for Arkansas Nuclear One is described in the Environmental Report and in the Offsite Dose Calculation Manual (ODCM) for the station. Thermoluminescent dosimeters (TLD's) are distributed around the plant as shown on Figure J-5. These devices will provide a record of accumulated radiological exposures in the event of an accident.

For unusual or emergency situations, the routine offsite environmental radiation monitoring program may be supplemented by dispatching the Offsite Radiation Monitoring Section of the Emergency Radiation Team (see Section B.2) to perform additional offsite surveys, monitoring, and sampling. This effort may be supplemented by laboratory personnel from ANO and the designated laboratory. Offsite surveys, sampling, and analysis of water, vegetation, soil, and air are accomplished under the direction of the Offsite Team Coordinator and the OSC RAD/Chem Coordinator.

Each field monitoring team has the capability to:

a. Perform direct radiation readings, and

b. Collect and analyze air samples.

Field monitoring teams may be utilized for environmental sampling when the team composition is augmented by personnel trained in environmental monitoring techniques.

The equipment available for use by these personnel includes vehicles, field monitoring kits, and two-way radios. Survey maps of the 10-mile EPZ (with preselected monitoring points) are available in each field kit (see Figure J-2). The radios are used to allow the field monitoring team to communicate with the Offsite Team Coordinator.

Emergency kits maintained by Arkansas Nuclear One are described in Appendix 4. These emergency kits are inventoried at least quarterly or more frequently if they are found unsealed or have been used during the quarter. There are sufficient reserves of instruments and equipment to replace those which are removed from emergency kits for calibration or repair. Calibration of equipment is performed at intervals determined by the manufacturer and the Entergy, Inc. Calibration & Repair Facility. Intervals are based on equipment performance history.

Facilities for analysis of low-level environmental samples are available via offsite contractors. Analyses are performed in accordance with established procedures.

Field team data from State teams is coordinated through ADH personnel collocated at the ANO EOF. ANO and ADH field team data is compared and any differences resolved prior to its dissemination to the public.

4.0 PROTECTIVE FACILITIES AND EQUIPMENT

The response locations at Arkansas Nuclear One which are designed to serve a protective function are the Control Rooms. Specific protective features of the Control Rooms are described in the Final Safety Analysis Report for each unit. All other areas are evacuated if radiological levels warrant.

5.0 FIRST AID AND MEDICAL FACILITIES

A Nurse's Station is maintained on site. A description of the type of equipment available in the Nurse's Station is contained in Appendix 4. The Primary and Backup Medical Facilities are the Saint Mary's Regional Medical Center in Russellville and the University of Arkansas for Medical Sciences Hospital located in Little Rock, respectively. A description of the type of equipment maintained by Arkansas Nuclear One at these medical facilities is contained in Appendix 4.

6.0 DAMAGE CONTROL EQUIPMENT AND SUPPLIES

Fire-fighting equipment on site includes portable extinguishers, hose stations, sprinkler systems, deluge systems, and fire hydrants. The Fire Protection System is described in detail in the Arkansas Nuclear One Fire Hazards Analysis.

7.0 TRANSPORTATION

The Admin & Logistics Coordinator is responsible for obtaining the necessary transportation to support the emergency response. The Admin & Logistics Coordinator may use available Entergy Corporation resources for assistance in obtaining transportation and the necessary Entergy vehicles to support the emergency response.

7.1 GROUND

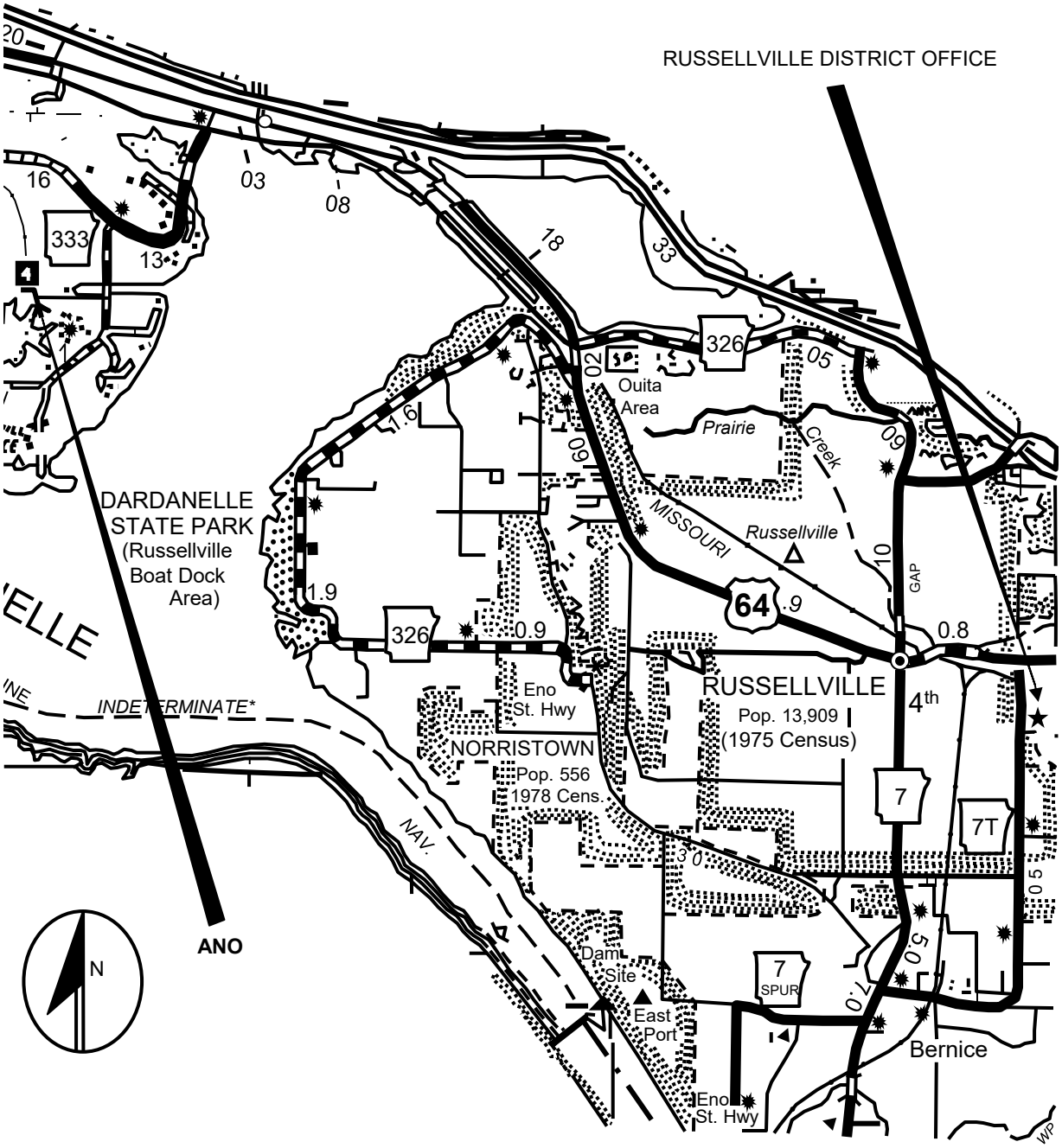
ANO vehicles are used to the maximum extent. If there is a shortage of vehicles during an incident; cars, vans, and trucks are rented or leased, as required.

7.2 AIR

Planes and helicopters can be rented at the Little Rock Adams Field for flights to and from Little Rock and Russellville. Commercial air services are utilized for national flights to the extent available and in consideration of appropriate time factors. Helicopters are commercially available in Little Rock and can be used in aerial surveys, movement of personnel and supplies, and security.

FIGURE H-1

Entergy Arkansas, Inc. Russellville Service Center (Alternate EOF)



Directions

From ANO take Highway 333 northeast to Highway 64. Travel east on Highway 64 to Highway 7T (Knoxville Street) and turn south. Travel on 7T south for approximately three blocks. The Russellville District Office will be on the east side of the street. (305 South Knoxville Street)

I ACCIDENT ASSESSMENT

1.0 ACCIDENT ASSESSMENT SUMMARY

Accident assessment consists of initial assessment activities and long-term assessment activities. At the first indication of abnormal conditions, initial assessments are performed. Actions are taken by the onsite plant staff to declare the Emergency Class, mitigate the conditions, make dose projections, and initiate the appropriate emergency response. When notified that an abnormal condition exists, the Shift Manager is responsible for making the immediate assessments, classifying the event, and initiating notification. The initial dose assessments for onsite and offsite personnel are evaluated and the recommended protective actions are promptly implemented in accordance with Emergency Plan Implementing Procedures. Initial assessment and projected dose data and offsite Protective Action Recommendations are provided to Federal, State, and local agencies.

If the situation dictates, the Shift Manager may activate the Emergency Response Organization. When activated, Emergency Response Organization personnel perform accident assessment activities and appropriate offsite Protective Action Recommendations are determined by the Emergency Director. This information is provided to the appropriate agencies by the Emergency Director.

The long-term or continuing accident assessment is performed by the ERO. The ERO formulates protective responses; implements long-term offsite monitoring (radiological data gathered from the plume exposure pathway is analyzed and communicated to the ERO for further projected actual and integrated dose assessment); and the Emergency Director approves recommendations of protective actions. Monitoring teams systematically monitor the onsite and offsite environs using the functional plant instrumentation and portable instruments, as necessary. Assessment continues for the duration of the recovery. Federal, State, and local emergency organizations are notified for assistance as required. The radiological assessment procedures for use by the ERO are in the Emergency Plan Implementing Procedures.

The general criteria described in Section D are used to define the four Emergency Classes for emergency planning purposes. The Emergency Class categories are listed in Table D-1. Emergency Class ICs and associated Emergency Action Levels (EALs) that apply to both Unit 1 and Unit 2, are in OP-1903.010, “Emergency Action Level Classification,” along with plant specific indicators, to assist the person responsible for Emergency Direction and Control in recognizing and declaring the appropriate Emergency Class. The instrumentation available to the Shift Manager to perform this assessment is described in this section and in the Safety Analysis Report for each unit.

Tables D-3 and D-4 categorize each design basis accident considered in the Safety Analysis Report for each unit into the four Emergency Classes based upon their postulated consequences. It should be noted that, should any of these design basis accidents occur, the category they would be placed in at that time would depend on the actual consequences (OP-1903.010, “Emergency Action Level Classification”) rather than on the postulated consequences used to develop Tables D-3 and D-4.

2.0 ASSESSMENT CAPABILITIES

2.1 RESOURCES FOR DETECTION/ASSESSMENT OF NON-RADIOLOGICAL EVENTS

2.1.1 Fire Detection

The Fire Detection System is described in Sections 9.8 and Appendix 9D of the Unit 1 Safety Analysis Report (SAR) and Sections 9.5 and Appendix 9D of the Unit 2 SAR.

2.1.2 Seismic Monitoring

Plant seismic instrumentation, described in ANO-1 and ANO-2 SAR Sections 2.7 and 3.7.4, respectively, is provided to determine the response of the containment and auxiliary building structures in the event of an earthquake so that such response can be compared with that used as the basis of design.

Should a seismic disturbance occur in the neighborhood of the plant, the accelerations recorded within the plant will be the basis for a decision as to continued plant operation. Information on seismic activity can also be obtained from the Memphis University Earthquake Information Center and the National Earthquake Information Center.

2.1.3 River Level Detection

The Lake Dardanelle level indication is monitored at the Lake Dardanelle Dam by the U.S. Army Corps of Engineers. The Corps of Engineers has agreed to notify ANO of probable or actual level changes that will lower the lake below Elevation 335 ft. or raise the lake above Elevation 350 ft. at the ANO site.

2.2 RESOURCES FOR DETECTION/ASSESSMENT OF RADIOLOGICAL RELEASES

2.2.1 Plant Process Instrumentation

The plant process instrumentation consists of various pressure, temperature, and level indicators of the Reactor Protection System (RPS) and the Engineered Safeguards System (ESF). Some of the parameters these instruments measure are:

a. Containment Pressure
b. Emergency Core Cooling System (ECCS) Actuation
c. Pressurizer Pressure
d. Steam Generator Pressure
e. Reactor Coolant (RC) Temperature
f. Pressurizer Level
g. Steam Generator Level

Instruments which provide information to the reactor operators for monitoring conditions in the reactor, reactor coolant system, and containment; and specific instrumentation designations and ranges are listed in each unit's Technical Specifications. The alarm and trip setpoints for the listed instruments or components are subject to change as the reactor core configuration changes.

These various instruments or components are used to detect problems within the system(s) prior to a release of radioactivity as well as monitor system status throughout an incident. Corrective actions to return or maintain the reactor in a safe condition are contained in the Emergency Operations Procedures maintained in the Control Room.

2.2.2 Radiation Monitor for Failed Fuel Detection

A monitor in the letdown line of each unit is the designated process radiation monitor which continuously measures the activity of the reactor coolant and activates an alarm in the Control Room if a predetermined activity level is reached. The monitor is described in SAR Table 11-7 and Section 11.4.2.1.1 for Unit 1 and Unit 2, respectively.

2.2.3 Radiation Monitoring

ANO has an extensive system for monitoring radioactivity throughout the plant, called the Radiation Monitoring System (RMS). This system consists of area and process/effluent radiological instrumentation. The Area Radiation Monitoring Systems are described in SAR Sections 11.2.5 and 12.1.4 for Unit 1 and Unit 2, respectively. The Process Radiation Monitoring Systems are described in SAR Sections 11.1.3.4 and 11.4 for Unit 1 and Unit 2, respectively. All channels of the radiation monitoring system indicate, record, and alarm in the Control Room.

The area radiation monitors, process/effluent radiation monitors and SPING monitors which are used to classify and assess radiological conditions are listed in Tables I-1, I-2, I-3, I-4, and I-5.

Different types of portable survey instruments have been selected to cover the entire spectrum of radiation measurement. Portable survey and monitoring instruments are described in SAR Sections 11.2.6.2.5 and 12.3.2.5 for Unit 1 and Unit 2, respectively. This includes instruments for detecting and measuring alpha, beta, gamma, and neutron radiation. Sufficient quantities have been obtained to allow for calibration, maintenance and repair. Laboratory counting equipment is described in SAR Sections 11.2.6.2.2 and 12.3.2.2 for Unit 1 and Unit 2, respectively.

a. Process Radiation Monitoring Systems (Units 1 and 2)

1. Design Bases

All process systems which contribute to plant discharges are monitored prior to entering the various discharge systems. Each discharge system is also monitored providing redundancy of radiation detection for plant effluents. The Reactor Building air, waste gas, and the main condenser air discharge radiation monitoring systems are backed up by the stack gas monitoring system. The service water, radwaste liquid discharge, intermediate cooling, and decay heat radiation monitoring systems are backed up by the liquid discharge monitoring system.

2. System Description

The process radiation monitoring systems are designed to assure that ionizing radiation levels are indicated, recorded, and alarmed so that action, either automatic or manual, can be taken to prevent radioactive releases from exceeding the limits of 10 CFR 20. Devices are located in the various process systems to monitor radiation levels and annunciate any abnormally high activity.

All electronic circuitry (except for photomultipliers and geiger tubes) is solid state and each circuit has its own D.C. power supply and provisions for instrument operational testing while in service.

Most monitors are supplied with check sources. The check source simulates a radioactive sample and serves as a check for both the readout and detection equipment. The Control Room inlet air monitor is provided with a pulsed LED which provides an identical detector response as an isotopic check source and is used for the detector, preamplifier and readout equipment for this system.

Radiation monitoring equipment panels are located inside each Control Room. These panels provide mounting for indicators, recorders, power supplies, and alarms for the radiation monitoring systems. The radiation monitoring panels are fed by the instrument AC bus which, in the event of a loss of normal power, is fed by the diesel generator bus.

3. Testing and Maintenance

Process radiation monitoring system instruments are tested as required by procedures using built-in or portable calibration sources.

Testing and maintenance for all systems and circuit testing of readout equipment and power supplies can be performed from the panels located in the Control Room. The circuit being tested or repaired indicates and alarms this condition in the Control Room. Faulty or inoperative circuits during operation are also alarmed and indicated in this manner.

b. Area Radiation Monitoring Systems (Units 1 and 2)

1. Design Bases

This system consists of monitors, instrumentation, and alarms that serve to warn plant personnel of set radiation levels in various plant areas. The area radiation monitoring systems serve as an early warning of a plant malfunction which may result in increasing radiation levels and in a health hazard. Area radiation monitoring system instruments and detectors (chosen for their proven reliability, spare parts and portability) are provided to permit operation during a long-term response.

2. System Description

Continuous monitoring points are located in the Control Room and other normally nonradioactive areas and at the appropriate access control boundaries. The locations of area radiation monitors are provided in each unit's SAR.

Readout and display equipment for the area radiation monitoring system are located on a panel in the unit's Control Room. The area radiation monitoring panels receive power from the instrument AC bus, which is a vital bus.

High range detectors (Geiger-Muller tubes) are located in the Unit 1 and Unit 2 containments. The detectors provide an indication of containment radiation levels up to 1 x 10^8R/hr.

The low-range area radiation monitors are wall-mounted, coaxial ion chambers or wall-mounted gamma sensitive Geiger-Muller tubes. The associated meters are designed with range and sensitivity suitable for their location. High radiation levels and individual circuit failures are alarmed both visually and audibly on the area radiation monitoring panel.

3. Testing and Maintenance

Area radiation monitoring system instruments are tested as required by procedures using built-in or portable calibration sources.

Circuit testing of readout equipment and the power source can be performed from the Control Room. The circuit being tested or repaired is inoperative during this time and acts as a tripped channel. Check sources are used to calibrate the detectors and circuits.

c. In-Plant Portable Survey and Monitoring Instruments

Portable radiation survey instrumentation consists of different types of instruments, as described in the SAR, capable of detecting and measuring alpha, beta, gamma and neutron radiation. Continuous air monitors capable of monitoring particulate and iodine activity are available to identify airborne radioactivity. These monitors can be set to alarm on high particulate or iodine activity.

When continuous air monitors indicate airborne radioactivity, portable air samplers are used to obtain grab air samples for timely analysis of airborne conditions. These samplers can be equipped with filter cartridges for collecting gaseous and iodine airborne concentrations for analysis.

Gaseous activities of 1 x 10^{-7} μCi/cc can be detected in low background areas.

d. Laboratory Counting Equipment

Laboratory counting equipment includes internal gas flow proportional counter scalers, thin window GM counter scalers, and gamma spectroscopy equipment.

2.2.4 Meteorological Instrumentation

The plant has a permanent 60-meter high meteorological tower with redundant power supply, instrumentation and modes of data output. The tower instrumentation includes sensors to measure wind direction, wind speed, air temperature and differential temperatures. The wind and temperature sensors are located at the 10-meter and the 57-meter levels. Meteorological instrumentation is described in Section 2.3 of both the Unit 1 and Unit 2 SARs.

Forecasted wind speed and direction data may also be obtained from the National Weather Service by telephone as described in the Emergency Plan Implementing Procedures.

Real-time data is available by use of the RDACS computer. The offsite NRC Response Center may obtain these parameters by calling the Control Room or Emergency Operations Facility. Other offsite transmittal of data will be by radio or telephone circuits. Meteorological data is made available to State and local agencies through their dedicated communications network.

2.2.5 Water Analyses

Analyses of plant liquid systems may be performed to help ascertain the nature of problems detected by other instrumentation (prior to an emergency situation). The samples are collected and analyzed in accordance with ANO procedures. The analysis performed may include both standard chemistry (i.e., chlorides, boron, etc.) and radiochemistry.

2.2.6 Post Accident Sampling

Post-accident sampling via the Normal Sample System (NSS) provides the capability to obtain Reactor Coolant System (RCS) samples for isotopic determinations up to 5% clad failure. These analyses are primarily used to determine EAL criteria. Sampling above 5% clad failure may be performed but conditions and precautions will be assessed by Radiation Protection prior to sampling. The NSS has the capability of sampling the RCS from several RCS sample points.

2.2.7 Unified Rascal Interface (URI)

The URI offsite dose projection software provides an initial estimate of the radiological conditions at the ANO Exclusion Area Boundary, provides information to determine the Emergency Action Level for subsequent classification into one of the four Emergency Classes, defines the offsite area(s) potentially affected by an airborne radiological release, provides an estimate of the Total Effective Dose Equivalent (TEDE) and Child Thyroid Committed Dose Equivalent (CDE) doses, displays zones exceeding protective action guidelines, and refines projections based on available field monitoring data. This system meets the intent of 10 CFR 20 and Appendix I to 10 CFR 50.

2.2.8 Safety Parameter Display System (SPDS)

The function of the Safety Parameter Display System (SPDS) is to continuously provide concise displays of critical plant parameters to the control room operators to aid them in rapidly and reliably determining the safety status of the plant. The system is especially useful during abnormal and emergency conditions to assess whether the conditions warrant corrective action by the operators to avoid a degraded core. SPDS data display systems are also located in the Technical Support Center and in the Emergency Operations Facility.

2.2.9 Emergency Response Data System (ERDS)

The Emergency Response Data System (ERDS) is a channel over which raw reactor parametric data, i.e., SPDS information, is transmitted 24/7 from the site to the NRC Operations Center, (NRCOC) via a Virtual Private Network (VPN). Transmission status review and/or activation of ERDS can be performed via designated computers in each Control Room, the TSC, EOF, and other designated offsite Entergy computers. ERDS transmission shall be verified and/or activated within one hour of an ALERT or higher emergency class declaration.

2.3 RADIATION TEAM MONITORING

2.3.1 Operation of Monitoring Teams

The primary objective of the onsite and offsite emergency monitoring teams is to rapidly survey areas in order to determine the extent and magnitude of any unplanned release of radioactive material following an incident. The initial onsite and offsite surveys are of great importance; decisions regarding the extent and the type(s) of protective action(s) required are based upon data reported by the survey teams.

If it is determined that unplanned airborne materials have been released following an accident, monitoring teams are dispatched downwind immediately to evaluate radioactivity levels.

The task of each monitoring team is to collect air samples and survey data and transmit information and results to the appropriate response center (i.e., Control Room, TSC, OSC or EOF). Meteorological overlays, area maps, and actual radiation survey data collected by onsite and offsite survey teams are available for use to rapidly define affected areas and assess the extent and significance of the release. Information is required with as little delay as possible. Therefore, surveys consist of simple methods and approximate results. Information obtained by the Offsite Monitoring Section is transmitted to the Dose Assessor, Radiological Assessment Coordinator (RAC), or their designees, as appropriate to the phase of the response, via radio contact. After the initial urgency of the post-accident situation has relaxed, subsequent surveys are continued to obtain more accurate information.

2.3.2 Personnel

a. Onsite Monitoring Section

The Onsite Monitoring Section consists of members of the Emergency Radiation Team. Their activities are coordinated initially by the Shift Manager and then by the RAD/Chem Coordinator in the OSC. The Onsite Monitoring Team focuses their attention on obtaining onsite radiological data. Duties of the Onsite Monitoring Team are outlined in Section B.2.0.

b. Offsite Monitoring Section

The Offsite Monitoring Section consists of members of the Emergency Radiation Team and Chemistry. The Offsite Monitoring Section performs air sampling and measures radiation levels in the outlying areas of the plant site. Their activities are directed by the Offsite Team Coordinator. Survey results are forwarded to the Dose Assessor and the RAC. Duties of the Offsite Monitoring Section are further detailed in Section B.2.

ANO Chemistry personnel, accompanied by Emergency Radiation Team personnel, collect samples of water, vegetation, soil, and air and the environmental TLD's for analysis in accordance with ANO procedures.

2.3.3 Equipment

Appendix 4 of this Plan lists the emergency kit contents and their locations.

Emergency Plan Implementing Procedures describe the equipment utilized by the monitoring teams in more detail. Portable equipment capable of measuring gaseous activities 1E-10 μCi/cc is included in field monitoring kits.

3.0 ASSESSMENT OF RADIOLOGICAL RELEASES

3.1 METHOD OF ASSESSMENT

Systems, equipment, instruments, and personnel resources available to the Initial Response Staff, and Emergency Response Organization allow for continuous monitoring and assessment of abnormal radiological conditions. Assessment of radioactivity released to the environs provides the information necessary to determine which, if any, offsite protective actions should be recommended to the State authorities. These recommendations are made in accordance with Emergency Plan Implementing Procedures. The methods and calculations prepared for the assessment of radioactivity released to the environs are discussed in the Emergency Plan Implementing Procedures.

TABLE I-1

AREA RADIATION MONITORS (UNIT 1)

Monitor Number	Location	Range	Sensitivity
RE-8001	Main Control Room	0.1mrem/hr-10rem/hr	0.1mrem/hr
RE-8002	Relay Room	"	"
RE-8003	Machine Shop	"	"
RE-8004	Outside Stairway at EL 317' - 0"	"	"
RE-8005	Sample Room Hall	"	"
RE-8006	Radio-Chem Laboratory	"	"
RE-8007	Outside Stairway at EL 372' - 0"	"	"
RE-8008	Decontamination Room at EL 386' - 0"	"	"
RE-8009	Spent Fuel Pool	"	"
RE-8010	Controlled Access Entry at EL 386' - 0"	"	"
RE-8011	Make Up Pump Area at EL 335' - 0"	"	"
RE-8012	Elevator at Feed Pump at EL 335' - 0"	"	"
RE-8013	Emergency Feed Pump at EL 335' - 0"	"	"
RE-8014	CZ Pump at EL 326' - 0"	"	"
RE-8015	Condensate Demineralizer	"	"
RE-8016	Spent Fuel Filter	"	"
RE-8017	Fuel Handling	10mrem/hr-1000rem/hr	10mrem/hr
RE-8018	Personnel Access Hatch	"	"
RE-8019	Incore Instrument Tank	"	"
RE-8020	Equipment Hatch	"	"

TABLE I-2

PROCESS RADIATION MONITORING SYSTEM (UNIT 1)

Process Radiation Monitoring Systems	Detection Equipment/ Sampling Equipment	Readout Equipment	Sensitivity	Alarm and Control
Liquid Service Water	Scintillation detector/piping, valves, sample pump, and detector housing; water line to discharge structure, two systems.	Log count rate meter, 0-10^8 cpm, recorded	1.9 x 10^{-6} μCi/cc of Cs-137	Alarm on high radiation, circuit failure; high radiation prohibits service water discharge.
Radwaste Liquid Discharge	Scintillation detector/in well in radwaste liquid line to discharge structure.	Log count rate meter, 0-10^8 cpm, recorded	5 x 10^{-6} μCi/cc of CS-137	Alarm on high radiation, circuit failure; high radiation prohibits radwaste discharge.
Intermediate Cooling Water	Scintillation detector/piping, valves, sample pump and detector housing; inlet to coolers, two systems	Linear rate meter, 0-10^8 cpm, recorded	3.8 x 10^{-6} μCi/cc of CS-137	Alarm on high radiation, circuit failure.
Flumes Liquid	Scintillation detector/piping, valves, sample pump and detector housing; circulating water to discharge structure.	Linear rate meter, 0-10^8 cpm, recorded	1 x 10^{-6} μCi/cc of Cs-137	Alarm on high radiation, circuit failure.
Main Condenser Air Discharge	Scintillation detector/well on line; main condenser vacuum pumps non-condensibles	Spectrometer-Log count, 0-10^8 cpm, recorded	1 x 10^{-5} μCi/cc of Xe-133	Alarm on high radiation and circuit failure.
Waste Gas Radiation	Scintillation detector/in well in line from the waste gas surge tank and waste gas decay tanks to plant vent	Linear rate meter, 0-10^8 cpm, recorded	2 x 10^{-6} μCi/cc of Xe-133	Alarm on high radiation and circuit failure; isolates waste gas surge tank and decay tanks.
Decay Heat	Scintillation detector/piping, valves, sample pump and detector housing; water line discharge structure two systems.	Linear rate meter, 0-10^8 cpm, recorded	2.6 x 10^{-6} μCi/cc of CS-137	Alarm on high radiation and circuit failure.

TABLE I-2 (continued)

Process Radiation Monitoring Systems	Detection Equipment/ Sampling Equipment	Readout Equipment	Sensitivity	Alarm and Control
Failed Fuel	Scintillation detector/external to letdown line.	Log and spectro-meter-Log rate meter, 0-10^8 cpm, recorded	4 x 10^9 dis/sec of I-131 1 x 10^{12} Gammas/sec of Gross Gamma	Alarm on high radiation and circuit failure.
Reactor coolant Leak Detector	Scintillation detector/piping, valves, sample pump, detector housing; reactor building atmosphere.	Spectrometer-Log 0-10^6 cpm, recorded	5.5 x 10^{-5} μCi/cc of Xe-133	Alarm on high radiation and circuit failure.
Penetration Rooms Ventilation	Scintillation detector	Linear rate meter, 0-10^8 cpm, recorded	Xe-133	Alarm on high radiation and circuit failure
S/G Tube Leak	Scintillation detector	Linear rate meter, 0-10^8 cpm, recorded	N-16	Alarm on high radiation and circuit failure.
High Range Main Steam Monitor	Geiger-Muller Tube	Log rate meter	0.1 to 10,000 mr/hr (Approx. 1,200 counts/min/ mr/hr)	No alarm or control functions
High Range Reactor Building Area Monitor	Ion Chambers	Log rate meter	10^0 to 10^8 r/hr	No alarm or control functions.
Control Room Inlet Air Monitor	Beta-Gamma Sensitive scintillation	Auto Ranging digital ratemeter	1(-5) μCi/cc of Cs-137 with no lead shield	Alarm on high radiation and circuit failure. High alarm isolates Control Room.

TABLE I-3

AREA RADIATION MONITORS (UNIT 2)

Monitor Number	Location	Range	Sensitivity
2RE-8900	Outside Stairway, EL 317' - 0"	10^{-4} -10 R/hr	10^{-4} R/hr
2RE-8901	Outside Stairway, EL 335' - 0"	"	"
2RE-8902	Piping Area EL 335' - 0"	"	"
2RE-8903	Controlled Area, EL 360' - 0"	"	"
2RE-8904	Radwaste Tanks (Access EL 360' - 0")	"	"
2RE-8905	Containment (Equipment Hatch), EL 357' - 0"	10^{-2} -10^{3} R/hr	10^{-2} R/hr
2RE-8906	Outside Stairway, EL 369' - 0"	10^{-4} -10 R/hr	10^{-4} R/hr
2RE-8907	Controlled Access, EL 372' - 0"	"	"
2RE-8908	Solid Radwaste Shipping Area Elev. 338'	"	"
2RE-8909	Containment Personnel Access, EL 386' - 0"	10^{-2} -10^{3} R/hr	10^{-2} R/hr
2RE-8910	Controlled Area, EL 386' - 0"	10^{-4} -10 R/hr	10^{-4} R/hr
2RE-8911	HP Area, EL 386' - 0"	"	"
2RE-8912	Containment, Incore Instrumentation Area, EL 424' - 0"	10^{-2} -10^{3} R/hr	10^{-2} R/hr
2RE-8913	Outside Stairway, EL 404' - 0"	10^{-4} -10 R/hr	10^{-4} R/hr
2RE-8914	Cask Washdown Area, EL 404' - 0"	"	"
2RE-8915	New Fuel Storage Area, EL 404' - 0"	"	"
2RE-8916	Spent Fuel Area, EL 404' - 0"	"	"
2RE-8917	Sample Area, EL 354' - 0"	"	"
2RE-8918	Hot Machine Shop Hallway, EL 354' - 0"	"	"
2RE-8919	Solid Radwaste Shipping Area	"	"
2RE-8920	Solid Radwaste Shipping Area	"	"
2RE-8922	Hot Machine Shop, EL 354' - 0"	10^{-2} -10 R/hr	10^{-4} R/hr
2RE-8923	Spare		
2RE-8924	Regen Waste Control Area	10^{-4} -10 R/hr	
2RE-8925-1	Containment High Range	1 -10^{8} R/hr	
2RE-8925-2	Containment High Range	1 -10^{8} R/hr	
2RE-8960	PASS Bldg.	.1 -10^{4} Mr/hr	
2RE-8962	PASS Bldg.	.1 -10^{4} Mr/hr	
2RE-1007	"A" Steamline Monitor	.1 -10^{4} Mr/hr	
2RE-1057	"B" Steamline Monitor	.1 -10^{4} Mr/hr	

TABLE I-4

PROCESS RADIATION MONITORS (UNIT 2)

Channel	Monitor	Type-Detector	Readout	MDL*	Set-Point	Alarm & Control
2RE-4806	CVCS Process Radiation Monitor (Failed Fuel)	Gamma Scintillation crystal with photomultiplier tube and integral preamplifier	Linear Rate-meter and logarithmic ratemeter	1(-4) μCi/cc of I-131	Variable normally set slightly above current readings	Alarm on high radiation
2RE-5200 2RE-5202	Component Cooling Water Monitor	Gamma Scintillation crystal with photomultiplier tube and integral preamplifier	Logarithmic ratemeters	5(-6) μCi/cc of Cs-137 in 2.5 mr/hr background	1(-5) μCi/cc	Alarm on high radiation and circuit failure
2RE-1513-2 2RE-1519-1	Service Water, Containment Cooling Coils	"	"	"	"	Alarm on high radiation and circuit failure
2RE-1453 2RE-1456	Service Water Shutdown Cooling Heat Exchangers	"	"	"	< 2x background or 100 cpm if back-ground < 100 cpm	Alarm on high radiation and circuit failure
2RE-1525	Service Water Fuel Pool Heat Exchanger	"	"	"	1(-5) μCi/cc	Alarm on high radiation and circuit failure.
2RE-4423 2RE-4425	Regenerative Waste Processing System	"	Logarithmic Ratemeters	5(-6) μCi/cc of Cs-137 in 2.5 mr/hr background	Variable setpoint established after isotopic analysis	Alarm on high radiation and circuit failure. High alarm discharge.
2RE-5854 2RE-5864	Steam Generator Sample Coolers	"	Logarithmic ratemeters	5(-6) μCi/cc of Cs-137 in 2.2 mr/hr background	Approximately 2x background, but not to exceed 6400 CPM	Alarm on high radiation and circuit failure

TABLE I-4 (continued)

Channel	Monitor	Type-Detector	Readout	MDL*	Set-Point	Alarm & Control
2RE-0715	Startup/Blowdown Demin. monitor	"	"	3(-7) μCi/cc	Variable setpoint established after isotopic analysis	"
2RE-2330	Waste Management System	"	"	"	Variable setpoint established after isotopic analysis	Alarm on high radiation and circuit failure; high alarm terminates discharges
2RE-0645	Main Condenser Air Discharge Monitor	Beta-Gamma Sensitive GM	Log count ratemeters	1(-5) μCi/cc of Xe-133 in 2.5 mr/hr background	2 x background	Alarm on high radiation and circuit failure
2RE-2429	Waste Gas Monitoring System	"	"	"	Variable setpoint established after isotopic analysis	Alarm on high radiation and circuit failure terminated discharge
2RE-8845 2RE-8846	Penetration Rooms Monitoring System	"	"	"	1(-4) μCi/cc	Alarm on high radiation and circuit failure.
2RE-8271-2 2RE-8231-1	Hydrogen Purge/ Containment Atmosphere Monitor	Particulate Gamma scintillation crystal Gas: Beta-Gamma sensitive GM tube	"	Particulate: 1.5(-10) μCi/cc of Cs-137 Gas: 1(-5) μCi/cc of Xe-133 in 2.5 mr/hr background	Variable set slightly above equilibrium background level	Alarm on high radiation and circuit failure
2RE-8540	Fuel Handling Area Ventilation Monitor	Beta-Gamma sensitive GM tube	Log count ratemeters	1(-5) μCi/cc of Xe-133 in 2.5 mr/hr background	1st alarm 1(-4) μCi/cc 2nd alarm 1(-3) μCi/cc	Alarm on high radiation and circuit failure

TABLE I-4 (continued)

Channel	Monitor	Type-Detector	Readout	MDL*	Set-Point	Alarm & Control
2RE-8542	Radwaste Area Ventilation Monitor	"	"	"	"	Alarm on high radiation and circuit failure
2RE-8233	Containment Purge Monitor	"	"	1(-5) μCi/cc of Xe-133 in 2.5 mr/hr background	Variable dependent on meteorological conditions and containment activity	Alarm on high radiation and circuit failure terminated containment purge
2RE-7828	Aux. Bldg. extension ventilation monitor	"	"	"	1(-4) μCi/cc	Alarm on high radiation and circuit failure.
2RE-8750-1A 2RE-8750-1B	Control Room inlet air monitor	Beta-Gamma Sensitive Scintillation	Auto-Ranging Digital Ratemeter	1(-5) μCi/cc of Cs-137 with no lead shield.	Variable set slightly above equilibrium background level	Alarm on high radiation and circuit failure. High alarm isolates control room.

*MDL = Minimum Detectable Level

TABLE I-5

SPING MONITORS*

Monitor	Monitor Name	Location
RX-9820	U-1 Containment Purge	Unit 1 Auxiliary Building EL 404' Boric Acid Addition Tank Room
RX-9825	U-1 Radwaste Area	Unit 1 Auxiliary Building EL 404' Boric Acid Addition Tank Room
RX-9830	U-1 Fuel Handling Area	Unit 1 Auxiliary Building EL 404' Boric Acid Addition Tank Room
RX-9835	U-1 Emergency Penetration Room	Unit 1 Auxiliary Building EL 404' Boric acid Addition Tank Room
2RX-9820	U-2 Containment Purge	Unit 2 Auxiliary Building EL 404' Boric Acid Addition Tank Room
2RX-9825	U-2 Radwaste Area	Unit 2 Auxiliary Building EL 404' Boric Acid Addition Tank Room
2RX-9830	U-2 Fuel Handling Area	Unit 2 Auxiliary Building EL 404' Boric Acid Addition Tank Room
2RX-9835	U-2 Emergency Penetration Room	Unit 2 Auxiliary Building EL 404' Boric Acid Addition Tank Room

*SPING (Super Particulate Iodine and Noble Gas) Monitors

Each SPING stack radmonitor detects beta and gamma radiation through continuous particulate, iodine, and noble gas sampling for pathways being released to the atmosphere.

Each SPING monitor consists of 11 separate channels as follows:

Channel #	Type	Unit
1	Cumulative Particulate Release	μCi
3	Cumulative Iodine Release	μCi
5	Compensated Noble Gas Volumetric Activity (Normal Range)	μCi/cc
9	Compensated Noble Gas Volumetric Activity (High Range)	μCi/cc
10	Stack Flow Rate	SCFM
13	Particulate/Iodine Branch Flow Rate (Normal Range)	SCFM
14	Sample Pressure (Normal Range)	psia
15	Total Skid Flow Rate (Normal Range)	SCFM
16	Pump Vac. (Accident Range)	psia
17	Total Skid Flow Rate (Accident Range)	SCFM
18	Sample Flow Rate (Accident Range)	SCFM

Typical ranges for channel 5 and 9 are $1E^{-7}$ to $1E^{-1}$, $1E^{-4}$ to $1E^{5}$, respectively, in units of μCi/cc. Sensitivities, set points and alarm settings vary and are calculated during normal calibration verification checks. Note SPING 11 does not have channels associated with the Accident Range.

J PROTECTIVE RESPONSE

1.0 PROTECTIVE RESPONSE FOR ONSITE PERSONNEL

1.1 NOTIFICATION

Onsite personnel are notified of a nuclear emergency via the ANO Public Address System. The Shift Manager/ED, or his designee, will announce the emergency classification and any other pertinent information. The announcements to be made are identified in the Emergency Plan Implementing Procedures and/or Operations procedures.

Persons within the protected area are notified of plant emergency status via the Public Address System. Notification to persons within the exclusion area is accomplished by Security. Evacuation of non-essential personnel within the exclusion area may be initiated for a Site Area Emergency and will be initiated for a General Emergency in accordance with EPIPs. The sounding of the plant evacuation alarm occurs for both classifications.

1.2 LOCALIZED EVACUATION

A Localized Evacuation is initiated if any condition exists that, in the opinion of the Shift Manager or Emergency Plant Manager (EPM), may pose a threat to the health and safety of plant workers. The threat must be confined to a localized area (i.e., the area selected for evacuation should have well-defined boundaries and be easily controllable).

1.3 PLANT EVACUATION

A Plant Evacuation is performed for non-essential personnel if a Site Area Emergency or General Emergency is declared. However, certain conditions may preclude or delay plant evacuation. These conditions may include an ongoing security threat within the protected area, inclement weather, or a radiological or hazardous material condition. A plant evacuation may be considered if RP survey results indicate that the general area radiation levels outside of a Radiologically Controlled Area exceed 2.5 mR/hr, which is attributed to a loss of control of radioactive material and the hazard is not confined to a well-defined area. If air sample results indicate unevaluated airborne radioactivity exceeds 9×10^{-10} µCi/cc, which is attributed to a loss of control of radioactive material and the threat cannot be confined to a well-defined area. If certain security threats indicate the need to evacuate, or if an uncontrolled toxic gas leak occurs where the hazard is not confined to a local area. The decision to evacuate is based upon the action that presents the least risk to non-essential personnel.

Upon verification that conditions warrant a Plant Evacuation, the Shift Manager or EPM immediately notifies plant emergency teams to assemble. The Shift Manager or EPM alternates an evacuation announcement over the public address system and the sounding of the Plant Evacuation Alarm several times. The evacuation announcement includes instructions concerning the appropriate assembly area, the evacuation route(s), and any other special protective measures to be taken by plant evacuees. Appropriate actions are described in detail in the Emergency Plan Implementing Procedures. The following personnel actions are taken if a Plant Evacuation is declared:

1.3.1 Visitors, Contractor and Construction Personnel, and Employees Not Assigned a Role in the Emergency Organization

These personnel proceed to the Primary Access Point (PAP) by the most direct, safest route. Personnel accountability and preliminary monitoring is accomplished as personnel pass through the PAP. These personnel then proceed as directed. As required, additional personnel monitoring, decontamination, and debriefing may be performed at the EOF, GSB (security threats only), or the Atkins Emergency Worker Center.

1.3.2 Personnel Assigned a Role in the Emergency Organization

These personnel proceed to their assigned emergency response location unless directed otherwise (security threat). If conditions require that the Technical Support Center or Operational Support Center be evacuated, these personnel relocate to the EOF.

1.3.3 Shift Personnel

Shift operations personnel on duty report to the Control Room. Other shift personnel proceed to the OSC assembly area unless otherwise directed.

1.4 EXCLUSION AREA EVACUATION

An Exclusion Area Evacuation, which is the orderly withdrawal of all personnel from that portion of the exclusion area affected by the emergency, is initiated if it is determined that area radiation levels greater than 2.5 mR/hr exist outside the Protected Area and within the Exclusion Area boundary.

The following personnel actions are taken in the event of an Exclusion Area Evacuation:

a. When notified that an Exclusion Area Evacuation has been declared, Security personnel take action according to established procedures to verify that an orderly, safe withdrawal of personnel within the affected portion of the Exclusion Area takes place. Security personnel are responsible for personnel notification and accountability within the Exclusion Area. Under most conditions, the Exclusion Area can be evacuated/verified within one hour of the declaration of an evacuation. Thereafter, Security patrols the Exclusion Area every two hours to notify anyone found within the area to leave.

b. Personnel evacuating from the affected areas of the Exclusion Area follow designated evacuation routes under the supervision of Security personnel while on site. Once offsite, personnel proceed as directed by State and local authorities. Portable loudspeakers are used by Security, as required, to direct the evacuation of the Exclusion Area. Evacuees use any available means of transportation and proceed as directed by the evacuation announcement.

1.5 EOF EVACUATION

An EOF Evacuation is initiated if any condition exists which, in the opinion of the Emergency Director, poses a threat to the health and safety of emergency response personnel at the EOF. EOF emergency response personnel relocate to the Alternate EOF in the Entergy Arkansas, Inc. Russellville Service Center, if conditions allow.

1.6 SECURITY AND ACCOUNTABILITY

1.6.1 Security

A range of protective actions to protect onsite personnel during hostile action is provided to ensure the continued ability to safely shut down the reactor and perform the functions of the Emergency Plan.

The Security program at ANO is designed to deter, delay, and detect an intruder. The Protected Area of the plant site is enclosed by a security fence. All gates to the fence are normally kept locked. The Protected Area is surrounded by a Security Owner Controlled Area (SOCA) created by vehicle barrier systems and detection equipment. Security procedures outline the emergency evacuation duties of security personnel. Support group personnel reporting to the plant during an emergency assemble as discussed in security procedures unless instructed otherwise. Personnel assigned by the Shift Manager, Emergency Plant Manager (EPM), or Emergency Director (ED) to enter the plant must pass through the SOCA and PAP, which are guarded, unless instructed otherwise by Security. It is extremely unlikely that any unauthorized person would be able to enter the site undetected even during an emergency condition.

1.6.2 Accountability

A record of Arkansas Nuclear One personnel and visitors on site is available at the PAP for use in personnel accountability. Security procedures have been developed to ensure that on-site personnel are accounted for in the event of an emergency. If necessary, initial accountability may be performed at any time. It is ANO's goal to achieve initial accountability within 30 minutes of the declaration of a Site Area or General Emergency, or plant evacuation. In the event of an emergency requiring evacuation of the PAP, the personnel accountability records are transferred to the EOF and/or GSB (security threat).

Emergency Plan Implementing Procedures are used to account for personnel during an evacuation. Personnel exiting the site log out through the security card reader or as directed by site Security and/or the Shift Manager/EPM. Names of evacuating persons who do not have permanent security badges are obtained. Emergency Response Organization personnel remaining on-site scan in at designated card readers for accountability purposes, except for Control Room personnel who are accounted for each time they enter the Control Room. Security personnel then request a computer print-out of any personnel who failed to either log off-site or log on-site for accountability purposes. Search and rescue efforts are then initiated for these individuals.

Following a plant evacuation, continuous accountability is maintained for all persons remaining on-site.

Assembly/Accountability may be delayed in the event of a Hostile Action Based Event.

Reentry into the plant is made under an Emergency Plan Implementing Procedure related to personnel rescue or reentry to evacuated areas.

1.7 PROTECTIVE MEASURES

1.7.1 Whole Body Exposure

It is the policy at ANO to maintain personnel radiation exposure at levels which are as low as is reasonably achievable and in compliance with NRC regulations. Personnel entering the evacuated area(s) to conduct investigations are supplied with appropriate monitoring devices, and every effort is made to keep their doses within the limits of 10 CFR 20. Reentry is made in accordance with an Emergency Plan Implementing Procedure.

Individuals entering Radiologically Controlled Areas wear personnel monitoring devices capable of measuring the dose received from external sources of ionizing radiation. The official and permanent record of accumulated deep dose equivalent is normally obtained from a DLR badge. The self-reading dosimeter provides a day to day indication of deep dose equivalent.

Additional personnel monitoring equipment is available in the emergency kits as identified in Appendix 4.

1.7.2 Clothing

Protective clothing is a normal use item for work in a contaminated area at Arkansas Nuclear One. Both washable and disposable protective clothing are available. Sets of protective clothing are available in the following emergency kits as described in Appendix 4: Control Room Kit, Onsite Radiological Monitoring Kit, EOF Kit, TSC Kit, and Saint Mary's Hospital Kit. Protective clothing is available in the Auxiliary Building. Waterproof protective clothing is also available.

1.7.3 Respiratory Protection

Respiratory protection devices may be required in any situation arising from plant operations where an airborne radioactivity condition exists or potentially exists. In such cases, the air is monitored and the necessary protective devices specified according to the concentration and type of airborne contaminants present. During an emergency, monitoring is conducted in accordance with RP Procedures. Precautions are taken to keep airborne contamination to a minimum through the use of proper ventilation and prior decontamination of equipment or work areas.

Listed below are the types of respiratory protection equipment available:

a. Full face and demand type respirator

b. Pressure demand Self Contained Breathing Apparatus (SCBA)

Normally, SCBAs are issued at the Controlled Access entry. The following is a listing of the emergency kits containing SCBAs:

Emergency Kit
Control Room Kit
Onsite Radiological Monitoring Kit
Alternate Fire Brigade Ready Room
RCA Fire Locker
Fire Brigade Ready Room
Emergency Operations Facility

1.7.4 Radioprotective Drugs

Radioprotective drugs in the form of potassium iodide (KI) tablets are available in the onsite Radiological Monitoring Kit, TSC Kit, EOF Kit and in the Field Monitoring Kits. The use of potassium iodide is in accordance with Emergency Plan Implementing Procedures.

1.7.5 Contamination Controls

Section K of this Plan outlines the radiological exposure controls implemented at ANO. Contamination control, personnel monitoring, and decontamination are detailed in Sections K.2.2 and K.3.1.

2.0 PROTECTIVE RESPONSE FOR INDIVIDUALS WITHIN THE PLUME EXPOSURE PATHWAY

2.1 PROTECTIVE ACTION RECOMMENDATIONS

2.1.1 ANO Guidelines

Arkansas Nuclear One is designed and equipped with a series of safety systems engineered to meet 10 CFR 100 criteria for reactor safety. ANO management recognizes that in any accident situation, it would be prudent and logical to make every effort to further reduce and minimize dose to the public.

The protective action guides for the general population for thyroid dose due to inhalation from a passing plume and whole body exposure to airborne radioactive material, as recommended by the Environmental Protection Agency (EPA), are listed below:

Total Effective Dose Equivalent (TEDE)	1 Rem
Child Thyroid Dose (CDE)	5 Rem

2.1.2 Initiation of Recommendation

Recommendations originate from the Control Room or Emergency Operations Facility based upon data derived from implementing procedures relating to offsite dose assessment. The procedures establish methods for determining projected dose to the population at risk. Total population exposure is estimated in accordance with Emergency Plan Implementing Procedures.

Recommendations are made in accordance with agreements with the Arkansas Department of Health. Whenever possible, the message formats provided in procedures are utilized. The implementing procedures relating to Protective Action Guidelines assure that the recommendations are determined through an approved process. Offsite Protective Action Recommendations are approved by the individual responsible for Emergency Direction and Control.

2.1.3 Population Distribution

This Emergency Plan is primarily applicable to the Arkansas Nuclear One Exclusion Area and the Emergency Planning Zones within a 10-mile and 50-mile radius of Arkansas Nuclear One as shown on Figures J-1, J-2, and J-3, respectively, although provisions exist for extending these areas in the unlikely event this coverage is necessary. Figure J-2 is divided into sixteen 22½-degree sectors and ten lettered radial zones at one-mile radii from the center of the plant in order to identify the area surrounding the plant by sector and zone nomenclature. Figure J-4 depicts the location of the Arkansas Nuclear One Emergency Operations Facility and the site evacuation routes. The location of thermoluminescent dosimeters (TLDs) in the area surrounding the plant is provided in Figure J-5.

2.2 NOTIFICATION

If public notification is required, both transient and resident populations within the plume exposure pathway are initially notified through the Early Warning System (reference Section E 3.0). Additional notification and information is provided to the transient and resident population as well as the general public outside the 10-mile EPZ by local radio stations. Supplemental notification to the EPZ population is provided by local fire departments in the EPZ. Also, in the event of siren or NOAA radio system failures, route alerting is provided by local fire departments in the EPZ.

Emergency Instructions describing notification, protective actions, and general radiological education are provided to residents and public areas to transients within the 10-mile Emergency Planning Zone. State and local government officials issue messages describing the incident and recommended public protective actions. Examples of these messages are provided in Appendix 6.

2.3 EVACUATION

The Arkansas Department of Health is responsible for the recommendation of protective actions for offsite areas and notification of State and local assistance agencies. State officials consider the potential risks of implementing protective actions against the reduction of radiological risk achieved by the protective action.

The State of Arkansas Department of Health determined in conjunction with local officials that, based on the existing local warning and notification systems, experience in actual evacuation situations, and ambulance response times, the offsite area within distances up to ten (10) miles of Arkansas Nuclear One could be evacuated within the estimated evacuation times indicated in Table J-1. Population distribution by evacuation zone is shown on Figure J-6.

An Evacuation Time Estimate is performed annually. The results of this study are available from Emergency Planning.

Under these estimates and other considerations involved in the protection of the public, the State of Arkansas has developed protective action guides for the public which are included in the State Emergency Operations Plan and are summarized below:

A variety of parameters, including plant conditions and actual offsite doses, may result in a recommendation to evacuate all or part of the EPZ. (Based upon an evaluation of the potential risks of evacuation versus the reduction of radiological risk achieved by the evacuation, some institutional groups may be recommended to shelter personnel and/or use radioprotective drugs.)

Further protective action is recommended based upon an evaluation of data received from field radiological assessment teams.

Offsite protective actions may be appropriate for emergency situations which fall in the Site Area Emergency or General Emergency Classes. In order that the public may be in a state of readiness for any necessary action, an Early Warning System has been installed and may be activated at any Emergency Class as determined appropriate by the State. The Early Warning System is described in Section E.

2.4 SHELTERING / STAY INDOORS

Under certain conditions, sheltering may be the preferred recommended action. Sheltering involves remaining inside with windows and doors closed and sources of outside air turned off. Limited radioactive releases may require this type of action.

Members of the public may also be requested to “stay indoors”. Staying indoors is similar to sheltering except there is no need to close windows and doors and secure sources of outside air.

Area radio stations advise the public on taking these actions and also give the "all clear" signal when appropriate.

2.5 RADIOLOGICAL ENVIRONMENTAL MONITORING

In the event of an emergency, permanent air sampling stations are utilized for long-term evaluation concerning airborne releases. Environmental TLDs located at the background radiation stations, as shown on Figure J-5, provide exposure data and are periodically replaced. Sampling efforts may be combined with emergency team activities.

Figures J-2 and J-7 show pre-selected radiological field monitoring points within the 10-mile EPZ.

TABLE J-1

ESTIMATED EVACUATION TIMES-ANO ENVIRONS
(in hours)

Sub-zone	Weekday	Night	Weekend	Adverse Weekday
G	2.8	2.5	2.8	3.3
H	4.2	3.7	5.6	5.0
I	3.7	3.3	3.3	4.5
J	2.5	2.5	2.5	2.8
K	2.3	2.3	2.7	2.8
L	2.5	2.5	2.5	2.8
M	2.3	2.0	2.0	2.5
N	2.5	2.5	3.7	2.8
O	2.3	2.0	2.3	2.7
P	2.2	2.0	3.0	2.5
Q	2.0	2.0	2.0	2.2
R	2.0	2.0	2.0	2.2
S	2.3	2.2	2.2	2.7
T	2.5	2.3	2.5	2.7
U	2.5	2.2	3.2	2.7
Full EPZ	5.8	4.3	7.5	7.8

FIGURE J-1

Exclusion Area

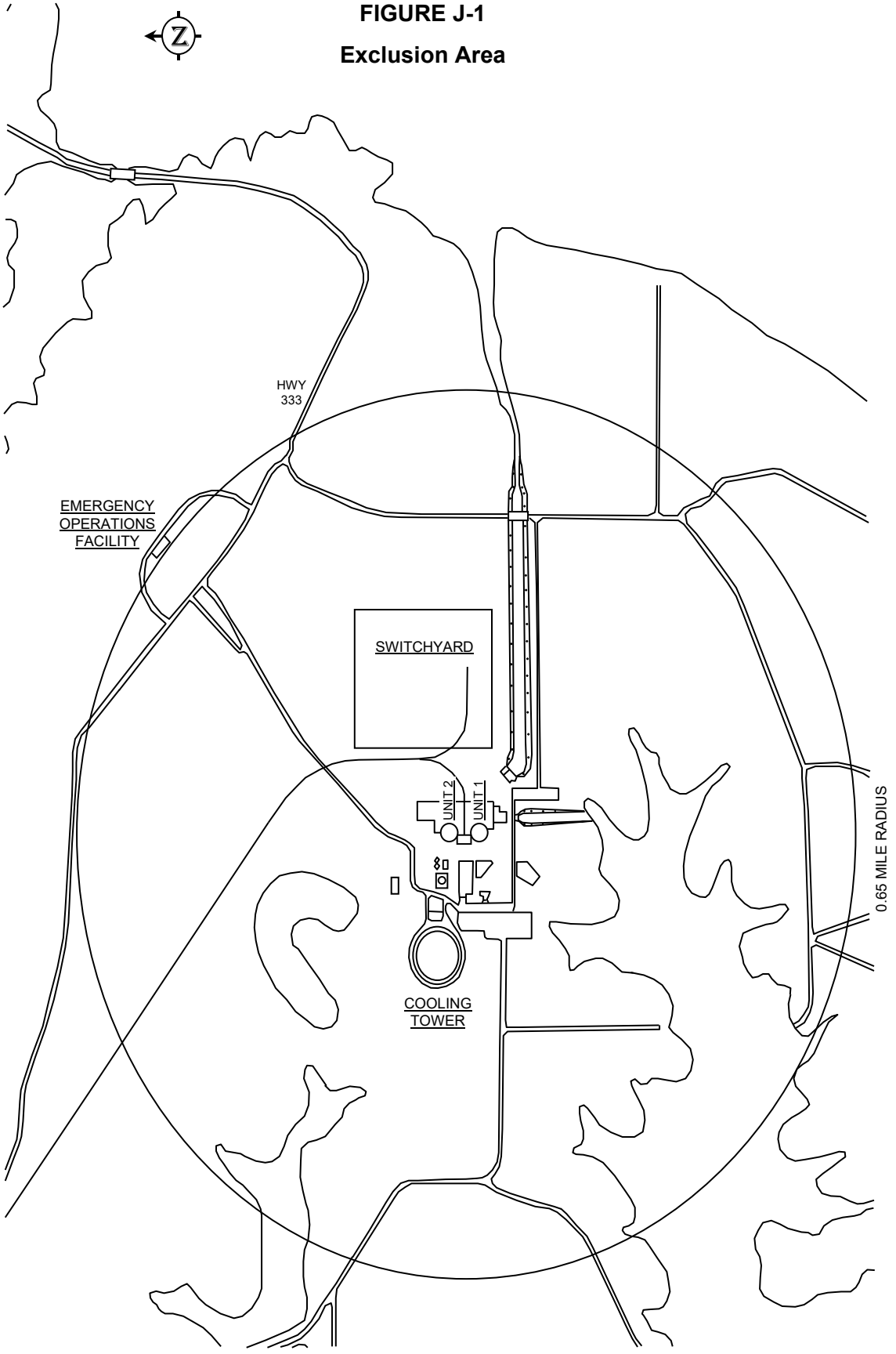
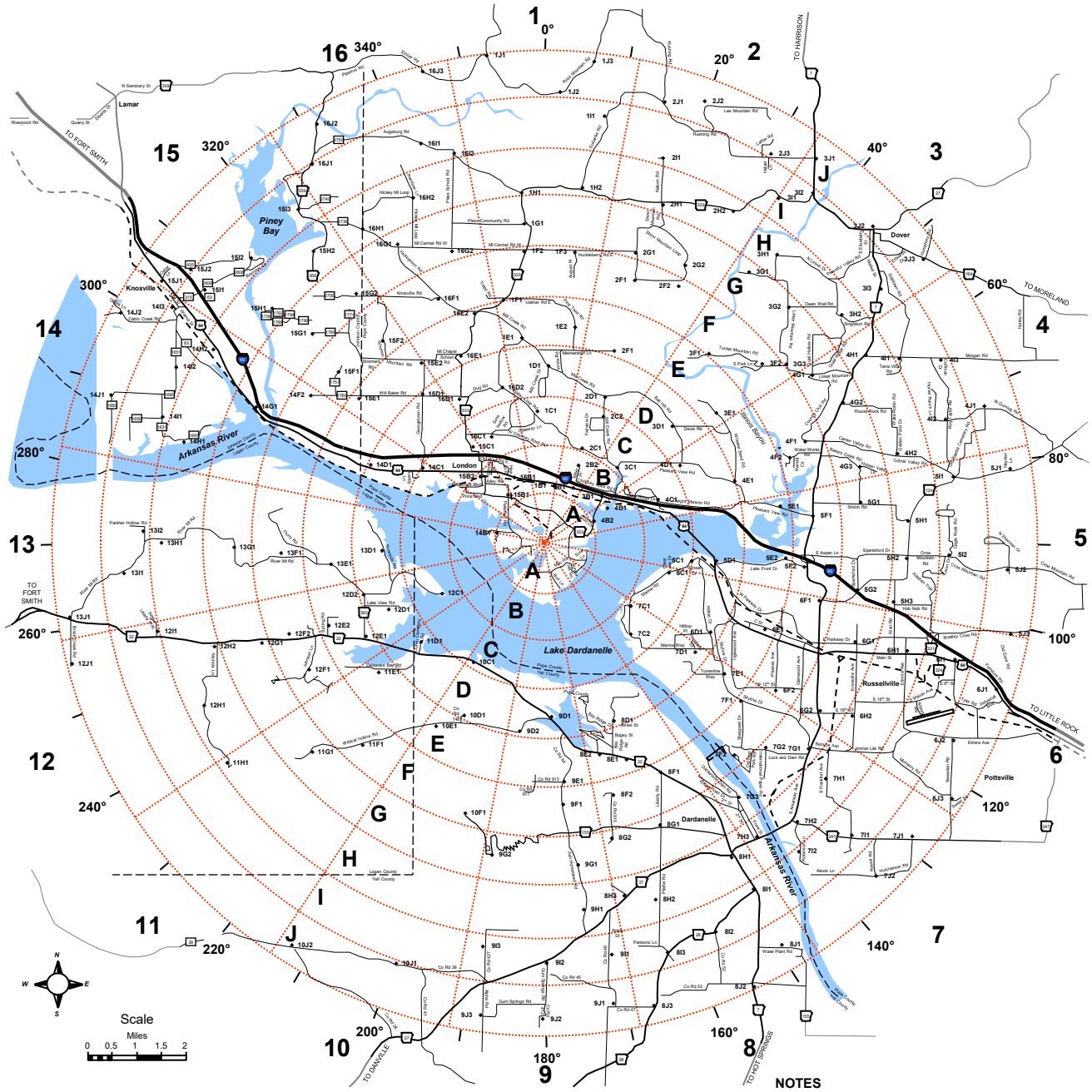


FIGURE J-2
10-Mile EPZ Radiological Field Monitoring Points



NOTES

1. Map centered on Unit 1 Reactor Building
2. Sector 1 centered on map North
3. Coordinate System: UTM, NAD27, Zone 15N
4. Stations within a 1 mile radius are not shown

FIGURE J-3

50-Mile EPZ

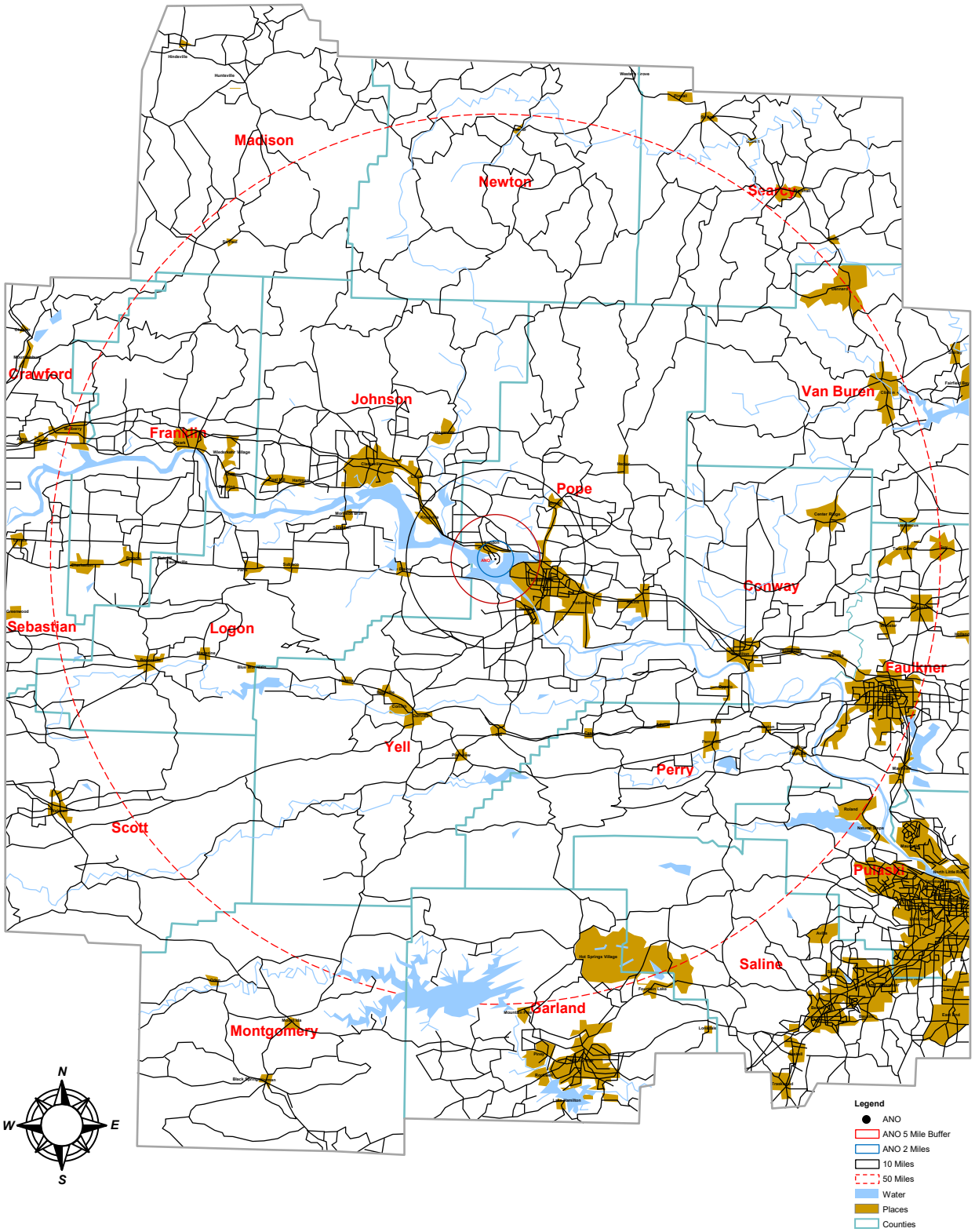


FIGURE J-4

ANO Emergency Operations Facility Location & Site Evacuation Routes

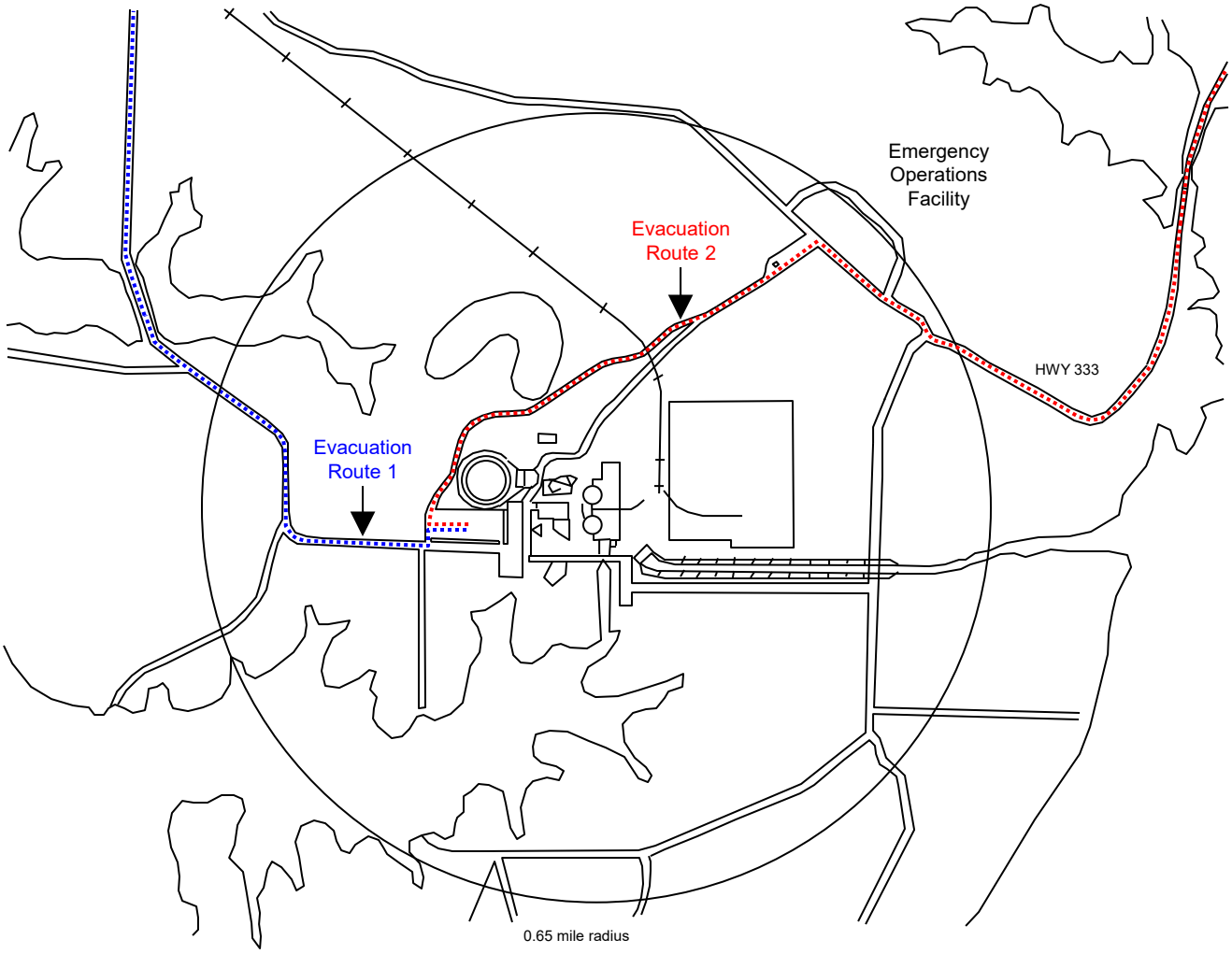


FIGURE J-5

Distribution of Thermoluminescent Dosimeters (TLDs)

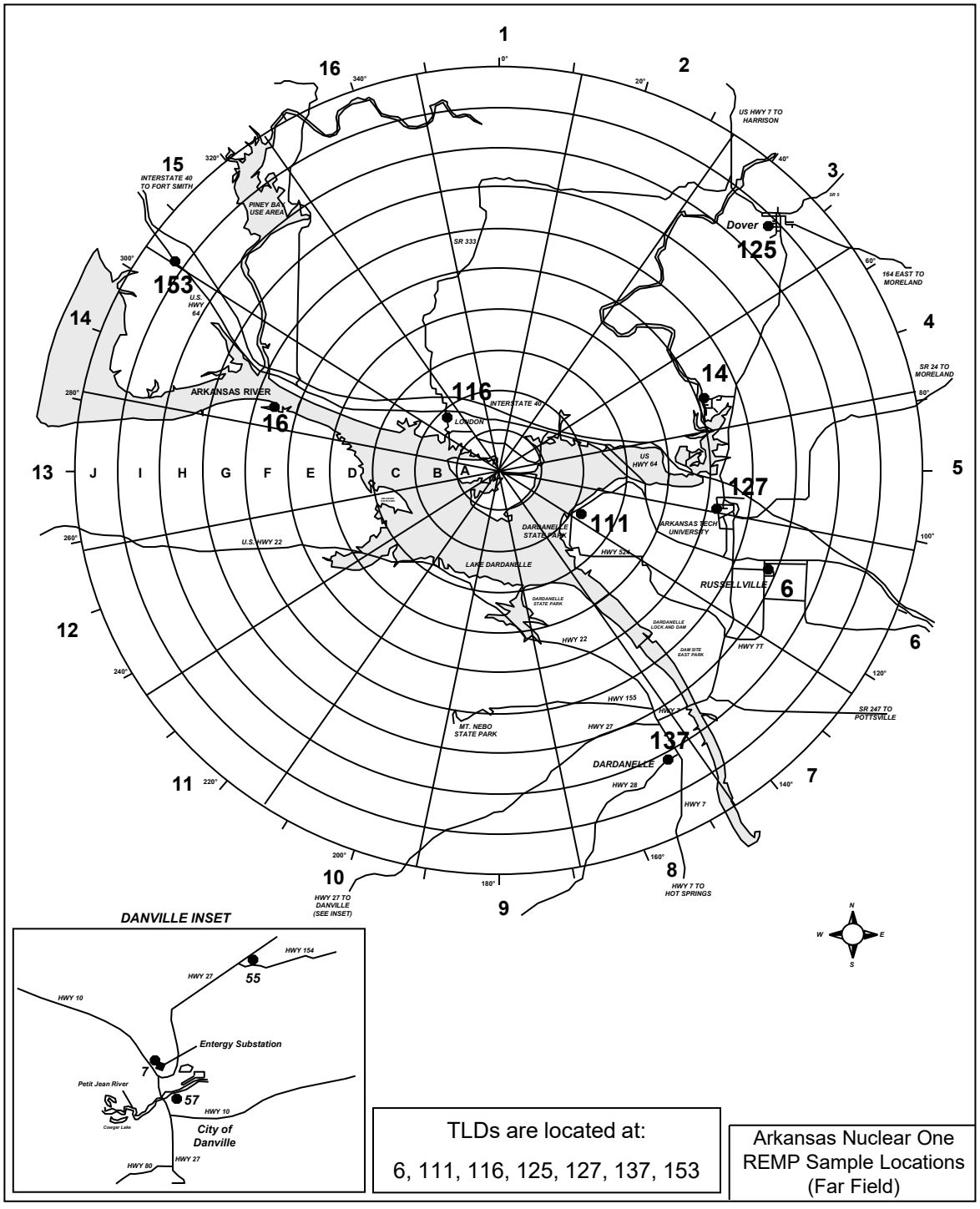


FIGURE J-6

Estimates of Population Relocating To Care Centers by Evacuation Area

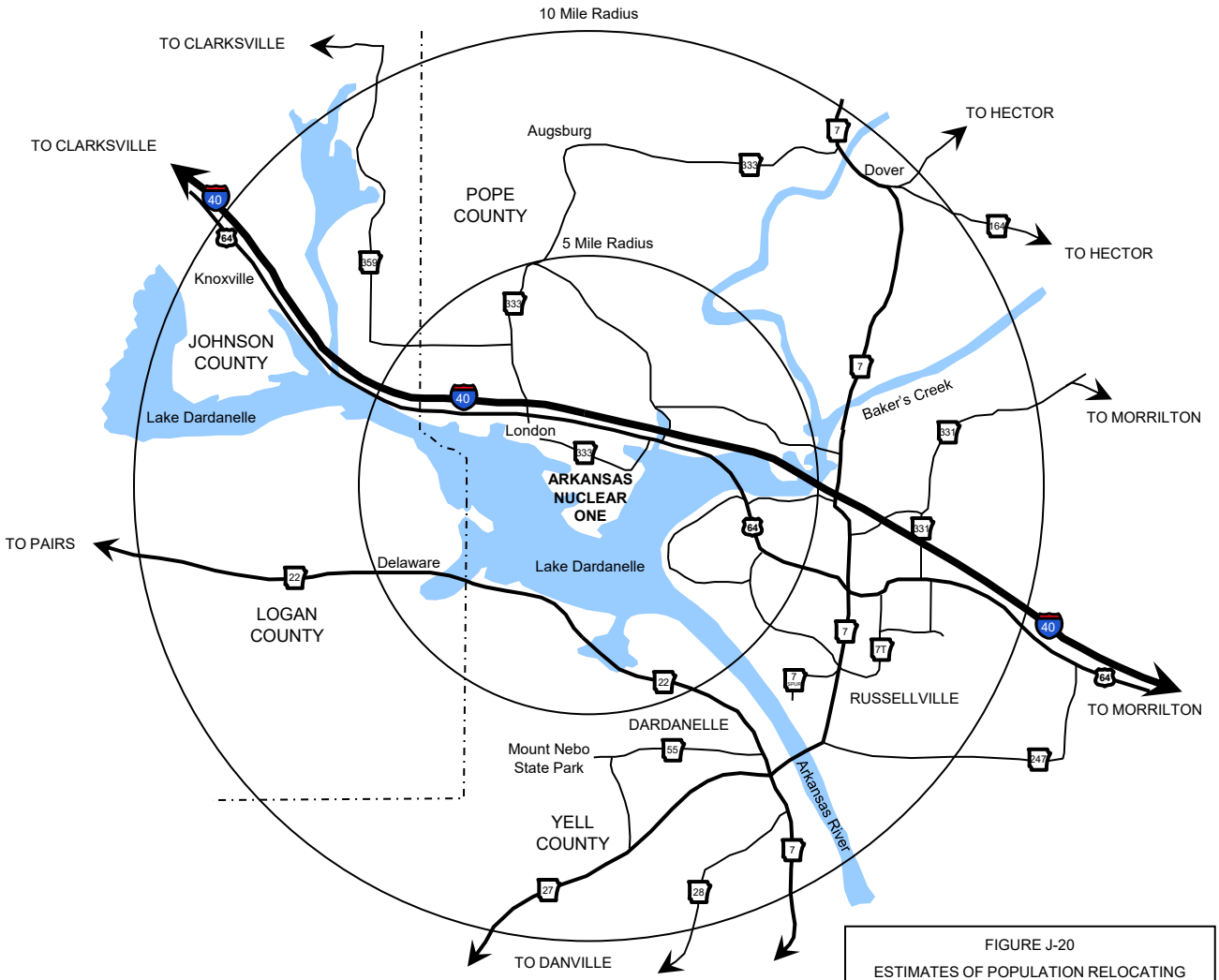


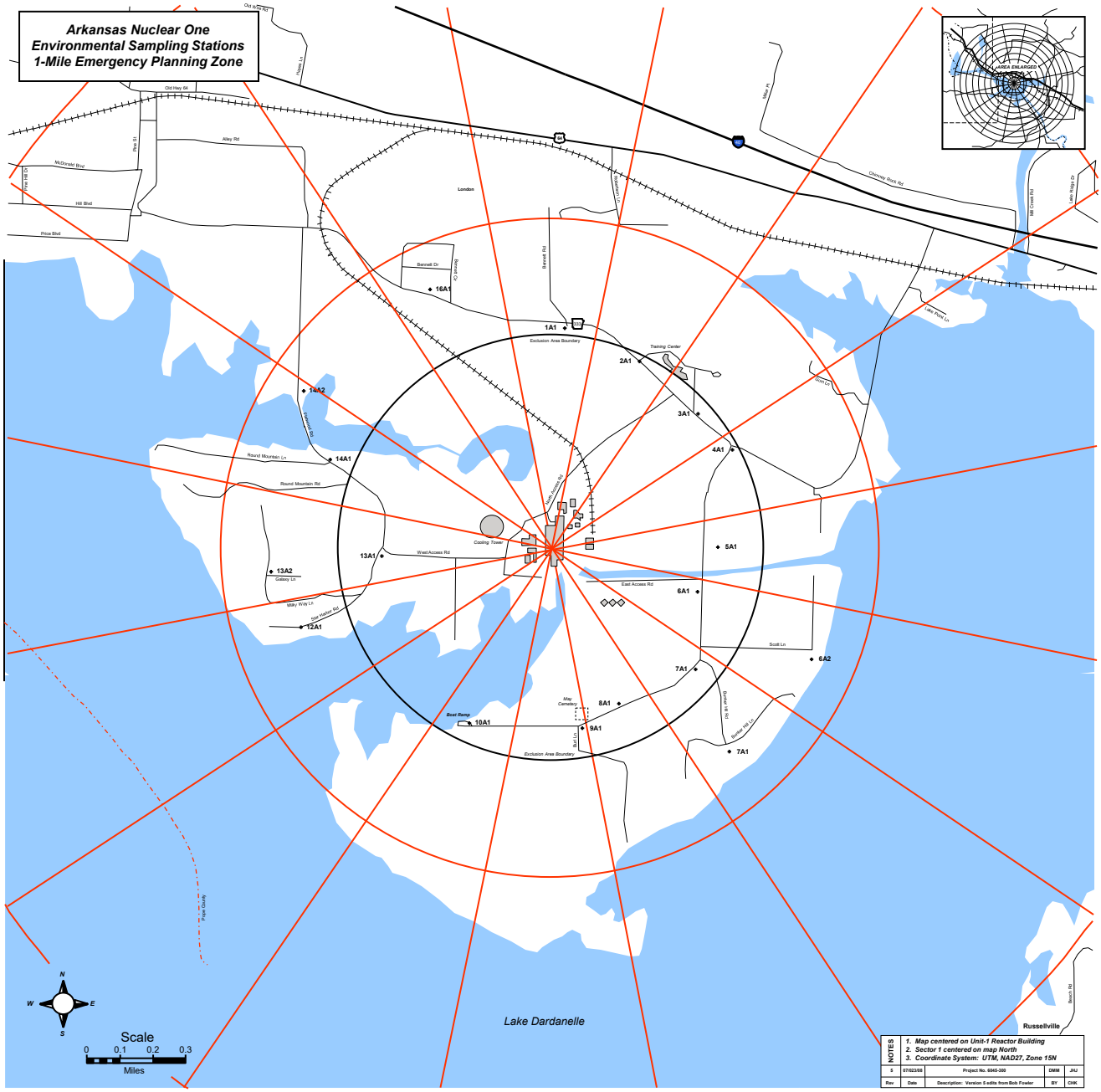
FIGURE J-20

ESTIMATES OF POPULATION RELOCATING TO CARE CENTERS BY EVACUATION AREA

MORRILTION	17,000
DANVILLE	4,500
HECTOR	4,000
CLARKSVILLE	1,900
PARIS	700

FIGURE J-7

One Mile EPZ Environmental Sampling Stations



K RADIOLOGICAL DOSE CONTROL

1.0 DOSE GUIDELINES

Radiation dose control is of utmost importance at Arkansas Nuclear One. Therefore, it is deemed appropriate that detailed radiation protection measures be established and utilized. These measures are included in Emergency Plan Implementing Procedures and Radiation Protection Procedures, as appropriate. A description of applicable radiation control measures follows.

1.1 DOSE LIMITS

ANO Radiation Protection Procedures provide the specific actions undertaken to determine and record individual occupational doses on a 24-hour per day basis. These procedures state that each emergency responder entering a radiologically controlled area shall be issued appropriate personnel monitoring devices consisting of one or more of the following types: dosimeter of legal record (DLR), self-reading pocket dosimeter, neutron badges and extremity dosimetry devices. The TSC Radiological Coordinator is responsible for ensuring that all personnel (employees, vendors, contractors, and visitors) are appropriately monitored for exposure to ionizing radiation at ANO.

Allowable emergency doses and accidental doses to individuals have been established. Table K-1 outlines ANO's permissible emergency dose limits. Restrictions to further exposure are placed on exposed individuals, if necessary.

To determine accumulative doses, any DLRs of individuals exposed to radiation prior to the event are read and added to the emergency events doses promptly.

In all cases and events, administrative control and restriction of dose to radiation is monitored by the TSC Radiological Coordinator and the Radiation Protection staff.

EPA-400, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," Table 2.2, is used to establish additional dose guidelines for life saving actions and protection of property. These guidelines are described in the Emergency Plan Implementing Procedures.

All requests for increasing radiation doses for emergency workers above administrative limits are directed to the Shift Manager, EPM or ED. These individuals have the authority in emergency situations to authorize emergency workers to receive doses in excess of 10 CFR 20 limits. After ERO activation, the EPM will typically assume the responsibility for approving on-site personnel doses exceeding 10 CFR 20 limits and the ED will typically assume the responsibility for approving off-site ERO personnel doses exceeding 10 CFR 20 limits.

1.2 PERSONNEL DOSIMETRY

The capability to determine radiation dose to emergency response personnel is available twenty-four hours per day. Dosimetry personnel issue DLRs and dosimeters, maintain DLR and dosimeter logs, and keep the TSC Radiological Coordinator informed of personnel doses.

The self-reading dosimeters are read by the Radiation Protection staff upon entry and exit from radiologically controlled areas and recorded for each individual. The permanent DLR is read, as necessary, in order to establish dose trends and control individual dose.

2.0 CONTAMINATION CONTROL

2.1 AREA ACCESS

Controls have been established at ANO to ensure that there is no detectable fixed or removable contamination (beta-gamma or alpha) outside of the Controlled Access Area under normal and emergency conditions. All personnel and equipment leaving the Controlled Access Area are monitored to ensure that the limits for contamination levels are met.

Contamination control actions for off-site areas are planned for the Emergency Planning Zones with provisions to extend the actions to areas beyond this limit if necessary. These contamination control actions are described in the State Emergency Operations Plan.

2.2. PERSONNEL

2.2.1 Under Normal Conditions

Personnel working practices within the Controlled Access Area are controlled by Radiation Protection personnel. Radiation Work Permits are required by all personnel working in the Controlled Access Area. Specific instructions, precautions, and limitations are listed on the work permits.

Individuals leaving radiologically controlled areas are monitored for contamination before entering the uncontrolled area of the plant. Personnel are again monitored as they pass through the portal monitor before leaving the Protected Area, thus making it unlikely that a contaminated person could leave the site undetected.

2.2.2 Under Emergency Conditions

Under certain emergency conditions (e.g., security-related evacuations) personnel monitoring may be relaxed at the determined plant exit point(s) in order to reduce personal harm to plant personnel. However, these personnel will be monitored at external designated assembly areas in accordance with established procedures.

In the event of personnel contamination, Radiation Protection procedures are implemented. These procedures detail methods for contamination removal from wounds, the whole body, hair, nostrils, and under fingernails. Wounds, eyes, ears, nose, and mouth are treated with utmost care to prevent internal deposition and infections. The procedures list supplies for decontamination; however, decontamination is accomplished by use of soap and water unless use of another agent is approved by the TSC Radiological Coordinator, or his designee.

All decontaminations are recorded and, if not effective or if sickness and/or wounds are involved, personnel are taken to the Saint Mary's Regional Medical Center. Further decontamination is carried out at the Saint Mary's Regional Medical Center. The types of supplies and detection instrumentation maintained by ANO at the hospital are listed in Appendix 4. Certain agents such as titanium dioxide, EDTA cream, surgical soap, and potassium permanganate solution are common hospital supplies and are not listed. Radiation Protection personnel assist hospital personnel in surveying the patient and in contamination control. Hospital radiological department facilities for waste disposal are used.

If an accident occurs in a radiologically controlled area, and the patient requires medical aid, he is checked for contamination. If contamination levels are found to be below the levels for personnel contamination, the patient is taken to the Nurse's Station for treatment. If additional treatment is necessary, the Shift Manager may call the Pope County Emergency Medical Service for transportation to the Saint Mary's Regional Medical Center. If the patient is contaminated to unacceptable levels, reasonable efforts are made to decontaminate him. If this cannot be done due to the nature of the injury or hospitalization is immediately necessary, medical treatment and transportation to a hospital takes priority over decontamination activities. The injured individual is placed in clean protective clothing or wrapped, if time allows, to minimize the spread of contamination. A person trained in Radiation Protection accompanies the patient.

When the patient arrives at the hospital, the hospital staff follows their procedure to handle this type of patient. Radiation Protection personnel conduct surveys to ensure that contamination levels are kept to a minimum and control contamination until clean-up has been satisfactorily completed.

Contaminated personal items are confiscated if successful decontamination cannot be completed.

The Emergency Radiation Team performs radiological surveys and establishes Radiologically Controlled Area boundaries. The criteria for boundary placement are found in the Radiation Protection Implementing procedures. Controls normally include use of a personnel entry log, a frisking station, and air sampling. The establishment of such areas control and contain contamination.

Decontaminated items and areas must meet radiological release criteria before being released from Radiation Protection control.

2.3 WATER AND FOOD SUPPLY

2.3.1 Onsite Supplies

Radiological surveys of the emergency response facilities and the designated assembly area are performed on a frequent basis. Potable water for ANO is obtained from the Russellville Water Supply. It is unlikely that any airborne release of radioactive material could affect this supply. A minimum storage of bottled water and MREs (meals ready to eat) are staged onsite for use by ERO and support personnel during extended emergency event staffing. Contaminated areas are posted as described in Section K.3.2. Drinking, eating, and smoking are prohibited in radiologically controlled areas.

2.3.2 Offsite Supplies

Surface water samples from Lake Dardanelle upstream and downstream of the plant discharge and at the intake to the Russellville water supplies on the Illinois Bayou are analyzed for gross activity. Samples of vegetation and milk (if active dairies in the 10-mile EPZ – see ODCM) are also analyzed as part of the Environmental Radiological Monitoring Program. In the event of an airborne release of radioactive materials, samples are collected and analyzed. Results are provided to the Arkansas Department of Health for appropriate protective action.

2.4 TOOLS AND EQUIPMENT

All tools and equipment used in radiologically controlled areas are checked for contamination before being taken from these areas. If the item is found to be contaminated and decontamination is not practical, the item remains in the radiologically controlled area.

Equipment and tools are unconditionally released for use outside of the radiologically controlled areas only if they meet radiological release criteria.

2.4.1 Site Equipment Contamination Control

Equipment, such as vehicles, normally stored outside the plant buildings are surveyed for contamination. Normal decontamination procedures of wiping, vacuuming or water spray are performed, dependent on the magnitude and type of the contaminant.

Vehicles leaving the site are monitored and decontaminated. Emergency vehicles on lifesaving missions are not delayed for decontamination when leaving the site.

Large equipment on site which is contaminated, but not required for emergency recovery, is normally covered with plastic film to contain loose contamination.

2.4.2 Plant Equipment Contamination Control

Small contaminated tools and equipment are wrapped in plastic and stored in radiologically controlled areas of the plant until decontaminated.

Large equipment outside radiologically controlled areas is covered with plastic film and decontaminated by methods described in radiation control procedures.

Large equipment inside radiologically controlled areas of the plant is normally located within rooms. Access and ventilation to these rooms are individually controlled. Contaminated plant equipment is decontaminated and/or controlled by methods described in radiation control procedures.

3.0 DECONTAMINATION

3.1 PERSONNEL DECONTAMINATION

3.1.1 Decontamination Facilities

Contaminated personnel are dressed in clean protective clothing to contain the contamination and transferred to the decontamination area to be decontaminated in accordance with Radiation Protection procedures. Normal personnel decontamination is accomplished in the Controlled Access Area exit Control Point decontamination area. All drains lead to the Radwaste System where the liquid is processed and monitored prior to discharge. The domestic fresh water system supplies water to all the restrooms and showers. During a plant evacuation, personnel decontamination can be performed at the Emergency Operations Facility. A decontamination shower and supplies for decontamination of personnel are maintained at the EOF.

3.1.2 Decontamination Process

Personnel decontamination is conducted by members of the Radiation Protection staff, under the direction of the TSC Radiological Coordinator. Decontamination is conducted in accordance with Radiation Protection procedures.

3.2 AREA DECONTAMINATION

Area decontamination is performed in accordance with Radiation Protection procedures.

3.2.1 Clean Areas

For areas outside of the radiologically controlled areas, surface contamination is kept below the following:

a. Removable and Fixed Contamination

Beta-Gamma or Alpha	In accordance with Radiation Protection Implementing Procedures.

3.2.2 Contamination Areas

Contamination Areas are defined in Radiation Protection procedures. Contamination areas have been divided into categories where the degree of contamination control requires changes with the level of contamination present.

3.2.3 Priorities for Area Decontamination

Priorities for area decontamination are determined by the Emergency Plant Manager or the Emergency Director.

4.0 WASTE DISPOSAL UNDER EMERGENCY CONDITIONS

Liquid and gaseous wastes are processed using normal methods during emergency conditions. Emergency conditions may, however, require that additional resources of processing and disposal of waste be obtained.

A Process Control Program (PCP) is used at Arkansas Nuclear One to ensure that radioactive waste management results in solid waste products meeting the criteria contained in the Code of Federal Regulations, state regulations, off-site processing facility criteria and radioactive waste burial site license criteria for solid radiological waste shipment, processing and disposal.

In order to minimize the possibility of an accident involving radioactive waste occurring in an uncontrolled area, radioactive wastes are packaged and stored in a facility designed to prevent radiological releases to the environment. The waste is prepared, loaded and shipped to an offsite processor or a federal or state licensed radioactive waste disposal facility (burial site) in accordance with Arkansas Nuclear One approved procedures and/or qualified vendor procedures which have been approved by Arkansas Nuclear One. These procedures provide specific instructions which ensure the shipments meet the processor or intended burial site license requirements as well as applicable federal and state regulations.

TABLE K-1

DOSE LIMITS

Permissible dose limits for a NOTIFICATION OF UNUSUAL EVENT are established in accordance with Radiation Protection procedures.

ANO Emergency

Permissible Dose Limits

ALERT, Site Area Emergency, and General Emergency	5 Rem TEDE
*Protecting valuable property	10 Rem TEDE
*Life saving or protection of large populations	25 Rem TEDE
**Life saving or protection of large populations	> 25 Rem TEDE

Note: * These limits are allowed with proper authorization.

** This limit is allowed with proper authorization and only on a voluntary basis to persons fully aware of the risks involved.

L MEDICAL AND PUBLIC HEALTH SUPPORT

1.0 ONSITE FIRST AID

Arkansas Nuclear One maintains first aid kits for minor treatment of injured individuals, showers for decontaminating personnel, and a whole body counter. A decontamination shower and supplies for decontamination of personnel are also maintained at the Emergency Operations Facility.

2.0 MEDICAL TRANSPORTATION

Pope County Emergency Medical Services provides ambulances as required. Radio communications between Pope County Emergency Medical Services and the Saint Mary's Regional Medical Center are available via a private radio frequency. Members of the Emergency Radiation Team accompany contaminated personnel off site. Special effort is made to minimize radiological contamination of the ambulances.

3.0 OFFSITE MEDICAL FACILITIES

3.1 MEDICAL SERVICES PERSONNEL

Local physicians have been retained to provide medical consultants for Arkansas Nuclear One. These physicians have received training in the treatment of patients that are contaminated and/or overexposed to radiation. These physicians treat contaminated, injured personnel from Arkansas Nuclear One. These physicians practice at the Saint Mary's Regional Medical Center.

3.2 SAINT MARY'S REGIONAL MEDICAL CENTER

The Saint Mary's Regional Medical Center has facilities to treat individuals who are contaminated with radioactive material. Agreements are established between the Saint Mary's Regional Medical Center, the consulting physicians, and Arkansas Nuclear One for the treatment of contaminated individuals at the Saint Mary's Regional Medical Center. Individuals may be transferred to the University of Arkansas for Medical Sciences Hospital for further tests, examination, or treatment, as required, if they:

a. have received an overexposure to radiation sufficient to warrant special treatment or observation;

b. have, or are suspected of having, inhaled or ingested significant quantities of radioactive materials; and/or

c. cannot be readily decontaminated at the Saint Mary's Regional Medical Center.

Appendix 4 lists types of emergency supplies that are maintained at the Saint Mary's Regional Medical Center by Arkansas Nuclear One. These supplies are checked on a routine basis by Arkansas Nuclear One and/or medical facility personnel.

3.3 UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES HOSPITAL

The University of Arkansas for Medical Sciences Hospital provides medical treatment for radiologically contaminated and/or overexposed patients.

3.4 OAK RIDGE ASSOCIATED UNIVERSITY MEDICAL DIVISION

The Oak Ridge Associated University Medical Division assists in the treatment of radiologically overexposed patients, if required.

M RECOVERY AND REENTRY PLANNING AND POST ACCIDENT OPERATIONS

1.0 ORGANIZATIONAL BACKGROUND

The Emergency Response Organization (ERO) is responsible for the overall coordination and management of the recovery effort and for the technical and administrative services, design work, scheduling, planning, quality control/assurance, construction, and vendor support necessary during the initial stages of the recovery phase. The individual responsible for Emergency Direction and Control has full authority to take immediate and decisive actions to mitigate the consequences of any nuclear emergency and for protection of the health and safety of the public. The Emergency Response Organization's effort during emergencies is viewed as a long-term effort requiring the ERO to be present 24 hours a day. The Initial Response Staff (IRS), in contrast, functions as the immediate response organization for emergencies. The IRS provides required immediate response actions and radiological controls; and compiles technical data for its own use and for review by the ERO. From the point of initiation of an emergency classification until the ERO is fully operational, the IRS provides direction and assistance for all emergencies.

The ERO is composed of, or can incorporate as needed, all the necessary technical, administrative, managerial, and support personnel that may be required for an emergency as illustrated on Figures B-4 through B-12 of Section B. The organization is capable of 24-hour-a-day sustained operation. For each job title shown on Figures B-5, B-6, B-7 and B-12, there are at least three personnel assigned to fill that position, which facilitates the 24-hour-a-day operational capability.

The Emergency Director makes the decision to proceed from the emergency phase to the recovery phase. The Emergency Response Organization's responsibilities extend into the recovery phase until a decision is made by ERO managers that plant parameters and other pertinent criteria allow deactivation of the ERO and return to the normal plant and corporate organization.

The Emergency Director makes the decision to relax/curtail duties of the ERO personnel. This decision is based on input from ERO managers and advisors and includes, at a minimum, the following criteria:

a. Stable reactor shutdown with direction toward a cold shutdown condition.

b. Containment Building integrity.

c. Availability of an operational heat sink.

d. Operability of instrumentation and control equipment needed to maintain the reactor in a safe condition.

The duties of the ERO may be curtailed, as appropriate, by the Emergency Director to provide the recovery assistance necessary to support the normal plant staff or the ERO may be deactivated by the Emergency Director and responsibility for long-term recovery activities assumed by the normal corporate and plant staff. At the time the ERO is deactivated, ANO management or the Emergency Director may form special groups/ task forces to handle specialized recovery operations.

Decisions to relax protective actions for the public are made by the appropriate State and local officials. The Emergency Director advises the State Technical Operations Control Director (TOCD) and the NRC when the plant has returned to a safer mode and suggests that the response be downgraded or terminated and recovery actions initiated if necessary. Recovery actions and procedures are developed as required considering maximum protection for plant personnel and the public.

After ERO deactivation, the organization performing recovery activities follows the ANO normal corporate organization structure as shown in Figure M-1. The ANO corporate positions indicated in Figure M-1 have been assigned recovery responsibilities as described in the following sections.

2.0 ORGANIZATIONAL ARRANGEMENT, ASSIGNMENT, AND RESPONSIBILITIES

2.1 SITE VICE PRESIDENT

The Site Vice President provides overall management and direction of the ANO resources utilized for recovery, provides corporate level guidance, provides licensing support, and provides coordination with other Entergy Operations Divisions. If the recovery phase is expected to be a long-term process, he may form a team to be responsible for continuous control of the recovery operation thus permitting other personnel to return to their normal duties. The organizational structure of such a team is contingent on the emergency situation and the procedures required for recovery.

2.2 GENERAL MANAGER, PLANT OPERATIONS

The General Manager, Plant Operations is responsible for the site recovery effort and security support. He may request any needed offsite support through the Site Vice President and is responsible for developing required recovery procedures dictated by the type of incident.

The General Manager, Plant Operations also provides for Radiation Protection, Radwaste, and Chemistry support and ensures that area sampling programs are developed for continued sampling until radiation effects of the emergency have been analyzed and an agreement has been reached between Entergy Operations, the State of Arkansas, and local governments that continued special sampling is no longer required. Once the recovery phase is entered, the General Manager, Plant Operations updates estimates of the total population exposure received in the 10-mile EPZ as more current radiological data becomes available.

2.3 DIRECTOR, ENGINEERING

The Director, Engineering is responsible for reactor, performance, and system design engineering activities required for the safe and efficient recovery of the plant. These activities include resolving all plant-related engineering issues that do not alter the design basis of the plant.

2.4 MANAGER, OPERATIONS

The Sr. Manager, Operations provides assistance and technical services to the General Manager, Plant Operations in the area of plant operations and maintenance.

2.5 OTHER ENTERGY OPERATIONS RESOURCES

All other Entergy Operations resources plus other governmental and vendor support are available through the Entergy Operations Corporate Emergency Center to aid the Site Vice President in developing, evaluating, and implementing specific recovery and reentry operations.

2.6 POST ACCIDENT RECOVERY MEASURES

Major post-accident recovery measures are performed in accordance with applicable Emergency Plan Implementing Procedures and Emergency Operating Procedures. Other procedures which may be developed following an incident include the following activities:

1. The first auxiliary building entry.
2. The first containment building entry.
3. Damage evaluation.
4. Facility Decontamination.
5. Disposal of radioactive material.

Recovery coordination is provided from the Emergency Operations Facility or normal staff offices according to the status of the ERO. A description of the EOF is provided in Section H and in the Emergency Plan Implementing Procedures. The communications equipment available in this facility is described in Section F and shown in Table F-1 of this Plan.

2.7 POST ACCIDENT REPORTING

An Emergency Class is closed out with a verbal and written summary to offsite authorities in accordance with 10 CFR 50.72 and ANO EPIPs. A LER may serve as a written summary.

If a release of radioactive material occurred during the emergency, ANO personnel, in cooperation with ADH personnel, develop a report estimating the total radiation exposure to the population affected by the release.

3.0 REENTRY

3.1 PURPOSE

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

3.2 AUTHORITY

The individual responsible for Emergency Direction and Control authorizes reentry into a previously evacuated onsite area. In the event the ERO is deactivated, the Site Vice President has the responsibility for authorizing reentry into a previously evacuated area.

3.3 IMPLEMENTING ORGANIZATION

The implementation of the reentry plan is carried out by the ERO depicted in Figure B-6 or the normal ANO organization shown in Figure M-1 and discussed in Section M.2. These organizations have access to all information, documents, equipment, and personnel required to support a reentry effort. Actual reentry is accomplished by recovery personnel under the control of the Emergency Plant Manager and/or the Emergency Director.

3.4 REENTRY - EMERGENCY RADIATION EXPOSURE DOSE JUSTIFICATION

Although every effort is made to keep dose as low as is reasonably achievable (ALARA), it is understood that there are emergency situations which transcend the normal requirements for limiting dose. When such situations exist, the individual responsible for Emergency Direction and Control makes the determination as to the amount of radiation exposure that will be permitted based on the guidelines set forth below.

3.5 REENTRY GUIDELINES

Reentry into an evacuated area may be required for one or more of the following reasons:

a. To ascertain that all personnel who were in the affected area have been evacuated and, if necessary, to search for unaccounted personnel;

b. To rescue any injured or trapped personnel from the affected area;

c. To perform operations which may decrease the effect of the emergency or hazardous condition; and/or

d. To determine the nature and extent of the emergency and/or radiological conditions.

Reentry operations take place only on the authority of the individual responsible for Emergency Direction and Control who selects individuals that are familiar with radiation protection, first aid, operation, or maintenance for specialized recovery groups. The initial entry of these groups, and all subsequent entries until radiation areas have been properly marked, are under the direction of the TSC Radiological Coordinator. Recovery personnel are briefed regarding their duties and the actions they are to perform while in the area. They are also briefed as to the expected dose rates, stay time, and other hazards. Information for these briefings is obtained from the applicable available sources including interviews with evacuated employees, current operating records, surveys conducted by the Emergency Radiation Team, and Company technical support personnel.

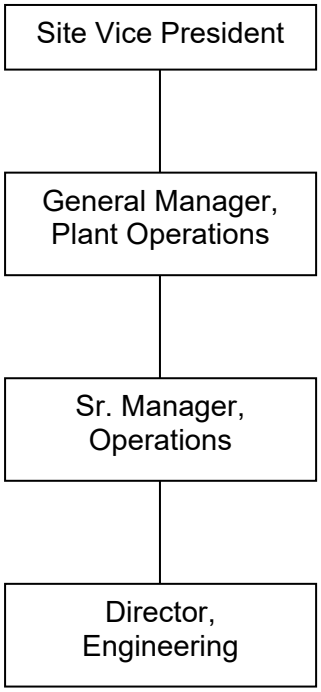
Even under emergency conditions, it is not desirable to exceed the limits of 10 CFR 20. Guidelines in the Emergency Plan Implementing Procedures, however, permit the individual with Emergency Direction and Control to authorize exceeding those limits under conditions where the mission is to search for and remove injured personnel, prevent conditions that may endanger human life or safety, protect the facilities, eliminate further escape of effluents, or control fires.

Recovery personnel perform their duties in the most safe and efficient manner possible. Once their operations have been completed, the recovery personnel follow self-monitoring and personnel decontamination procedures as specified by the TSC Radiological Coordinator.

All questions which relate to exceeding occupational dose limits are directed to the individual responsible for Emergency Direction and Control.

FIGURE M-1

Corporate Positions
Assigned Recovery Responsibilities



N EXERCISES AND DRILLS

1.0 EXERCISES

Exercises shall test the adequacy of timing and content of implementing procedures and methods, test emergency equipment and communications networks, test the public Alert and Notification System, and ensure that emergency organizational personnel are familiar with their duties.

At least biennially, local, State, and Federal agencies are invited to participate in an exercise with the ANO ERO. Each exercise scenario is varied from year to year such that major elements of the Emergency Plan and Emergency Response Organization are tested within an eight-year period. The exercise attempts to include mobilization of State and local personnel and resources adequate to verify the capability to respond to the accident scenario requiring response. The State and Local Governments are required to participate in biennial exercises in accordance with 44 CFR 350. Provisions are made to start an exercise between 6 p.m. and 4 a.m. once every eight years. An ingestion pathway exercise is also conducted every eight years in which the State and local governments participate. Qualified observers from Federal, State, and local governments are invited to observe and critique these exercises.

Each scenario variation shall be demonstrated at least once during the eight year exercise cycle and shall include, but not be limited to, the following: Hostile action directed at the plant site involving the integration of offsite resources with onsite response; an initial classification of or rapid escalation to a Site Area Emergency or General Emergency; no radiological release or an unplanned minimal radiological release that requires the site to declare a Site Area Emergency, but does not require declaration of a General Emergency.

2.0 DRILLS

At their request, state and/or local governments located within the plume exposure pathway EPZ are allowed to participate in scheduled ANO drills. Refusal by state and/or local governments located within the plume exposure pathway EPZ to participate in drills and/or exercises shall be documented by the Emergency Planning group. The types and frequency of drills conducted at ANO (in addition to the biennial exercise) are listed below. More than one type of drill may be initiated at a time and drills may be combined with exercises. The drill is evaluated and additional training or correction provided. Additional drills may be conducted as deemed necessary. The drill instructor makes on-the-spot corrections of erroneous performances.

2.1 COMMUNICATION DRILLS

The utility verifies communications with the NRC, State of Arkansas, and local governments within the plume exposure pathway monthly. Communications between the nuclear facility, State and local emergency operations centers, and field assessment teams are tested annually. Communication drills also include the aspect of understanding the content of messages.

2.2 FIRE EMERGENCY

These drills require the activation of the Fire Brigade in accordance with the Arkansas Nuclear One Fire Protection Plan. Fire drills are performed at least once per quarter. At least one drill per year is scheduled to be performed on a "back shift" for the Fire Brigade. At least one drill per year is unannounced. At least once per year a drill is conducted with invited participation of the Local Fire Department. These drills meet the requirements of the ANO Fire Protection Plan.

2.3 MEDICAL EMERGENCY

This drill requires activation of emergency medical personnel and, if feasible, transportation by the Pope County Emergency Medical Service of a simulated injured person to an offsite medical treatment facility and activation of their response team. The Medical Emergency drill is conducted annually. This drill is alternated annually between University of Arkansas for Medical Sciences and Saint Mary's Regional Medical Center. The offsite portions of the medical drill may be performed as part of the biennial exercise.

2.4 RADIOLOGICAL MONITORING

Plant environs and radiological monitoring drills (onsite and offsite) are conducted annually. These drills shall include collection and analysis of all sample media (e.g., water, vegetation, soil, and air) and provisions for communications and record keeping. Where appropriate, local organizations may participate in these drills.

2.5 HEALTH PHYSICS DRILLS

Health Physics drills are conducted semi-annually which involve response to, and analysis of, simulated elevated airborne and liquid samples and direct radiation measurements in the environment.

Analysis of in-plant liquid samples with actual elevated radiation levels, including the use of the post-accident sampling method, is included annually at ANO in Health Physics drills.

2.5.1 Radiological Dose Assessment

A radiological dose assessment drill utilizing simulated field monitoring data is conducted annually. The drill may be in conjunction with a Health Physics drill and address dose projection calculations and offsite Protective Action Recommendations.

2.6 OFF-HOURS ERO UNANNOUNCED DRILLS

An Off-Hours Mobilization Unannounced Drill is required at least once every eight years to ensure that the capability exists to implement Table B-1, "Minimum Staffing Requirements", of the Emergency Plan and to ensure demonstration that adequate staffing is available to activate the Emergency Response Facilities. This Off-Hours Drill can be accomplished by using the ERO Notification (ERON) system. This type of drill may be performed more frequently.

An Off-Hours Augmentation Unannounced Drill is also conducted in accordance with EP Implementing Procedures to test the ERON system and to ensure that the ERO can activate and staff facilities in a timely manner. This drill is performed using the ERON system and requires a call-in response from ERO and ERO support personnel.

3.0 SCENARIOS

Scenario development for drills and the biennial exercise is the responsibility of the Emergency Planning Manager. Input from major Federal, State and local agencies, as well as the ANO staff, is required in order to define the objectives to be accomplished in graded exercises. The scenario for drills and exercises is then prepared which may include but is not limited to:

a. the basic objective of the drill or exercise;

b. the participating organizations for the drill or exercise;

c. a chronology of the simulated unusual events;

d. a time schedule of real and simulated initiating events;

e. a narrative summary describing the simulated events and the appropriate responses and actions; and

f. arrangements for qualified controllers and evaluators.

Preparation of the scenario includes identifying Control Room alarms, sequence of alarms, and instrument readings required to initiate the essential components of the exercise.

Only officials of Federal, State, and local support agencies involved in scenario development or designated as scenario controllers/evaluators share scenario information in advance of the exercises. Limited distribution of scenario information allows effective participation by observers/controllers without losing confidentiality of exercise information.

4.0 CRITIQUES

In addition to the ANO observers, offsite support agencies provide evaluators for the biennial exercise. Evaluators are given information on the accident scenario prior to the exercise so that they may judge participants effectively.

A critique is scheduled at the conclusion of the exercise to evaluate the ability of organizations to respond as called for in the Emergency Plan. The critique is conducted as soon as practical after the exercise, and a formal evaluation should result from the critique.

The Manager, Emergency Planning is responsible for reviewing the results from the final drill/exercise critique meeting and proposing corrective action to the General Manager, Plant Operations and the Site Vice President. The General Manager, Plant Operations and the Site Vice President are responsible for assuring that appropriate corrective action is taken to improve emergency preparedness.

Remedial exercises are required by the NRC if the emergency plan is not satisfactorily tested during the biennial exercise.

O RADIOLOGICAL EMERGENCY RESPONSE TRAINING

This section of the Plan describes the methods used to ensure that the Emergency Plan remains effective throughout the lifetime of Arkansas Nuclear One. Responsibility for the administration of this Plan rests with the Site Vice President.

A training program for instructing and qualifying personnel who implement the radiological emergency response plan has been established. The specialized initial training and periodic retraining programs (including the scope, nature and frequency) are provided in the following categories for emergency personnel:

- Directors or coordinators of the response organization
- Personnel responsible for accident assessment
- Radiological monitoring teams and radiological analysis personnel
- Fire brigade
- Repair and damage control teams
- First aid and rescue personnel
- Local Emergency Services personnel
- Medical support personnel
- Licensee's headquarters support personnel
- Personnel responsible for transmission of emergency information and instructions
- Security personnel

Responsibility for the training of ANO onsite responders rests with the Site Vice President. The Arkansas Department of Health is responsible for the training of offsite response organizations.

1.0 EMERGENCY RESPONSE ORGANIZATION TRAINING

The Emergency Response Organization (ERO) includes the following groups:

- Directors or coordinators of the response organization
- Personnel responsible for accident assessment
- Radiological monitoring teams and radiological analysis personnel
- Licensee's headquarters support personnel
- Personnel responsible for transmission of emergency information and instructions (i.e., Communicators, Shift Engineers / Shift Technical Advisors)

It is the responsibility of the personnel assigned to the ERO to become familiar with their Emergency Plan assigned authority and responsibility so that planned actions are taken in the event of an emergency. Personnel who function in the ERO are provided initial training and periodic retraining.

The initial and annual retraining programs for ERO personnel are accomplished using various combinations of training settings which may include, but are not limited to, the following:

- classroom instruction,
- computer-based training,
- written examinations,
- drill performance (with on-the-spot correction of erroneous performance),
- completion of position specific workbooks, and/or
- self-study

Initial training and annual retraining are given in a range of subjects defined by position in the Emergency Response Training procedure. Emergency Plan Implementing Procedures, the Emergency Response Training Procedure, and other documents address administration, scheduling, subject matter, qualification criteria and specific training requirements for the ERO.

Self-study by read and sign is used to make responsible emergency response personnel aware of critical changes to the plan and/or procedures. This method is most often used when such information cannot be delayed until other training can be provided.

Drills are used to provide practical experience to enhance information gained in training. During the year, as many emergency response personnel as possible participate in the scheduled drills and exercises to broaden the experience base of the emergency organization. The goal is to achieve maximum participation of ERO personnel in drills.

A written examination is used as a means for an individual to demonstrate knowledge in a given area. Written examinations are administered, as prescribed by procedure, to supplement portions of the initial training and annual retraining.

2.0 TRAINING FOR OTHER ANO EMERGENCY RESPONSE GROUPS

Training for other ANO Emergency Response groups is described as follows:

2.1 FIRE BRIGADE

The Fire Brigade consists of members of the Operations staff who are assigned to shift crews. Fire Brigade members receive initial training and at least quarterly retraining on fire fighting techniques. The training program includes classroom training, field training, and drills. Training covers the chemistry of fire, basic fire fighting techniques, fire hazards, and methods of reporting fires. Detailed training is outlined in the ANO training procedures.

2.2 REPAIR AND DAMAGE CONTROL TEAM

The Repair and Damage Control team typically consists of a combination of individuals from the following groups: Radiation Protection, Operations, Maintenance (Electrical, I&C, or Mechanical), and First Aid and Rescue Personnel.

These individuals receive training concerning: (1) radiation protection; (2) the location of the assembly area following a plant evacuation announcement; and (3) their particular craft.

2.3 SECURITY PERSONNEL

Security personnel training is administered by the Security Training Program. The EOI Integrated Security Training and Qualification Plan describes the security personnel training requirements.

2.4 FIRST AID AND RESCUE PERSONNEL

All plant personnel responsible for responding to an emergency situation involving personal injury receive rescue training and first aid training. The first aid training meets or exceeds the Red Cross Multi-Media course. Personnel with first aid responsibilities receive initial training and at least annual retraining.

3.0 LOCAL SERVICES PERSONNEL TRAINING

Training for local services personnel, includes but is not necessarily limited to, procedures for notification and, where applicable, site access procedures and the identity of the individuals in the Emergency Response Organization who coordinate the local services groups' activities. Changes to the Emergency Plan are transmitted to all local groups.

Radiological orientation training is made available to the following local services personnel.

3.1 LOCAL EMERGENCY SERVICES PERSONNEL

3.1.1 Local Fire Department

Initial and annual retraining is provided to Local Fire Department personnel concerning site specific emergency response. This training includes procedures for notification, basic radiation protection, site access procedures and emergency response functions.

3.1.2 Pope County Emergency Medical Service

Initial training and annual retraining are provided to the Pope County Emergency Medical Service personnel concerning site specific emergency response. This training includes procedures for notification, basic radiation protection, site access procedures and emergency response functions.

3.1.3 Miscellaneous Personnel

A radiological training program is made available by the State of Arkansas in support of offsite planning requirements to miscellaneous local emergency services personnel (i.e., ADEM, local law enforcement agencies, volunteers, etc.)

3.2 MEDICAL SUPPORT PERSONNEL

3.2.1 Saint Mary’s Regional Medical Center Personnel

Saint Mary’s Regional Medical Center personnel who may be involved in response to an emergency at ANO receive initial training and periodic retraining by Arkansas Department of Health personnel on how to deal with radiation accident cases.

3.2.2 Medical Services Personnel

Local physicians supporting Arkansas Nuclear One have received training in the treatment of patients that are contaminated and/or over exposed to radiation. Refresher training for these physicians is made available periodically.

4.0 GENERAL EMPLOYEE TRAINING

Personnel are given initial orientation in the basic principles of radiological safety including the effects of radiation and, as appropriate, the use of protective clothing, equipment, and devices.

Emergency training sufficient for proper evacuation is given to all individuals receiving training for unescorted access into the plant. The training includes the method of notification (plant evacuation alarm) and instructions on how to evacuate the site. Initial training and annual retraining is conducted in general employee training sessions.

5.0 TRAINING EVALUATION

To assure the continued quality of emergency response training, training conducted for emergency response personnel is maintained and improved by monitoring various indicators of training effectiveness. Emergency response training is evaluated using the following indicators:

- Trainee examination/workbook scores.
- Emergency Planning inspection and audit reports.
- Training Evaluation/Action Requests.
- Trainee feedback through critiques of training.
- Training Review Groups (TRG)

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

1.0 RESPONSIBILITY FOR RADIOLOGICAL EMERGENCY RESPONSE PLANNING

The Site Vice President has overall responsibility and authority for radiological emergency planning. Under the direction of the organization shown in Figure P-1, the Emergency Planners are responsible for the development and updating of the Emergency Plan and Implementing Procedures and coordination with other response organizations for the implementation of the Emergency Plan. Responsibilities and authorities of the Emergency Planners include, but are not limited to:

- initiation of changes to the Emergency Plan and the Emergency Plan Implementing Procedures;
- ensuring implementation of changes to the Emergency Plan and the Emergency Plan Implementing Procedures;
- initiation of unannounced drills;
- ensuring scheduling of training, drills, and exercises;
- evaluation of effectiveness of exercises and recommends enhancements;
- interfacing with local, State, and Federal agencies regarding emergency preparedness; and
- providing ANO management with timely information regarding the status of emergency preparedness.

2.0 REVIEW AND UPDATE OF THE EMERGENCY PLAN AND IMPLEMENTING PROCEDURES

The Emergency Plan and Implementing Procedure review, approval and distribution process is described in the Emergency Plan Implementing Procedures.

Notification lists, rosters, and emergency equipment lists are updated, as necessary. Revisions of the Emergency Plan and the Emergency Plan Implementing Procedures, including notification lists, are distributed to holders of these documents to ensure that their procedures are maintained current. Records are maintained as required in the Technical Specifications.

Whenever exercises or drills are conducted, the Emergency Plan and the Emergency Plan Implementing Procedures are evaluated against the results and revised, if necessary.

The Emergency Plan and the Emergency Plan Implementing Procedures shall be reviewed and audited on a frequency that complies with the requirements of 10 CFR 50.54(t)(1) by persons who have no direct responsibility for implementation of the emergency preparedness program to verify that emergency planning requirements and commitments are being met. Normally, this review is conducted by ANO Nuclear Independent Oversight personnel.

The results of the review and audit, along with recommendations for improvements, are documented and reported to both corporate and plant management; and the Safety Review Committee. These records are retained for a period of at least five years. Included in the audit is a program review of the elements of 10 CFR 50.54(t)(2). The part of the review and audit involving the adequacy of interface with State and local governments is available to the appropriate State and local governments.

Letters of agreement for support with local, State, and Federal agencies are reviewed annually and updated as appropriate at least every two years.

The emergency action levels listed in Section D of the ANO Emergency Plan are reviewed with the State and local governmental authorities on an annual basis.

3.0 UPDATE OF EMERGENCY TELEPHONE NUMBERS

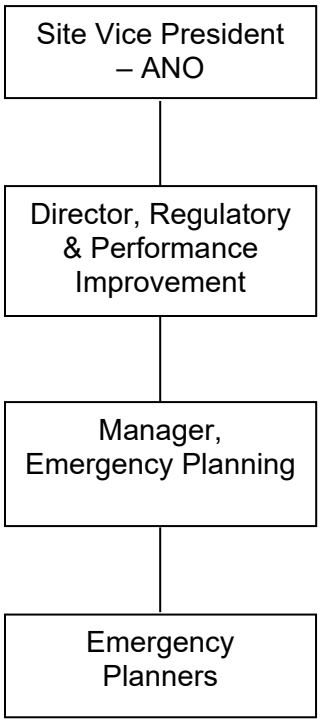
Emergency telephone numbers are verified on a quarterly basis in accordance with Emergency Plan Implementing Procedures. Any changes in phone numbers or organizations are documented, and a revision to the Emergency Telephone Directory (and, as appropriate, any Emergency Plan Implementing Procedures) are generated and distributed.

4.0 TRAINING OF PERSONNEL RESPONSIBLE FOR THE PLANNING EFFORT

The Emergency Planning staff receives training in accordance with ANO training procedures.

FIGURE P-1

EMERGENCY PLANNING ORGANIZATION



APPENDIX 1

LETTERS OF AGREEMENT

WITH

SUPPORTING ORGANIZATIONS

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LETTERS OF AGREEMENT WITH SUPPORTING ORGANIZATIONS

The Letters of Agreement describes the arrangements for requesting and effectively using the resources of Federal, State, Local response organizations and offsite radiological analysis facilities. The mutual agreements in regard to the accommodation of State and Local staffs are also addressed. Listed below are brief descriptions of these agreements.

1. U.S. Department of Energy – The U.S. Department of Energy, by Letter of Agreement, is responsible for coordination of all efforts by Federal agencies in offsite radiological monitoring, assessment, evaluation and reporting during the initial phases of a radiological incident.

2. Arkansas Department of Emergency Management – The Arkansas Department of Emergency Management, by Letter of Agreement, is responsible for the coordination of offsite emergency response and recovery efforts of state, county and municipal agencies and departments. They also assure mutual coordination with the Arkansas Department of Health concerning an incident at Arkansas Nuclear One. The potential nature of some emergencies may warrant the utilization of offsite individuals, organizations, and agencies. As a result, arrangements have been made with offsite groups to provide on-site aid in the event of an emergency situation, including those resulting from hostile actions at ANO. In relation to support provided for hostile actions, ANO's Letter of Agreement with the Arkansas Department of Emergency Management (ADEM) will encompass the necessary support that will be provided by State agencies through the EOC as deemed necessary. The "Arkansas Comprehensive Emergency Management Plan", describes the support and the agencies that will respond to terroristic threats. This letter of agreement with ADEM encompasses law enforcement and logistical needs at ANO in response to a hostile action situation.

3. Arkansas Department of Health – The Arkansas Department of Health, by Letter of Agreement, provides 1) personnel and equipment to the Radiological Response Team, 2) coordinates with ANO's Radiological Assessment Coordinator or designee, for sharing information regarding monitoring, decontamination, 3) determination of magnitude of release and radiation levels, 4) dose assessment in the event of an incident at ANO. They also provide for the notification and warning of the Arkansas Department of Emergency Management (ADEM), local government and the general public in affected areas.

4. Johnson County, Arkansas – Johnson County, Arkansas, by Letter of Agreement, carries out protective actions as determined by the Arkansas Department of Health and provides the following emergency actions, through the Johnson County Office of Emergency Management: 1) activating the Johnson County Operations Center, 2) Notifying appropriate local agencies/organizations as specified in the Johnson County Radiological Emergency Response Plan, 3) Establish communications with the Technical Operations Control Center, 4) coordinating local and state support, 5) preparing and submitting required reports to include a detailed after action report, 6) conducting exercises at the frequency required by appropriate Federal guidelines to test adequacy of plans and updating plans at least yearly.

5. Johnson County Sheriff's Office – Johnson County Sheriff's Office, by Letter of Agreement, agrees to the following: 1) authenticate the notification in accordance with standard procedures, 2) Notify appropriate local agencies/organizations as specified in the Johnson County Radiological Emergency Response Plan, 3) Assist in the warning of Johnson County citizens within the 10-mile EPZ, 4) provide traffic control outside of municipalities in Johnson County within the 10-mile EPZ, placing special emphasis on all critical points such as road junctions, channeled traffic areas and accident sites, 5) Coordinate with the Arkansas State Police in establishing road blocks within Johnson County on roadways at the outer boundary of the 10-mile EPZ, 6) coordinate with the Arkansas State Police and Transportation Department to establish detour routes around the Emergency Planning Zone within Johnson County, 7) provide security of affected areas outside of municipalities within Johnson County, 8) coordinate communication assets with other county agencies and provide backup communications.

6. Logan County, Arkansas – Logan County, Arkansas, by Letter of Agreement, carries out protective actions as determined by the Arkansas Department of Health and provides the following emergency actions, through the Logan County Office of Emergency Management: 1) activating the Logan County Operations Center, 2) Notifying appropriate local agencies/organizations as specified in the Logan County Radiological Emergency Response Plan, 3) Establish communications with the Technical Operations Control Center, 4) coordinating local and state support, 5) preparing and submitting required reports to include a detailed after action report, 6) conducting exercises at the frequency required by appropriate Federal guidelines to test adequacy of plans and updating plans at least yearly.

7. Logan County Sheriff's Office – The Logan County Sheriff's Office, by Letter of Agreement, agrees to the following: 1) authenticate the notification in accordance with standard procedures, 2) Notify appropriate local agencies/organizations as specified in the Logan County Radiological Emergency Response Plan, 3) Assist in the warning of Logan County citizens within the 10-mile EPZ, 4) provide traffic control outside of municipalities in Logan County within the 10-mile EPZ, placing special emphasis on all critical points such as road junctions, channeled traffic areas and accident sites, 5) Coordinate with the Arkansas State Police in establishing road blocks within Logan County on roadways at the outer boundary of the 10-mile EPZ, 6) coordinate with the Arkansas State Police and Transportation Department to establish detour routes around the Emergency Planning Zone within Logan County, 7) provide security of affected areas outside of municipalities within Logan County, 8) coordinate communication assets with other county agencies and provide backup communications.

8. Pope County, Arkansas – Pope County, Arkansas, by Letter of Agreement, carries out protective actions as determined by the Arkansas Department of Health and provides the following emergency actions, through the Pope County Office of Emergency Management: 1) activating the Pope County Operations Center, 2) Notifying appropriate local agencies/organizations as specified in the Pope County Radiological Emergency Response Plan, 3) Establish communications with the Technical Operations Control Center, 4) coordinating local and state support, 5) preparing and submitting required reports to include a detailed after action report, 6) conducting exercises at the frequency required by appropriate Federal guidelines to test adequacy of plans and updating plans at least yearly.

9. Pope County Sheriff's Office – The Pope County Sheriff's Office, by Letter of Agreement, agrees to the following: 1) authenticate the notification in accordance with standard

procedures, 2) Notify appropriate local agencies/organizations as specified in the Pope County Radiological Emergency Response Plan, 3) Assist in the warning of Pope County citizens within the 10-mile EPZ, 4) provide traffic control outside of municipalities in Pope County within the 10-mile EPZ, placing special emphasis on all critical points such as road junctions, channeled traffic areas and accident sites, 5) Coordinate with the Arkansas State Police in establishing road blocks within Pope County on roadways at the outer boundary of the 10-mile EPZ, 6) coordinate with the Arkansas State Police and Transportation Department to establish detour routes around the Emergency Planning Zone within Pope County, 7) provide security of affected areas outside of municipalities within Pope County, 8) coordinate communication assets with other county agencies and provide backup communications.

10. Yell County, Arkansas – Yell County, Arkansas, by Letter of Agreement, carries out protective actions as determined by the Arkansas Department of Health and provides the following emergency actions, through the Yell County Office of Emergency Management: 1) activating the Yell County Operations Center, 2) Notifying appropriate local agencies/organizations as specified in the Yell County Radiological Emergency Response Plan, 3) Establish communications with the Technical Operations Control Center, 4) coordinating local and state support, 5) preparing and submitting required reports to include a detailed after action report, 6) conducting exercises at the frequency required by appropriate Federal guidelines to test adequacy of plans and updating plans at least yearly.

11. Yell County Sheriff's Office – The Yell County Sheriff's Office, by Letter of Agreement, agrees to the following: 1) authenticate the notification in accordance with standard procedures, 2) Notify appropriate local agencies/organizations as specified in the Yell County Radiological Emergency Response Plan, 3) Assist in the warning of Yell County citizens within the 10-mile EPZ, 4) provide traffic control outside of municipalities in Yell County within the 10-mile EPZ, placing special emphasis on all critical points such as road junctions, channeled traffic areas and accident sites, 5) Coordinate with the Arkansas State Police in establishing road blocks within Yell County on roadways at the outer boundary of the 10-mile EPZ, 6) coordinate with the Arkansas State Police and Transportation Department to establish detour routes around the Emergency Planning Zone within Yell County, 7) provide security of affected areas outside of municipalities within Yell County, 8) coordinate communication assets with other county agencies and provide backup communications.

12. Conway County, Arkansas – Conway County, Arkansas, by Letter of Agreement, carries out protective actions as determined by the Arkansas Department of Health and provides the following emergency actions, through the Conway County Office of Emergency Management: 1) activating the Conway County Operations Center, 2) Notifying appropriate local agencies/organizations as specified in the Conway County Radiological Emergency Response Plan, 3) Establish communications with the Technical Operations Control Center, 4) coordinating local and state support, 5) preparing and submitting required reports to include a detailed after action report, 6) conducting exercises at the frequency required by appropriate Federal guidelines to test adequacy of plans and updating plans at least yearly.

13. University of Arkansas Medical Sciences Hospital – The University of Arkansas Medical Sciences Hospital, by Letter of Agreement, agrees to plan, respond and assist with respect to medical treatment of injured personnel who may be radiologically contaminated or overexposed as a result of an incident at the Arkansas Nuclear One facility.

14. Saint Mary's Regional Medical Center – Saint Mary's Regional Medical Center, by Letter of Agreement, agrees to plan, respond and assist with respect to medical treatment of injured personnel who may be radiologically contaminated or overexposed as a result of an incident at the Arkansas Nuclear One facility.

15. Pope County Emergency Medical Service – The Pope County Emergency Medical Service, by Letter of Agreement, agrees to plan, respond and assist with respect to potential or actual radiological incidents at the Arkansas Nuclear One facility.

16. Local Fire Department – The Local Fire Department, by Letter of Agreement, agrees to provide personnel and equipment as required to assist the ANO Fire Brigade in extinguishing fires located at the ANO site, includes both inside and outside the protected area.

17. INPO – INPO, by Letter of Agreement, will provide assistance in acquiring the help of other organizations in the industry. This will include: 1) Facilitating technical information flow from the affected utility to the nuclear industry, 2) locate replacement equipment and personnel with technical expertise, 3) obtain technical information and industry experience regarding plant components and systems, 4) Provide an INPO liaison to facilitate interface.

18. Monfee Medical Clinic – Monfee Medical Clinic, by Letter of Agreement, agrees to furnish the following services at either Arkansas Nuclear One or at Monfee Medical Clinic: 1) Outage physical examinations, 2) other physical examinations, 3) ANO Emergency Plan coverage, 4) fitness-for-duty/Medical Review Officer support, and 5) other services as deemed necessary from time to time.

19. ATU Radio Station KXRJ – Arkansas Tech University (ATU), by Letter of Agreement, agrees to allow remote access of its transmitter for the purpose of transmitting emergency information and instructions to the public.

20. Arkansas Valley Electric Cooperative, Inc. – Arkansas Valley Electric Cooperative, Inc., by Letter of Agreement, agrees to provide a list of new customers within the ANO 10-mile EPZ.

21. National Weather Service – The National Weather Service, by Letter of Agreement, will operate the NOAA Weather Radio System for the Arkansas River Valley area and agrees to broadcast emergency messages related to Arkansas Nuclear One.

22. University of Arkansas Community College of Morrilton (UACCM) – The University of Arkansas Community College of Morrilton, by Letter of Agreement, agrees to the terms of the License Agreement which includes exclusive use of the Joint Information Center in the event of the occurrence of an emergency related to operation of the Arkansas Nuclear One facility. This License Agreement also includes training periods.

APPENDIX 2

EMERGENCY INSTRUCTIONS:

POPE, YELL, LOGAN AND JOHNSON COUNTIES

THIS APPENDIX HAS BEEN DELETED

APPENDIX 3

EMERGENCY PLAN IMPLEMENTING PROCEDURES

APPENDIX 3

EMERGENCY PLAN IMPLEMENTING PROCEDURES*

1903.XXX Series

1903.001 Organization and Use of Emergency Plan Implementing Procedures
1903.004 Administration and Maintenance of the Emergency Plan and Implementing Procedures
1903.010 Emergency Action Level Classification
1903.011 Emergency Response/Notifications
1903.021 Natural Gas Line Rupture
1903.023 Personnel Emergency
1903.030 Evacuation
1903.033 Protective Action Guidelines for Rescue/Repair and Damage Control Teams
1903.042 Duties of the Emergency Medical Team
1903.043 Duties of the Emergency Radiation Team
1903.053 Logistical Support
1903.060 Emergency Supplies and Equipment
1903.062 Communications System Operating Procedure
1903.064 Emergency Response Facility - Control Room
1903.068 Emergency Response Facility – Joint Information Center (JIC)
1903.069 Equipment Important to Emergency Preparedness
1903.079 Incident Command Post (ICP)
1903.080 Emergency Operations Facility (EOF) Activation
1903.081 Technical Support Center (TSC) Activation
1903.082 Operational Support Center (OSC) Activation

1904.XXX Series

1904.002 Offsite Dose Projections

1905.XXX Series

1905.001 Emergency Radiological Controls
1905.002 Offsite Emergency Monitoring
1905.003 Radiological Protection Requirements for Post-Accident Sampling of Reactor Coolant
1905.004 EOF Radiological Controls
1905.031 Airborne I-131 Determination Using a Frisker

EN-EP-XXX Series

EN-EP-202	Equipment Important to Emergency Preparedness
EN-EP-301	Emergency Planning Assessment of Offsite Emergency Response Capability Following a Natural Disaster
EN-EP-305	Emergency Planning 10CFR50.54(Q) Review Program
EN-EP-306	Drills and Exercises
EN-EP-307	Hostile Action Based Drills & Exercises
EN-EP-308	Emergency Planning Critiques
EN-EP-310	Emergency Response Organization Notification System
EN-EP-311	Emergency Response Data System (ERDS) Activation via the Virtual Private Network (VPN)
EN-EP-313	Offsite Dose Assessment using the Unified RASCAL Interface
EN-EP-401	Public Use of Emergency Preparedness Owner Controlled Area
EN-EP-601	Corporate Emergency Center Operations
EN-EP-603	Emergency Notifications
EN-EP-604	Emergency Classifications
EN-EP-606	Pandemic Flu Response
EN-EP-609	Emergency Operations Facility (EOF) Operations
EN-EP-610	Technical Support Center (TSC) Operations
EN-EP-611	Operational Support Center (OSC) Operations
EN-EP-613	Recovery from a Declared Emergency
EN-EP-801	Emergency Response Organization
EN-EP-900	Emergency Preparedness Forms

* For a description of the contents of a procedure and a cross-reference to the Emergency Plan, refer to Procedure 1903.001, "Organization and Use of Emergency Plan Implementing Procedures."

APPENDIX 4

EMERGENCY SUPPLIES AND EQUIPMENT

TABLE OF CONTENTS

TABLE 4A

CONTROL ROOM

SURVEY INSTRUMENTS
SAMPLING SUPPLIES
PERSONNEL MONITORING EQUIPMENT
RESPIRATORY PROTECTION EQUIPMENT
PROTECTIVE CLOTHING
POSTING MATERIALS
BATTERIES
EMERGENCY TELEPHONE DIRECTORY
MISCELLANEOUS

TABLE 4B

ONSITE RADIOLOGICAL MONITORING KIT

SURVEY INSTRUMENTS
SAMPLING SUPPLIES
PERSONNEL MONITORING EQUIPMENT
RESPIRATORY PROTECTION EQUIPMENT
PROTECTIVE CLOTHING
POSTING MATERIALS
BATTERIES
KI TABLETS
MISCELLANEOUS

TABLE 4C

ONSITE TECHNICAL SUPPORT CENTER KIT

SURVEY INSTRUMENTS
PERSONNEL MONITORING EQUIPMENT
BATTERIES
MISCELLANEOUS
KI TABLETS

TABLE 4D

PRIMARY ACCESS POINT KIT
EVACUATION EQUIPMENT
MISCELLANEOUS

TABLE 4E

EMERGENCY OPERATIONS FACILITY KIT
SURVEY INSTRUMENTS
SAMPLING SUPPLIES
PERSONNEL MONITORING EQUIPMENT
RESPIRATORY PROTECTION EQUIPMENT
PROTECTIVE CLOTHING
POSTING MATERIALS
PERSONNEL DECONTAMINATION SUPPLIES
BATTERIES
KI TABLETS
MISCELLANEOUS

TABLE 4F

FIELD MONITORING KIT*
RADIOLOGICAL SURVEY INSTRUMENTS
SAMPLING SUPPLIES
PERSONNEL MONITORING EQUIPMENT
PROTECTIVE CLOTHING
BATTERIES
SURVEY MAPS
KI TABLETS
MISCELLANEOUS

* A detailed listing of equipment contained within each kit and the number of kits is shown in Emergency Plan Implementing Procedures.

TABLE 4G

HOSPITAL KIT

SURVEY INSTRUMENTS
SAMPLING SUPPLIES
*PERSONNEL MONITORING EQUIPMENT
PROTECTIVE CLOTHING
*PERSONNEL DECONTAMINATION SUPPLIES
POSTING MATERIALS
BATTERIES
MISCELLANEOUS

TABLE 4H

NURSE'S STATION

FURNISHINGS
MEDICAL SUPPLIES AND EQUIPMENT
DRUGS

TABLE 4I

JOINT INFORMATION CENTER KIT

MEDIA INFORMATION PACKETS
NEWS CONFERENCE SUPPLIES
CLERICAL SUPPLIES
MISCELLANEOUS

* St. Mary's kit only

APPENDIX 5

EVACUATION TIME ESTIMATE FOR ARKANSAS NUCLEAR ONE

The complete Evacuation Time Estimate Study can be obtained from Emergency Planning.

APPENDIX 6

EMERGENCY MESSAGES

TABLE OF CONTENTS

***P**ublic **N**otification **M**essage*

MESSAGE "E" – EVACUATION

MESSAGE NUMBER: _____	**DATE:** _____	**TIME:** _____

READ MESSAGE CAREFULLY

An/A (1) _____ has been declared at Arkansas Nuclear One by officials of Entergy Operations Incorporated. The Arkansas Department of Health, and local officials, have recommended the **EVACUATION** of the following zones:

(2) _____ ZONE "G" – the area within approximately two miles of Arkansas Nuclear One. This includes Lake Dardanelle, the ANO peninsula, Mill Creek, 40 Acre Rock and London Communities. Residents of this zone should proceed to the designated reception center at Hector High School.

(3) _____ ZONE "H" – Russellville residents west of Arkansas Avenue and south of I-40. This includes Norristown and the Dardanelle State Park area. Residents in this zone should proceed to the designated reception center at Morrilton Junior High School.

(4) _____ ZONE "I" – Russellville residents south of I-40 and east of Arkansas Avenue. This includes the South New Hope Community. Residents in this zone should proceed to the designated reception center at Morrilton Junior High School.

(5) _____ ZONE "J" – Pope county residents north of I-40, south of Bakers Creek and east of the Illinois Bayou. Residents in this zone should proceed to the designated reception center at Morrilton Junior High School.

(6) _____ ZONE "K" – Pope County residents north of Highway 64, west of the Illinois Bayou, east and south of Highway 333, and south of county road 79 (also known as Shinn Mountain Road) and county road 141 (also known as Lower Shinn Mountain Road). Residents in this zone should proceed to the designated reception center at Hector High School.

(7) _____ ZONE "L" – Pope County residents east of the Illinois Bayou and north of Baker's Creek. This includes Dover and the Linker Mountain Community. Residents in this zone should proceed to the designated reception center at Hector High School.

Public Notification Message

MESSAGE "E" – EVACUATION

(8) _____ ZONE "M" – Pope County residents north of Hickeytown Road, east of Highway 333 and north of county road 79 (also known as Shinn Mountain Road) and county road 141 (also known as Lower Shinn Mountain Road). This includes the Augsburg, Rushing and North New Hope Communities. Residents in this zone should proceed to the designated reception center at Hector High School.

(9) _____ ZONE "N" – Pope County residents south of Hickeytown Road, west of Highway 333 and north of Lake Dardanelle. Residents in this zone should proceed to the designated reception center at Hector High School.

(10) _____ ZONE "O" – Johnson County residents east of Highway 359 and south of Flat Rock Creek. Residents in this zone should proceed to the designated reception center at Clarksville High School.

(11) _____ ZONE "P" – Johnson County residents north of Flat Rock Creek and west of Highway 359. This includes the Piney, Piney Bay, Knoxville and Hickeytown Communities. Residents in this zone should proceed to the designated reception center at Clarksville High School.

(12) _____ ZONE "Q" – Logan County residents residing between Delaware and New Blaine. This includes the New Liberty, West River Mountain and Nichols Lane area. Residents in this zone should proceed to the designated reception center at Paris High School.

(13) _____ ZONE "R" – Logan County residents within an area approximately two miles west of the Logan – Yell county line. This includes Wildcat Hollow, Delaware, Delaware Use Area, River Mountain Road east of Flurry Road and Highway 22 east of Johnson Lane. Residents in this zone should proceed to the designated reception center at Paris High School.

(14) _____ ZONE "S" – Yell County residents who reside south of Mt. Nebo Road and west of the Dardanelle city limits. This includes the Slo Fork and Sulphur Springs areas. Residents in this zone should proceed to the designated reception center at Danville High School.

(15) _____ ZONE "T" – All residents of the city of Dardanelle. Residents in this zone should proceed to the designated reception center at Danville High School.

Form 11003 (typical)
11/06

Public Notification Message

MESSAGE "E" – EVACUATION

(16) _____ ZONE "U" – Yell County residents who reside north of the Mt. Nebo Road and west of the Dardanelle City limits. This includes Mt. Nebo, Haney Hollow, Wildcat Hollow in Yell County and the Lake Dardanelle State Park area. Residents in this zone should proceed to the designated reception center at Danville High School.

If you live in an area currently being evacuated, consult your Emergency Instructions for evacuation routes and detailed instructions. Please avoid using your telephone at this time if possible. All telephone circuits in the area will be needed by emergency workers and overtaxing the facilities could add to the confusion and cause delays. However, if you have urgent concerns or questions you may call 968-7171. Emergency information you will need will be provided by this station. Please stay tuned.

MESSAGE RECEIVER: _____ **OPERATOR ON AIR:** _____

TIME(S) TRANSMITTED: _____

Form 11003 (typical)
11/06

***P**ublic **N**otification **M**essage*

MESSAGE "S-I" – STAY INDOORS

MESSAGE NUMBER: _____	**DATE:** _____	**TIME:** _____

READ MESSAGE CAREFULLY

READ MESSAGE CAREFULLYAn/A (1) _____ has been declared at Arkansas Nuclear One by officials of Entergy Operations Incorporated. The Arkansas Department of Health and local officials have recommended that residents of the following zones stay indoors until further notice:

(2) _____ ZONE "G" – the area within approximately two miles of Arkansas Nuclear One. This includes Lake Dardanelle, the ANO peninsula, Mill Creek, 40 Acre Rock and London Communities.

(3) _____ ZONE "H" – Russellville residents west of Arkansas Avenue and south of I-40. This includes Norristown and the Dardanelle State Park area.

(4) _____ ZONE "I" – Russellville residents south of I-40 and east of Arkansas Avenue. This includes the South New Hope Community.

(5) _____ ZONE "J" – Pope county residents north of I-40, south of Bakers Creek and east of the Illinois Bayou.

(6) _____ ZONE "K" – Pope County residents north of Highway 64, west of the Illinois Bayou, east and south of Highway 333, and south of county road 79 (also known as Shinn Mountain Road) and county road 141 (also known as Lower Shinn Mountain Road).

(7) _____ ZONE "L" – Pope County residents east of the Illinois Bayou and north of Baker's Creek. This includes Dover and the Linker Mountain Community.

(8) _____ ZONE "M" – Pope County residents north of Hickeytown Road, east of Highway 333 and north of county road 79 (also known as Shinn Mountain Road) and county road 141 (also known as Lower Shinn Mountain Road). This includes the Augsburg, Rushing and North New Hope Communities.

(9) _____ ZONE "N" – Pope County residents south of Hickeytown Road, west of Highway 333 and north of Lake Dardanelle.

Form 110010 (typical)
6/08

(10) _____ ZONE "O" – Johnson County residents east of Highway 359 and south of Flat Rock Creek.

(11) _____ ZONE "P" – Johnson County residents north of Flat Rock Creek and west of Highway 359. This includes the Piney, Piney Bay, Knoxville and Hickeytown Communities.

(12) _____ ZONE "Q" – Logan County residents residing between Delaware and New Blaine. This includes the New Liberty, West River Mountain and Nichols Lane area.

(13) _____ ZONE "R" – Logan County residents within an area approximately two miles west of the Logan – Yell county line. This includes Wildcat Hollow, Delaware, Delaware Use Area, River Mountain Road east of Flurry Road and Highway 22 east of Johnson Lane.

(14) _____ ZONE "S" – Yell County residents who reside south of Mt. Nebo Road and west of the Dardanelle city limits. This includes the Slo Fork and Sulphur Springs areas.

(15) _____ ZONE "T" – All residents of the city of Dardanelle.

(16) _____ ZONE "U" – Yell County residents who reside north of the Mt. Nebo Road and west of the Dardanelle City limits. This includes Mt. Nebo, Haney Hollow, Wildcat Hollow in Yell County and the Lake Dardanelle State Park area.

If you live in one of these affected zones, remain indoors with windows and doors closed. Please refer to your Emergency Instructions for additional information. Emergency information you will need will be provided by this station. Please stay tuned. However, if you have urgent concerns or questions you may call 968-7171.

MESSAGE RECEIVER: _____ **OPERATOR ON AIR:** _____

TIME(S) TRANSMITTED: _____

Form 110010 (typical)
6/08

***P**ublic **N**otification **M**essage*

MESSAGE "S" – SHELTERING

MESSAGE NUMBER: _____	**DATE:** _____	**TIME:** _____

READ MESSAGE CAREFULLYAn/A (1) _____ has been declared at Arkansas Nuclear One by officials of Entergy Operations Incorporated. The Arkansas Department of Health and local officials have recommended the **SHELTERING** of the following zones:

(2) _____ ZONE "G" – the area within approximately two miles of Arkansas Nuclear One. This includes Lake Dardanelle, the ANO peninsula, Mill Creek, 40 Acre Rock and London Communities.

(3) _____ ZONE "H" – Russellville residents west of Arkansas Avenue and south of I-40. This includes Norristown and the Dardanelle State Park area.

(4) _____ ZONE "I" – Russellville residents south of I-40 and east of Arkansas Avenue. This includes the South New Hope Community.

(5) _____ ZONE "J" – Pope county residents north of I-40, south of Bakers Creek and east of the Illinois Bayou.

(6) _____ ZONE "K" – Pope County residents north of Highway 64, west of the Illinois Bayou, east and south of Highway 333, and south of county road 79 (also known as Shinn Mountain Road) and county road 141 (also known as Lower Shinn Mountain Road).

(7) _____ ZONE "L" – Pope County residents east of the Illinois Bayou and north of Bakers Creek. This includes Dover and the Linker Mountain Community.

(8) _____ ZONE "M" – Pope County residents north of Hickeytown Road, east of Highway 333 and north of county road 79 (also known as Shinn Mountain Road) and county road 141 (also known as Lower Shinn Mountain Road). This includes the Augsburg, Rushing and North New Hope Communities.

(9) _____ ZONE "N" – Pope County residents south of Hickeytown Road, west of Highway 333 and north of Lake Dardanelle.

Form 11009 (typical)
1/08

(10) _____ ZONE "O" – Johnson County residents east of Highway 359 and south of Flat Rock Creek.

(11) _____ ZONE "P" – Johnson County residents north of Flat Rock Creek and west of Highway 359. This includes the Piney, Piney Bay, Knoxville and Hickeytown Communities.

(12) _____ ZONE "Q" – Logan County residents residing between Delaware and New Blaine. This includes the New Liberty, West River Mountain and Nichols Lane area.

(13) _____ ZONE "R" – Logan County residents within an area approximately two miles west of the Logan – Yell county line. This includes Wildcat Hollow, Delaware, Delaware Use Area, River Mountain Road east of Flurry Road and Highway 22 east of Johnson Lane.

(14) _____ ZONE "S" – Yell County residents who reside south of Mt. Nebo Road and west of the Dardanelle city limits. This includes the Slo Fork and Sulphur Springs areas.

(15) _____ ZONE "T" – All residents of the city of Dardanelle.

(16) _____ ZONE "U" – Yell County residents who reside north of the Mt. Nebo Road and west of the Dardanelle City limits. This includes Mt. Nebo, Haney Hollow, Wildcat Hollow in Yell County and the Lake Dardanelle State Park area.

If you live in an area currently being sheltered, consult your Emergency Instructions. Remain indoors with windows and doors closed and ventilation turned off. When traveling, keep your automobile windows rolled up. If you have an auto air conditioner, turn it to the maximum setting during hot weather. Emergency information you will need will be provided by this station. Please stay tuned. However, if you have urgent concerns or questions you may call 968-7171.

MESSAGE RECEIVER: _____ **OPERATOR ON AIR:** _____

TIME(S) TRANSMITTED: _____

Form 11009 (typical)
1/08

Public Notification Message

MESSAGE "PSA"
PUBLIC SITUATION ADVISORY

MESSAGE NUMBER: _____ **DATE:** _____ **TIME:** _____

READ MESSAGE CAREFULLY

An/A _____ has been declared at Arkansas Nuclear One by officials of Entergy Operations Incorporated. This emergency measure has been taken because of abnormal operating conditions which are affecting the level of safety within the plant and which could affect the level of safety in the immediate vicinity of the plant. Arkansas Department of Health and local officials advise there has been no release of radioactivity off-site, and there is no immediate danger to the public. Persons within a ten mile radius of the plant should stay tuned to their local radio station for further information. At this time, you should review your Emergency Instructions and be prepared to take emergency measures if advised to do so. Avoid using your telephone if possible. All telephone circuits in the area will be needed by emergency workers and overtaxing these facilities could cause confusion and delay emergency activities. However, if you have urgent concerns or questions you may call 479-968-7171. Emergency information you will need will be provided by this station. Please stay tuned to this station for further updates.

MESSAGE RECEIVER: _____ **OPERATOR ON AIR:** _____

TIME(S) TRANSMITTED: _____

Form 11007 (typical)
6/08

Public Notification Message

MESSAGE "SSA" – SCHOOL SITUATION ADVISORY

MESSAGE NUMBER: _____ **DATE:** _____ **TIME:** _____

A/An _____ emergency has been declared at Arkansas Nuclear One by officials of Entergy Operations Incorporated. Because of this emergency condition the Arkansas Department of Health and local officials have recommended that children from some area schools be evacuated to their Designated Reception Centers. Area school administrators have implemented this recommendation. As a result, children from:

(1) _____ have been taken to _____

(2) _____ have been taken to _____

(3) _____ have been taken to _____

(4) _____ have been taken to _____

(5) _____ have been taken to _____

(6) _____ have been taken to _____

(7) _____ have been taken to _____

(8) _____ have been taken to _____

Parents should not attempt to pick up their children at school, but should proceed to their proper Designated Reception Center. However if you have urgent concerns or questions you may call 479-968-7171. Please stay tuned to this station for further updates, or other possible protective actions.

MESSAGE RECEIVER: _____ **OPERATOR ON AIR:** _____

TIME(S) TRANSMITTED: _____

Form 11008 (typical)
6/08

Public Notification Message

MESSAGE "AA-1" – AGRICULTURAL ADVISORY

(10 Mile Emergency Planning Zone)

MESSAGE NUMBER: _____	**DATE:** _____	**TIME:** _____

READ MESSAGE CAREFULLY

An/a _____ has been declared at Arkansas Nuclear One by officials of Entergy Operations Incorporated. The Arkansas Department of Health, and local officials, have recommended the following agricultural protective actions:

(1) _____ Place dairy cattle and milk producing livestock on stored feed and water.

(2) _____ Place all livestock on stored feed and water.

(3) _____ Wash and peel garden vegetables before eating.

(4) _____ All agricultural products are impounded until further notice.

(5) _____ Additional actions or comments:

These protective actions are effective immediately in the following zones within a ten mile radius of Arkansas Nuclear One:

(6) _____ ZONE "G" – the area within approximately two miles of Arkansas Nuclear One. This includes Lake Dardanelle, the ANO peninsula, Mill Creek, 40 Acre Rock and London Communities.

(7) _____ ZONE "H" – Russellville residents west of Arkansas Avenue and south of I-40. This includes Norristown and the Dardanelle State Park area.

(8) _____ ZONE "I" – Russellville residents south of I-40 and east of Arkansas Avenue. This includes the South New Hope Community.

(9) _____ ZONE "J" – Pope county residents north of I-40, south of Bakers Creek and east of the Illinois Bayou.

Form 11004 (typical)
6/08

(10) _____ ZONE "K" – Pope County residents north of Highway 64, west of the Illinois Bayou, east and south of Highway 333, and south of county road 79 (also known as Shinn Mountain Road) and county road 141 (also known as Lower Shinn Mountain Road).

(11) _____ ZONE "L" – Pope County residents east of the Illinois Bayou and north of Bakers Creek. This includes Dover and the Linker Mountain Community.

(12) _____ ZONE "M" – Pope County residents north of Hickeytown Road, east of Highway 333 and north of county road 79 (also known as Shinn Mountain Road) and county road 141 (also known as Lower Shinn Mountain Road). This includes the Augsburg, Rushing and North New Hope Communities.

(13) _____ ZONE "N" – Pope County residents south of Hickeytown Road, west of Highway 333 and north of Lake Dardanelle.

(14) _____ ZONE "O" – Johnson County residents east of Highway 359 and south of Flat Rock Creek.

(15) _____ ZONE "P" – Johnson County residents north of Flat Rock Creek and west of Highway 359. This includes the Piney, Piney Bay, Knoxville and Hickeytown Communities.

(16) _____ ZONE "Q" – Logan County residents residing between Delaware and New Blaine. This includes the New Liberty, West River Mountain and Nichols Lane area.

(17) _____ ZONE "R" – Logan County residents within an area approximately two miles west of the Logan – Yell county line. This includes Wildcat Hollow, Delaware, Delaware Use Area, River Mountain Road east of Flurry Road and Highway 22 east of Johnson Lane.

(18) _____ ZONE "S" – Yell County residents who reside south of Mt. Nebo Road and west of the Dardanelle city limits. This includes the Slo Fork and Sulphur Springs areas.

(19) _____ ZONE "T" – All residents of the city of Dardanelle.

(20) _____ ZONE "U" – Yell County residents who reside north of the Mt. Nebo Road and west of the Dardanelle City limits. This includes Mt. Nebo, Haney Hollow, Wildcat Hollow in Yell County and the Lake Dardanelle State Park area.

Please stay tuned to this station for further information. However, if you have urgent concerns or questions, please refer to the Emergency Instructions or you may call 479-968-7171.

MESSAGE RECEIVER: _____ **OPERATOR ON AIR:** _____

TIME(S) TRANSMITTED: _____

Form 11004 (typical)
6/08

Public Notification Message

MESSAGE "AA-2" – AGRICULTURAL ADVISORY

(50 Mile Emergency Planning Zone)

MESSAGE NUMBER: _____ **DATE:** _____ **TIME:** _____

READ MESSAGE CAREFULLY

An/A _____ has been declared at Arkansas Nuclear One by officials of Entergy Operations Incorporated. The Arkansas Department of Health has recommended the following agricultural protective actions

(1) _____ Place dairy cattle and milk producing livestock on stored feed and water.

(2) _____ Place all livestock on stored feed and water.

(3) _____ Wash and peel garden vegetables before eating.

(4) _____ All agricultural products are impounded until further notice.

(5) _____ Additional actions or comments:

_____

_____

These protective actions are effective immediately in an area lying (6) _____ miles on either side of a line extending from (7) _____ to (8) _____
For additional information, please consult your Emergency Instructions or you may call 479-968-7171.

MESSAGE RECEIVER: _____ **OPERATOR ON AIR:** _____

TIME(S) TRANSMITTED: _____

Form 11005 (typical)
1/09